



Ref. No. TSL/FAMD/FAPJ/FY25/1692

Date: 28/11/2024

To

The Director, MOEF & CC
Impact Assessment Division (EAC-Industry-1)
Ministry of Environment, Forest & Climate Change,
Indira Paryavaran Bhavan, Jor Bagh Road, Aliganj,
New Delhi-110003

Subject: Submission of Half Yearly EC Compliance for a period of April '2024 to September '2024 considering the financial year from 1st April 2024 to 31st March 2025.

Ref:

1. EC Vide File No.- J-11011/372/2009-IA II (I) dated 30th September 2010
2. EC Vide File No. J-11011/372 /2009-IA II (I) dated 21st September 2012.

Dear Sir,

With reference to the subject and reference number cited above , we are herewith submitting the "Half Yearly Compliance Report of Environment Clearance conditions for the period of April 2024 to September 2024" for your kind perusal and needful .

With Best Regards

For M/s. Tata Steel Limited

Alok Kumar Panda
Plant Head
Ferro Alloys Plant, Jajpur

Alok Kumar Panda
Head Ferro Alloys Plant, Jajpur
TATA STEEL LTD.
KNIC, P.O.-Manatira, Via-Danagadi
Jajpur-755026, Odisha

Enclosure: As Enclosed

Cc: The Regional Officer, Kalinganagar, Jajpur Road.
The MOEF, Regional Office, Bhubaneswar
The State Pollution Control Board, Bhubaneswar

TATA STEEL LIMITED

Registered Office Bombay House 24 Homi Mody Street Fort Mumbai 400 001 India
Tel 91 22 6665 8282 Fax 91 22 6665 7724 Website www.tatasteel.com
Corporate Identity Number L27100MH1907PLC000260

**Half Yearly Compliance Report
2024**

01 Dec(01 Apr - 30 Sep)

Acknowledgement

Proposal Name	Expansion of Ferro Alloys Plant (Submerged Arc Furnace 4*16.5 MVA (existing), 1*33 MVA (Proposed) along with Captive Power Plant (67.5MW) at Kalinganagar Industrial Complex (Growth Centre), Village: Kanchrigaon & Chandia, Mouza Duburi, Tehsil: Sukinda, District :Jajpur, Odisha.		
Name of Entity / Corporate Office	Ferro Alloys Plant,Jajpur,Tata Steel Limited		
Village(s)	N/A		
District	JAJAPUR		
Proposal No.	IA/OR/IND/4594/2010	Category	Industrial Projects - 1
Plot / Survey / Khasra No.	N/A	Sub-District	N/A
State	ODISHA	Entity's PAN	*****2803M
MoEF File No.	J-11011/372/2009-IA-II(I)	Entity name as per PAN	UTSAV KASHYAP

Compliance Reporting Details

Reporting Year	2024
Remarks (if any)	Submission of Half Yearly EC Compliance for a period of October 2023 to March 2024 in details as below.
Reporting Period	01 Dec(01 Apr - 30 Sep)

Details of Production and Project Area

Name of Entity / Corporate Office	Ferro Alloys Plant,Jajpur,Tata Steel Limited	
	Project Area as per EC Granted	Actual Project Area in Possession
Private	24.28	24.28
Revenue Land	0	0
Forest	0	0
Others	0	0
Total	24.28	24.28

Production Capacity

Sr. no	Product Name	units	Valid Upto	Capacity	Production last year	Capacity as per CTO
1	Ferro Manganese, Silico Manganese, Ferro Silicon, Ferro Chrome	Tons per Annum (TPA)	31/03/2025	100000	60602	100000
2	Captive Power	MW	31/03/2025	67.5	0	0

Conditions

Specific Conditions

Sr.No.	Condition Type	Condition Details
1	ENERGY PRESERVATION MEASURES	No charcoal shall be used as fuel. Pet coke shall be used as fuel instead of charcoal from unknown sources.
PPs Submission: Complied Low Ash Metallurgical Coke (LAM Coke) having a sulfur content of 0.8 percent is used for Ferro Chrome manufacturing in place of Pet Coke having a sulfur content of 3-8 percent . Therefore, as a replacement, for more clean option met coke is used.		Date: 28/11/2024
2	AIR QUALITY MONITORING AND PRESERVATION	Continuous monitoring facilities for all the stacks and sufficient air pollution control equipments viz. fume extraction system with bag filters, ID fan and stack of adequate height to submerged arc furnace shall be provided to control emissions below 50 mg/Nm3.
PPs Submission: Complied Presently we are conducting the monitoring manually twice in a month. Procurement has been initiated for online stack monitoring system which is in process and completion is targeted by 30.05.2025. Gas Cleaning plant of adequate capacity have been put in operation along with Pneumatic dust handling system for existing facility. Photographs of the Order copy and GCP units are attached as per Annexure-1. Stack Monitoring report for the period (April 2024 to September 2024) is attached as per Annexure-2.		Date: 29/11/2024
3	AIR QUALITY MONITORING AND PRESERVATION	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 shall be followed
PPs Submission: Complied The following control measures are implemented to keep a check on secondary fugitive emission :- - Vehicular Movement on road - Concreting of internal roads and additional mobile water sprinkler are engaged within the premises for fugitive dust suppression. - Furnace fume tapping - Tapping fumes are sucked by a Hood and collection system which is routed through GCP. - Feeding Points - Water fogging system installed at feeding points. - Conveyor System - At all the conveyor nodes, intermittent water sprinkling is practiced.		Date: 28/11/2024
4	WATER QUALITY MONITORING AND PRESERVATION	Prior permission for the drawl of 9,155 KLD water from competent authority shall be obtained. Efforts shall be made to make use of rain water harvested. If needed, capacity of the reservoir should be enhanced to meet the maximum water requirement. Only balance water requirement should be met from other sources.

PPs Submission: Complied 960 KLD water is used in Submerged Arc Furnace as per present configuration. Additional water requirement for Power Plant will be processed after obtaining fresh EC. We have obtained NOC from CGWA for 98m3/day valid till 27/12/2026		Date: 28/11/2024
5	WATER QUALITY MONITORING AND PRESERVATION	Regular monitoring of influent and effluent surface, sub-surface and ground water shall be ensured and treated wastewater shall meet the norms prescribed by the State Pollution Control Board or described under the E(P) Act whichever are more stringent. Leachate study for the effluent generated and analysis should also be regularly carried out and report submitted to the Ministry's Regional Office at Bhubaneswar, SPCB and CPCB.
PPs Submission: Complied Monitoring of influent and effluent surface and sub surface and ground water is being done on regular basis. ETP (720KLD) has also been commissioned and is operational since December 2023. STP of 2x10KLD has also been installed and is operational. Pictures of ETP and STP attached as Annexure-4. Monitoring reports of Surface, sub Surface and ground water for the period (April 2024 to September 2024 is attached as Annexure-5.		Date: 29/11/2024
6	Statutory compliance	The company shall comply with all the conditions stipulated while according environmental clearance vide Ministry's letter of even number dated 30th September, 2010.
PPs Submission: Complied Conditions stipulated in previous EC File No. J-11011/372/2009-IA,II(I) dated 30/09/2010 are being complied.		Date: 28/11/2024
7	WASTE MANAGEMENT	The company shall recover ferro chrome from ferro chrome slag. The remaining slag shall be disposed of in the waste disposal site after carrying TCLP Test.
PPs Submission: Complied The processed slag is utilized directly in filling the low-lying areas. We have earmarked the area for stacking of slag and is being followed. Photographs attached as per Annexure-15. TCLP is being carried out and report is attached as Annexure-6		Date: 29/11/2024
8	WATER QUALITY MONITORING AND PRESERVATION	The ground water quality monitoring around the disposal site shall be regularly monitored and the results of the monitored data shall be submitted to the SPCB and to the RO of the Ministry.
PPs Submission: Complied Ground water quality monitoring around the disposal site is being carried out regularly and result is being submitted to SPCB and RO, MoEF, Bhubaneswar. The report is attached as per Annexure-5		Date: 29/11/2024
9	MISCELLANEOUS	The trucks carrying the slag shall be covered with tarpaulin.
PPs Submission: Complied Tarpaulin covered transportation of slag is being carried out.		Date: 28/11/2024
10	AIR QUALITY MONITORING AND PRESERVATION	The National Ambient Air Quality Standards issued by the Ministry vide G.S.R. No. 826(E) dated 16th November, 2009 shall be followed
PPs Submission: Complied Regular Monitoring results indicate that the AAQ results are very much within the NAAQS limit during the operation along with the pollution control equipment. Ambient Air Quality results for the period (April 2024 to September 2024) is attached as Annexure - 3.		Date: 29/11/2024

11	WASTE MANAGEMENT	'Zero' effluent discharge shall be strictly followed and no wastewater should be discharged outside the premises.
PPs Submission: Complied The Water Circuit of the Plant adheres to Zero Effluent Discharge principle.		Date: 28/11/2024
12	WASTE MANAGEMENT	All the Ferro alloy slag shall be used for land filling inside the plant or used as building material only after passing through Toxic Chemical Leach ability Potential (TCLP) test. Otherwise, hazardous substances shall be recovered from the slag and output waste and be disposed in secured landfill as per CPCB guidelines.
PPs Submission: Complied Toxic Chemical Leachability Potential test TCLP Test report is attached as Annexure - 6.		Date: 29/11/2024
13	WASTE MANAGEMENT	Slag produced in Ferro Manganese (Fe-Mn) production shall be used in manufacture Silico Manganese (Si-Mn).
PPs Submission: Complied Not Applicable. The unit is not producing Manganese (Mn) Alloys.		Date: 28/11/2024
14	Statutory compliance	No Ferro Chrome shall be manufactured without prior approval from the Ministry of Environment & Forests.
PPs Submission: Complied Amended EC for production of Ferro Chrome apart from producing Ferro Alloys (Ferro Manganese, Silico Manganese and Ferro Silicon) within approved production capacity has been obtained from MoEF vide File No. J-11011/372/2009-IA,II(I) on dated 21.09.2012.		Date: 28/11/2024
15	Risk Mitigation and Disaster Management	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, OSPCB and CPCB within 3 months of issue of environment clearance letter
PPs Submission: Complied Complied. Onsite Emergency plan is approved by Directorate of Factories and Boilers, Bhubaneswar on 11.08.2024. Approval Copy of the Onsite Emergency Plan is attached as Annexure-7.		Date: 29/11/2024
16	GREENBELT	As proposed, green belt shall be developed in at least 33 % of the project area. Selection of the plant species shall be as per the CPCB guidelines in consultation with the DFO.
PPs Submission: Complied Plant is located over the area of 60 Acre. The green cover has been developed over an area of 10.2 Acres (17 percent of total area). Pictures attached as Annexure-8 Development of green cover over additional area is in progress to achieve 33 percent green cover and shall be completed by October 25. Amount earmarked for the plantation approx. 1.2 crores. Detail Plantation Plan for FY 2024-2025 is attached as Annexure-9.		Date: 29/11/2024
17	Corporate Environmental Responsibility	At least 5 % of the total cost of the project should be earmarked towards the corporate social responsibility and item- wise details along with time bound action plan (need based) should be prepared and submitted to the Ministry's Regional Office at Bhubaneswar. Implementation of such program shall be ensured accordingly in a time bound manner.

PPs Submission: Complied Tata Steel Mining Ltd. (amalgamated with Tata Steel Limited) has acquired the Plant through NCLT under the IBC code and is engaging with Tata Steel Foundation(TSF) for implementing CSR activities as per Corporate guidelines.		Date: 28/11/2024
18	MISCELLANEOUS	The company shall provide housing for 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.
PPs Submission: Complied Complied during construction phase. Facilities Available at Site: 1. One Canteen with sitting capacity of 80 -100 persons 2. Two rest shelters 3. Two Mobile STP (10KLD) 4. Drinking water (12 numbers) 5. Toilets (55 blocks) 6. Creche for ladies 7. Safety PPE room 8. First Aid Center (24X7) 9. Ambulance (24X7)		Date: 28/11/2024
General Conditions		
Sr.No.	Condition Type	Condition Details
1	MISCELLANEOUS	Requisite amount 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 and Forests 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.
PPs Submission: Complied Annual recurring cost for maintenance of Pollution control equipment to the tune of 3 Cr/annum is being spent towards environmental protection measures. One time Capital cost for construction of new GCP ,ETP, STP, Internal Roads and drain, plantation to the tune of around 28-29 crores for the year 2023-2024.		Date: 28/11/2024
2	MISCELLANEOUS	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.
PPs Submission: Complied Yes Submitted and Complied		Date: 28/11/2024
3	AIR QUALITY MONITORING AND PRESERVATION	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 MOEF 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.
PPs Submission: Complied Since the acquisition of Plant, the conditions stipulated in EC are being complied and submitted as		Date: 28/11/2024

per statute at SPCB and Regional Office of the MOEF at Bhubaneswar.		
4	Statutory compliance	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 MOEF, the respective Zonal Office of CPCB and the SPCB. The Regional Office of this Ministry at Bhubaneswar/CPCB/SPCB shall monitor the stipulated conditions.
PPs Submission: Complied Six Monthly compliance report of stipulated environmental conditions is being submitted periodically at the Regional Office of MoEF at Bhubaneswar.		Date: 28/11/2024
5	Statutory compliance	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 MOEF at Bhubaneswar by e-mail.
PPs Submission: Complied The last Environmental Statement (Form-V) was submitted to SPCB and RO of MoEFCC as per EC condition and EP Rule 1986. Copy of letter submitted is attached as per Annexure-13		Date: 29/11/2024
6	Statutory compliance	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 and Forests at http://envfor.nic.in . This shall be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same should be forwarded to the Regional office at Bhubaneswar.
PPs Submission: Complied Tata Steel Ltd. has acquired the Plant through NCLT under the IBC code. The advertisement done by erstwhile owner i.e.. Rohit Ferrotech limited is not traceable by us. Once the EC is transferred in the name of Tata Steel, the advertisement will be published and hosted on the website.		Date: 28/11/2024
7	Statutory compliance	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.
PPs Submission: Complied Tata Steel Ltd. has acquired the Plant through NCLT under the IBC code. Post-acquisition, before the start of the work concerned authorities were informed. Presently the four furnaces (16.5 MVA) are in operation at a rated capacity 100000 TPA after obtaining valid CTO from SPCB, Copy Attached Annexure.-14		Date: 29/11/2024
8	Statutory compliance	The project authorities must strictly adhere to the stipulations made by the Orissa State Pollution Control Board and the State Government.
PPs Submission: Complied All the stipulations made by the Odisha Pollution Control Board and the State Government are being strictly followed.		Date: 28/11/2024

9	Statutory compliance	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment and Forests.
PPs Submission: Complied Acknowledged and status quo is being and will be maintained.		Date: 28/11/2024
10	AIR QUALITY MONITORING AND PRESERVATION	The gaseous emissions from various process units shall conform to the load/mass based standards notified by this Ministry on 19th May, 1993 and standards prescribed from time to time. The State Board may specify more stringent standards for the relevant parameters keeping in view the nature of the industry and its size and location.
PPs Submission: Complied As of now, 5 Nos. of ambient air quality stations are installed and operational. Stack emission is also being carried out twice a month. We are following all related conditions strictly at site.		Date: 28/11/2024
11	AIR QUALITY MONITORING AND PRESERVATION	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, SO2, 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.
PPs Submission: Complied We have installed total 5 numbers of Ambient Air Quality stations across the units (Roof Top -ADM Building, Infront of Furnace Cast House, Infront of CPP, MRP Building, Briquette) . Ambient Air Quality results for the period (April 2024 to September 2024) is attached as Annexure - 3. Stack Monitoring report for the period (April 2024 to September 2024) is attached as per Annexure-2.		Date: 29/11/2024
12	WASTE MANAGEMENT	Industrial wastewater shall be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May, 1993 and 31st December, 1993 or as amended from time to time. The treated wastewater shall be utilized for plantation purpose.
PPs Submission: Complied No waste water generation. Surface run-off are being treated in ETP and reused in plantation and water sprinkling on the roads. The water is being tested every month and sample copy of the report is attached as per Annexure-10.		Date: 29/11/2024
13	Noise Monitoring & Prevention	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 70dBA (nighttime).
PPs Submission: Complied Following measures are implemented to restrict noise levels within prescribed limits:- - Acoustic enclosures have been provided for DG Sets. - Regular maintenance of noise generating machineries is being carried out. - Use of vibration dampeners for all the equipment. - Ambient Noise Level report for this period is attached as Annexure - 11.		Date: 29/11/2024
14	Statutory compliance	Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories act
PPs Submission: Complied Done as per the statute along with record keeping. A copy of Form 31A attached as in Annexure -		Date: 29/11/2024

12. It is being done as per the Factories Act in every 3rd Quarter of a Financial Year covering complete employees and contractor workmen.		
15	MISCELLANEOUS	The company shall develop surface water harvesting structures to harvest the rain water for utilization in the lean season besides recharging the ground water table.
PPs Submission: Complied At present there exist small rainwater harvesting pond in front of the Admin Building. The capacity of the pond is approx. 90 cubic meter. Further a detail feasibility study is under process, and it is expected to be complete by FY 2025. Going forward, Tata Steel has a plan to develop 30 more rainwater recharge pits and 1 no. of catchment pond. The same is expected to be completed by June 2026		Date: 28/11/2024
16	Statutory compliance	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 programs, educational programs, drinking water supply and health care etc.
PPs Submission: Complied All the stipulated conditions of the Environmental Clearance is being complied to safeguard the immediate surrounding environment. The Management also adheres to compliance in respect of EP Act, Air Act and Water Act, IF Act, Labour Laws as on date.		Date: 28/11/2024
<div style="text-align: center;">Visit Remarks</div>		
Last Site Visit Report Date:		N/A
Additional Remarks:		
<p>Note: This acknowledgement is as per the details submitted by project proponent. In no way is this document to be considered as conclusion on any action on the compliance of the project. This is strictly for the project proponent's reference purpose.</p>		

Six-Monthly Compliance Report of stipulated conditions of Environmental Clearance

{Period: April 2024 – September 2024}

EC File No. J-11011/372/2009-IA.II(I) dated 30.09.2010

EC File No. J-11011/372/2009-IA.II(I) dated 30.09.2010										
S.No.	Specific Conditions	Compliances								
1.	No charcoal shall be used as fuel. Pet coke shall be used as fuel instead of charcoal from unknown sources.	Low Ash Metallurgical Coke (LAM Coke) having a sulfur content of 0.8% is used for Ferro Chrome manufacturing in place of Pet Coke having a sulfur content of 3-8%. Therefore, as a replacement, for more clean option met coke is used.								
2.	Continuous monitoring facilities for all the stacks and sufficient air pollution control equipment's viz. fume extraction system with bag filters, ID fan and stack of adequate height to submerged arc furnace shall be provided to control emissions below 50 mg/Nm ³ .	<p>Presently we are conducting the monitoring manually twice in a month. Procurement has been initiated for online stack monitoring system which is in process and completion is targeted by 30.05.2025.</p> <p>Gas Cleaning plant of adequate capacity have been put in operation along with Pneumatic dust handling system for existing facility. Photographs of the Order copy and GCP units are attached as per Annexure-1.</p> <p>Stack Monitoring report for the period (April 2024 to September 2024) is attached as per Annexure-2.</p>								
3.	The National Ambient Air Quality Standards issued by the Ministry vide G.S.R. No. 826(E) dated 16 th November, 2009 shall be followed.	Regular Monitoring results indicate that the AAQ results are very much within the NAAQS limit during the operation along with the pollution control equipment. Ambient Air Quality results for the period (April 2024 to September 2024) is attached as Annexure - 3 .								
4.	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 shall be followed.	<table><tr><td colspan="2">The following control measures are implemented to keep a check on secondary fugitive emission :-</td></tr><tr><td>Source of Secondary emissions</td><td>Control measures adopted</td></tr><tr><td>Vehicular Movement on road</td><td>Concreting of internal roads and additional mobile water sprinkler are engaged within the premises for fugitive dust suppression.</td></tr><tr><td>Furnace fume</td><td>Tapping fumes are sucked</td></tr></table>	The following control measures are implemented to keep a check on secondary fugitive emission :-		Source of Secondary emissions	Control measures adopted	Vehicular Movement on road	Concreting of internal roads and additional mobile water sprinkler are engaged within the premises for fugitive dust suppression.	Furnace fume	Tapping fumes are sucked
The following control measures are implemented to keep a check on secondary fugitive emission :-										
Source of Secondary emissions	Control measures adopted									
Vehicular Movement on road	Concreting of internal roads and additional mobile water sprinkler are engaged within the premises for fugitive dust suppression.									
Furnace fume	Tapping fumes are sucked									

Six-Monthly Compliance Report of stipulated conditions of Environmental Clearance

{Period: April 2024 – September 2024}

		tapping	by a Hood and collection system which is routed through GCP.
		Feeding Points	Water fogging system installed at feeding points.
		Conveyor System	At all the conveyor nodes, intermittent water sprinkling is practiced.
5.	Prior permission for the drawl of 9,155 KLD water from competent authority shall be obtained. Efforts shall be made to make use of rain water harvested. If needed, capacity of the reservoir should be enhanced to meet the maximum water requirement. Only balance water requirement should be met from other sources.	960 KLD water is used in Submerged Arc Furnace as per present configuration. Additional water requirement for Power Plant will be processed after obtaining fresh EC. We have obtained NOC from CGWA for 98m3/day valid till 27/12/2026	
6.	Regular monitoring of influent and effluent surface, sub-surface and ground water shall be ensured and treated wastewater shall meet the norms prescribed by the State Pollution Control Board or described under the E(P) Act whichever are more stringent. Leachate study for the effluent generated and analysis should also be regularly carried out and report submitted to the Ministry's Regional Office at Bhubaneswar, SPCB and CPCB.	Monitoring of influent and effluent surface and sub surface and ground water is being done on regular basis. ETP (720KLD) has also been commissioned and is operational since December 2023. STP of 2x10KLD has also been installed and is operational. Pictures of ETP and STP attached as Annexure-4 . Monitoring reports of Surface, sub Surface and ground water for the period (April 2024 to September 2024 is attached as Annexure-5 .	
7.	'Zero' effluent discharge shall be strictly followed and no wastewater should be discharged outside the premises.	The Water Circuit of the Plant adheres to "Zero Liquid Discharge" principle.	
8.	All the Ferro alloy slag shall be used for land filling inside the plant or used as building material only after passing through Toxic Chemical Leachability Potential (TCLP) test. Otherwise, hazardous substances shall be recovered from the slag and output waste and be disposed in secured landfill as per CPCB guidelines.	Toxic Chemical Leachability Potential test TCLP Test report is attached as Annexure – 6 .	
9.	Slag produced in Ferro Manganese (Fe-Mn) production shall be used in manufacture Silico Manganese (Si-Mn).	Not Applicable. The unit is not producing Manganese (Mn) Alloys.	
10.	No Ferro Chrome shall be manufactured without prior approval from the Ministry of Environment & Forests.	Amended EC for production of Ferro Chrome apart from producing Ferro Alloys (Ferro Manganese, Silico Manganese and Ferro Silicon) within approved production	

Six-Monthly Compliance Report of stipulated conditions of Environmental Clearance

{Period: April 2024 – September 2024}

		capacity has been obtained from MoEF vide File No. J-11011/372/2009-IA,II(I) on dated 21.09.2012.
11.	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, OSPCB and CPCB within 3 months of issue of environment clearance letter.	Complied. Onsite Emergency plan is approved by Directorate of Factories & Boilers, Bhubaneswar on 11.08.2024. Approval Copy of the Onsite Emergency Plan is attached as Annexure-7 .
12.	As proposed, green belt shall be developed in at least 33 % of the project area. Selection of the plant species shall be as per the CPCB guidelines in consultation with the DFO.	Plant is located over the area of 60 Acre. The green cover has been developed over an area of 10.2 Acres (17% of total area). Pictures attached as Annexure-8 Development of green cover over additional area is in progress to achieve 33% green cover and shall be completed by October'25. Amount earmarked for the plantation approx. 1.2 crores. Detail Plantation Plan for FY 2024-2025 is attached as Annexure-9 .
13.	At least 5 % of the total cost of the project should be earmarked towards the corporate social responsibility and item- wise details along with time bound action plan (need based) should be prepared and submitted to the Ministry's Regional Office at Bhubaneswar. Implementation of such program shall be ensured accordingly in a time bound manner.	Tata Steel Mining Ltd. (amalgamated with Tata Steel Limited) has acquired the Plant through NCLT under the IBC code and is engaging with Tata Steel Foundation(TSF) for implementing CSR activities as per Corporate guidelines.
14.	The company shall provide housing for 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.	Complied during construction phase. Facilities Available at Site: <ol style="list-style-type: none"> 1. One Canteen with sitting capacity of 80 -100 persons 2. Two rest shelters 3. Two Mobile STP (10KLD) 4. Drinking water (12 numbers) 5. Toilets (55 blocks) 6. Creche for ladies 7. Safety PPE room 8. First Aid Center (24*7) 9. Ambulance (24*7)
S.No.	General Conditions	Compliances

Six-Monthly Compliance Report of stipulated conditions of Environmental Clearance

{Period: April 2024 – September 2024}

1.	The project authorities must strictly adhere to the stipulations made by the Orissa State Pollution Control Board and the State Government.	All the stipulations made by the Odisha Pollution Control Board and the State Government are being strictly followed.
2.	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment and Forests.	Acknowledged and status quo is being and will be maintained.
3	The gaseous emissions from various process units shall conform to the load/mass based standards notified by this Ministry on 19th May, 1993 and standards prescribed from time to time. The State Board may specify more stringent standards for the relevant parameters keeping in view the nature of the industry and its size and location.	As of now, 5 Nos. of ambient air quality stations are installed and operational. Stack emission is also being carried out twice a month. We are following all related conditions strictly at site.
4	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 ₁₀ , SO ₂ , NO _x 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.	We have installed total 5 numbers of Ambient Air Quality stations across the units (Roof Top -ADM Building, Infront of Furnace Cast House, Infront of CPP, MRP Building, Briquette) . Ambient Air Quality results for the period (April 2024 to September 2024) is attached as Annexure - 3 . Stack Monitoring report for the period (April 2024 to September 2024) is attached as per Annexure-2 .
5	Industrial wastewater shall be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May, 1993 and 31st December, 1993 or as amended from time to time. The treated wastewater shall be utilized for plantation purpose.	No waste water generation. Surface run-off are being treated in ETP and reused in plantation and water sprinkling on the roads. The water is being tested every month and sample copy of the report is attached as per Annexure-10 .
6	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 70dBA (nighttime).	Following measures are implemented to restrict noise levels within prescribed limits:- <ul style="list-style-type: none"> • Acoustic enclosures have been provided for DG Sets. • Regular maintenance of noise generating machineries is being carried out. • Use of vibration dampeners for all the equipment. Ambient Noise Level report for this period is attached as Annexure - 11 .
7	Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories act	Done as per the statute along with record keeping. A copy of Form 31A attached as in Annexure - 12 . It is being done as per the Factories' Act in every 3rd Quarter of a

Six-Monthly Compliance Report of stipulated conditions of Environmental Clearance

{Period: April 2024 – September 2024}

		Financial Year covering complete employees and contractor workmen.
8	The company shall develop surface water harvesting structures to harvest the rain water for utilization in the lean season besides recharging the ground water table.	At present there exist small <u>rainwater harvesting</u> pond in front of the Admin Building. The capacity of the pond is approx. 90 cubic meter. Further a detail feasibility study is under process, and it is expected to be complete by FY 2025. Going forward, Tata Steel has a plan to develop 30 more rainwater recharge pits and 1 no. of catchment pond. The same is expected to be completed by June 2026
9	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 programs, educational programs, drinking water supply and health care etc.	All the stipulated conditions of the Environmental Clearance is being complied to safeguard the immediate surrounding environment. The Management also adheres to compliance in respect of EP Act, Air Act and Water Act, IF Act, Labour Laws as on date.
10	Requisite amount 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 and Forests 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.	Annual recurring cost for maintenance of Pollution control equipment's to the tune of 3 Cr/annum is being spent towards environmental protection measures. One time Capital cost for construction of new GCP ,ETP, STP, Internal Roads and drain, plantation to the tune of around 28-29 crores for the year 2023-2024.
11	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.	Yes Submitted and Complied
12	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 MOEF at Bhubaneswar. The respective Zonal Office of	Since the acquisition of Plant, the conditions stipulated in EC are being complied and submitted as per statute at SPCB and Regional Office of the MOEF at Bhubaneswar.

Six-Monthly Compliance Report of stipulated conditions of Environmental Clearance

{Period: April 2024 – September 2024}

	CPCB and the SPCB. The criteria pollutant levels namely; PM ₁₀ , SO ₂ , NO _x (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.	
13	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 MOEF, the respective Zonal Office of CPCB and the SPCB. The Regional Office of this Ministry at Bhubaneswar/CPCB/SPCB shall monitor the stipulated conditions.	Six Monthly compliance report of stipulated environmental conditions is being submitted periodically at the Regional Office of MoEF at Bhubaneswar.
14	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 MOEF at Bhubaneswar by e-mail.	The last Environmental Statement (Form-V) was submitted to SPCB & RO of MoEF&CC as per EC condition & EP Rule 1986. Copy of letter submitted is attached as per Annexure-13
15	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 and Forests at http://envfor.nic.in . This shall be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same should be forwarded to the Regional office at Bhubaneswar.	Tata Steel Ltd. has acquired the Plant through NCLT under the IBC code. The advertisement done by erstwhile owner i.e.. Rohit Ferrotech limited is not traceable by us. Once the EC is transferred in the name of Tata Steel, the advertisement will be published and hosted on the website.
16	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.	Tata Steel Ltd. has acquired the Plant through NCLT under the IBC code. Post-acquisition, before the start of the work concerned authorities were informed. Presently the four furnaces (16.5 MVA) are in operation at a rated capacity 100000 TPA

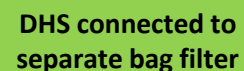
Six-Monthly Compliance Report of stipulated conditions of Environmental Clearance

{Period: April 2024 – September 2024}

		after obtaining valid CTO from SPCB, Copy Attached Annexure-14
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EC File No. J-11011/372/2009-IA.II(I) dated 21.09.2012

S.No.	Specific Conditions	Compliances
1.	The company shall comply with all the conditions stipulated while according environmental clearance vide Ministry's letter of even number dated 30 th September, 2010.	Conditions stipulated in previous EC File No. J-11011/372/2009-IA.II(I) dated 30/09/2010 are being complied.
2.	The company shall recover ferro chrome from ferro chrome slag. The remaining slag shall be disposed of in the waste disposal site after carrying TCLP Test.	The processed slag is utilized directly in filling the low-lying areas. We have earmarked the area for stacking of slag and is being followed. Photographs attached as per Annexure-15 . TCLP is being carried out and report is attached as Annexure-6
3.	The ground water quality monitoring around the disposal site shall be regularly monitored and the results of the monitored data shall be submitted to the SPCB and to the RO of the Ministry.	Ground water quality monitoring around the disposal site is being carried out regularly and result is being submitted to SPCB and RO, MoEF, Bhubaneswar. The report is attached as per Annexure-5
4.	The trucks carrying the slag shall be covered with tarpaulin.	Tarpaulin covered transportation of slag is being carried out.

CEMS Order Copy

Sl.No	Gas Cleaning Plant (GCP)
1	Rated Capacity - 240000 M3/Hr
3	Bag house -240000M3/Hr Total -10 chambers No of filter bag =156x10 ,150 dia *450 mtr length
4	Dust Handling System-12000 M3/Hr, connected to silo bag house consists of 60 numbers of filter bags
6	Tapping fume system -60,000M3/Hr connected to the GCP bag house
7	ID fan -24,0000 M3/Hr connected to bag house outlet plenum.

BQT DE and GCP system
Rated Capacity -130,000 M3/Hr
Bag House capacity -130 ,000 M3/Hr
No of chambers-4
No of Cage and Bags-182x4
ID fan Volume- 1,30,000 M3/Hr, One in operation and one stand by system is also provided for continous operations.





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MoEF&CC, Govt. of India, Recognised Environment Laboratory under Environment (Protection) Act, 1986 & NABL Accredited Laboratory

Report No. - CEMC/TSL/040524/St1

Issued Date-04.05.2024

STACK EMISSION MONITORING TEST REPORT

Name & Address of the Client	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Nature of Sampling	Source Emission
Instrument Used	Flue Gas Analyzer
Sampling Date & Time	03.04.2024 & 12.45 PM
Location of Sampling	GCP-1&2

ANALYSIS RESULT

ENVIRONMENTAL RECORD			
A. General Information about stack			
1	Stack connected to	GCP Chimney-1&2	
2	Emission due to	---	
3	Material of Construction of Stack	M.S	
4	Shape of Stack	Circular	
5	Whether Stack is provided with Permanent Platform & Ladders	Yes	
6	Boiler/Furnace/DG/Kiln Capacity	NA	
B. Physical Characteristics of Stack:			
1	Height of the stack		
	(a) from Ground Level (m)	16	
2	Diameter of the stack at sampling point (m)	2.0	
	(a) at bottom (m)	-	
3	Area of Stack (m ²)	3.14	
C. Analysis/Characteristics of Stack			
1	Fuel used	NA	
2	Fuel consumption	NA	
D	Results of sampling & Analysis of gaseous emission	Result	Method
1	Temperature of emission (°C)	126	IS: 11255 (Part III)
2	Barometric Pressure (mmHg)	759	USEPA(Part 2)
3	Velocity of gas in duct (M/sec)	7.81	IS: 11255 (Part III)
4	Quantity of gas flow (Nm ³ /hr)	84134	IS: 11255 (Part III)
5	Concentration of SO ₂ (mg/Nm ³)	56.4	IS: 11255 (Part II)
6	Concentration of NO _x (mg/Nm ³)	68.2	IS: 11255 (Part 7)
7	Concentration of CO (% V/V)	3.5	IS: 5182 (Part 10)
8	Concentration of CO ₂ (% V/V)	6.4	IS: 13270
9	Concentration of PM (mg/Nm ³)	56	IS: 11255 (Part 1)
E	Pollution Control Device	NA	
	Details of pollution control device attached with the stack		
F	Remarks		

Authorized Signatory

Notes:

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Regd. Office: Plot No.-522/3458, Near Utkal Hyundai, Opposite Apex College, Pahal, Bhubaneswar-752101, Odisha, India, Mobile: 9861032826

E-mail- cemo_consultancy@yahoo.co.in, cemo122@gmail.com, website: www.cemo.in.

Laboratory At: Plot No. 800/1274, Johal, Pahal, Bhubaneswar-752101, Odisha, India, Mobile: 7752014842



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Report No. - CEMC/TSL/040524/St3

Issued Date-04.05.2024

STACK EMISSION MONITORING TEST REPORT

Name & Address of the Client	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jaipur
Nature of Sampling	Source Emission
Instrument Used	Flue Gas Analyzer
Sampling Date & Time	25.04.2024 & 11.45 PM
Location of Sampling	GCP-1&2

ANALYSIS RESULT

A.	General Information about stack		
1	Stack connected to	GCP Chimney-1&2	
2	Emission due to	---	
3	Material of Construction of Stack	M.S	
4	Shape of Stack	Circular	
5	Whether Stack is provided with Permanent Platform & Ladders	Yes	
6	Boiler/Furnace/DG/Kiln Capacity	NA	
B.	Physical Characteristics of Stack:		
1	Height of the stack		
	(a) from Ground Level (m)	16	
2	Diameter of the stack at sampling point (m)	2.0	
	(a) at bottom (m)	-	
3	Area of Stack (m ²)	3.14	
C.	Analysis/Characteristics of Stack		
1	Fuel used	NA	
2	Fuel consumption	NA	
D.	Results of sampling & Analysis of gaseous emission	Result	Method
1	Temperature of emission (°C)	123	IS: 11255 (Part III)
2	Barometric Pressure (mmHg)	759	USEPA(Part 2)
3	Velocity of gas in duct (M/sec)	7.51	IS: 11255 (Part III)
4	Quantity of gas flow (Nm ³ /hr)	84128	IS: 11255 (Part III)
5	Concentration of SO ₂ (mg/Nm ³)	58.4	IS: 11255 (Part II)
6	Concentration of NO _x (mg/Nm ³)	67.6	IS: 11255 (Part 7)
7	Concentration of CO (% V/V)	3.7	IS: 5182 (Part 10)
8	Concentration of CO ₂ (% V/V)	6.5	IS: 13270
9	Concentration of PM (mg/Nm ³)	52	IS: 11255 (Part 1)
E.	Pollution Control Device	NA	
	Details of pollution control device attached with the stack		
F.	Remarks		

Authorized Signatory

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Report No. - CEMC/TSL/040524/S12

Issued Date-04.05.2024

STACK EMISSION MONITORING TEST REPORT

Name & Address of the Client	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Nature of Sampling	Source Emission
Instrument Used	Flue Gas Analyzer
Sampling Date & Time	03.04.2024 & 2.45PM
Location of Sampling	GCP-3&4

ANALYSIS RESULT

A.	General Information about stack		
1	Stack connected to	GCP Chimney-3&4	
2	Emission due to	---	
3	Material of Construction of Stack	M.S	
4	Shape of Stack	Circular	
5	Whether Stack is provided with Permanent Platform & Ladders	Yes	
6	Boiler/Furnace/DG/Kiln Capacity	NA	
B.	Physical Characteristics of Stack:		
1	Height of the stack		
	(a) from Ground Level (m)	16	
2	Diameter of the stack at sampling point (m)	2.0	
	(a) at bottom (m)	-	
3	Area of Stack (m ²)	3.14	
C.	Analysis/Characteristics of Stack		
1	Fuel used	NA	
2	Fuel consumption	NA	
D	Results of sampling & Analysis of gaseous emission	Result	Method
1	Temperature of emission (°C)	110	IS: 11255 (Part III)
2	Barometric Pressure (mmHg)	759	USEPA(Part 2)
3	Velocity of gas in duct (M/sec)	8.48	IS: 11255 (Part III)
4	Quantity of gas flow (Nm ³ /hr)	920488	IS: 11255 (Part III)
5	Concentration of SO ₂ (mg/Nm ³)	65.4	IS: 11255 (Part II)
6	Concentration of NO _x (mg/Nm ³)	71.3	IS: 11255 (Part 7)
7	Concentration of CO (% V/V)	4.7	IS: 5182 (Part 10)
8	Concentration of CO ₂ (% V/V)	6.5	IS: 13270
9	Concentration of PM (mg/Nm ³)	46	IS: 11255 (Part 1)
E	Pollution Control Device	NA	
	Details of pollution control device attached with the stack		
F	Remarks	Nil	

Authorized Signatory

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Report No. - CEMC/TSL/040524/St4

Issued Date-04.05.2024

STACK EMISSION MONITORING TEST REPORT

Name & Address of the Client	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Nature of Sampling	Source Emission
Instrument Used	Flue Gas Analyzer
Sampling Date & Time	25.04.2024 & 2.45PM
Location of Sampling	GCP-3&4

ANALYSIS RESULT

A.	General Information about stack		
1	Stack connected to	GCP Chimney-3&4	
2	Emission due to	—	
3	Material of Construction of Stack	M.S	
4	Shape of Stack	Circular	
5	Whether Stack is provided with Permanent Platform & Ladders	Yes	
6	Boiler/Furnace/DG/Kiln Capacity	NA	
B.	Physical Characteristics of Stack:		
1	Height of the stack		
	(a) from Ground Level (m)	16	
2	Diameter of the stack at sampling point (m)	2.0	
	(a) at bottom (m)	—	
3	Area of Stack (m ²)	3.14	
C.	Analysis/Characteristics of Stack		
1	Fuel used	NA	
2	Fuel consumption	NA	
D.	Results of sampling & Analysis of gaseous emission	Result	Method
1	Temperature of emission (°C)	118	IS: 11255 (Part III)
2	Barometric Pressure (mmHg)	759	USEPA(Part 2)
3	Velocity of gas in duct (M/sec)	9.11	IS: 11255 (Part III)
4	Quantity of gas flow (Nm ³ /hr)	920411	IS: 11255 (Part III)
5	Concentration of SO ₂ (mg/Nm ³)	62.4	IS: 11255 (Part II)
6	Concentration of NO _x (mg/Nm ³)	70.2	IS: 11255 (Part 7)
7	Concentration of CO (% V/V)	4.2	IS: 5182 (Part 10)
8	Concentration of CO ₂ (% V/V)	6.8	IS: 13270
9	Concentration of PM (mg/Nm ³)	44	IS: 11255 (Part 1)
E.	Pollution Control Device	NA	
	Details of pollution control device attached with the stack		
F.	Remarks		

Authorized Signatory

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Report No. - CEMC/TSL/050624/St1

Issued Date-05.06.2024

STACK EMISSION MONITORING TEST REPORT

Name & Address of the Client	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Nature of Sampling	Source Emission
Instrument Used	Flue Gas Analyzer
Sampling Date & Time	14.05.2024 & 10.30 AM
Location of Sampling	GCP-1&2

ANALYSIS RESULT

ANALYSIS REPORT			
A.	General Information about stack		
1	Stack connected to	GCP Chimney-1&2	
2	Emission due to		
3	Material of Construction of Stack	M.S	
4	Shape of Stack	Circular	
5	Whether Stack is provided with Permanent Platform & Ladders	Yes	
6	Boiler/Furnace/DG/Kiln Capacity	NA	
B.	Physical Characteristics of Stack:		
1	Height of the stack		
	(a) from Ground Level (m)	25	
2	Diameter of the stack at sampling point (m)	2.0	
	(a) at bottom (m)	-	
3	Area of Stack (m ²)	3.14	
C.	Analysis/Characteristics of Stack		
1	Fuel used	NA	
2	Fuel consumption	NA	
D.	Results of sampling & Analysis of gaseous emission	Result	Method
1	Temperature of emission (°C)	123	IS: 11255 (Part III)
2	Barometric Pressure (mmHg)	759	USEPA(Part 2)
3	Velocity of gas in duct (M/sec)	8.01	IS: 11255 (Part III)
4	Quantity of gas flow (Nm ³ /hr)	840152	IS: 11255 (Part III)
5	Concentration of SO ₂ (mg/Nm ³)	55.5	IS: 11255 (Part II)
6	Concentration of NO _x (mg/Nm ³)	62.9	IS: 11255 (Part 7)
7	Concentration of CO (% V/V)	4.2	IS: 5182 (Part 10)
8	Concentration of CO ₂ (% V/V)	6.4	IS: 13270
9	Concentration of PM (mg/Nm ³)	52	IS: 11255 (Part I)
E	Pollution Control Device	NA	
	Details of pollution control device attached with the stack		
F	Remarks	Nil	

Authorized Signatory

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Report No. - CEMC/TSL/050624/S13

Issued Date-05.06.2024

STACK EMISSION MONITORING TEST REPORT

Name & Address of the Client	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Nature of Sampling	Source Emission
Instrument Used	Flue Gas Analyzer
Sampling Date & Time	31.05.2024 & 11.30AM
Location of Sampling	GCP-1 & 2

ANALYSIS RESULT

A.	General Information about stack		
1	Stack connected to	GCP Chimney-1&2	
2	Emission due to	---	
3	Material of Construction of Stack	M.S	
4	Shape of Stack	Circular	
5	Whether Stack is provided with Permanent Platform & Ladders	Yes	
6	Boiler/Furnace/DG/Kiln Capacity	NA	
B.	Physical Characteristics of Stack:		
1	Height of the stack		
	(a) from Ground Level (m)	25	
2	Diameter of the stack at sampling point (m)	2.0	
	(a) at bottom (m)	-	
3	Area of Stack (m ²)	3.14	
C.	Analysis/Characteristics of Stack		
1	Fuel used	NA	
2	Fuel consumption	NA	
D	Results of sampling & Analysis of gaseous emission	Result	Method
1	Temperature of emission (°C)	131	IS: 11255 (Part III)
2	Barometric Pressure (mmHg)	759	USEPA(Part 2)
3	Velocity of gas in duct (M/sec)	8.18	IS: 11255 (Part III)
4	Quantity of gas flow (Nm ³ /hr)	849442	IS: 11255 (Part III)
5	Concentration of SO ₂ (mg/Nm ³)	51.5	IS: 11255 (Part II)
6	Concentration of NO _x (mg/Nm ³)	59.9	IS: 11255 (Part 7)
7	Concentration of CO (% V/V)	4.8	IS: 5182 (Part 10)
8	Concentration of CO ₂ (% V/V)	6.0	IS: 13270
9	Concentration of PM (mg/Nm ³)	61	IS: 11255 (Part I)
E	Pollution Control Device	NA	
	Details of pollution control device attached with the stack		
F	Remarks		

Authorized Signatory

Notes:

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Report No. - CEMC/TSL/050624/St2

Issued Date-05.06.2024

STACK EMISSION MONITORING TEST REPORT

Name & Address of the Client	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Nature of Sampling	Source Emission
Instrument Used	Flue Gas Analyzer
Sampling Date & Time	13.05.2024 & 2.45PM
Location of Sampling	GCP-3&4

ANALYSIS RESULT

ANALYSIS REPORT			
A. General Information about stack			
1	Stack connected to	GCP Chimney-3&4	
2	Emission due to	---	
3	Material of Construction of Stack	M.S	
4	Shape of Stack	Circular	
5	Whether Stack is provided with Permanent Platform & Ladders	Yes	
6	Boiler/Furnace/DG/Kiln Capacity	NA	
B. Physical Characteristics of Stack:			
1	Height of the stack		
	(a) from Ground Level (m)	16	
2	Diameter of the stack at sampling point (m)	2.0	
	(a) at bottom (m)	-	
3	Area of Stack (m ²)	3.14	
C. Analysis/Characteristics of Stack			
1	Fuel used	NA	
2	Fuel consumption	NA	
D	Results of sampling & Analysis of gaseous emission	Result	Method
1	Temperature of emission (°C)	119	IS: 11255 (Part III)
2	Barometric Pressure (mmHg)	759	USEPA(Part 2)
3	Velocity of gas in duct (M/sec)	9.17	IS: 11255 (Part III)
4	Quantity of gas flow (Nm ³ /hr)	918745	IS: 11255 (Part III)
5	Concentration of SO ₂ (mg/Nm ³)	62.2	IS: 11255 (Part II)
6	Concentration of NO _x (mg/Nm ³)	79.9	IS: 11255 (Part 7)
7	Concentration of CO (% V/V)	3.8	IS: 5182 (Part 10)
8	Concentration of CO ₂ (% V/V)	5.8	IS: 13270
9	Concentration of PM (mg/Nm ³)	46	IS: 11255 (Part I)
E	Pollution Control Device	NA	
	Details of pollution control device attached with the stack		
F	Remarks		

Authorized Signatory

Notes:

- The result given above related to the tested sample, as received. No further test is required for the above test only.
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Report No. - CEMC/TSL/050624/St4

Issued Date-05.06.2024

STACK EMISSION MONITORING TEST REPORT

Name & Address of the Client	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Nature of Sampling	Source Emission
Instrument Used	Flue Gas Analyzer
Sampling Date & Time	31.05.2024 & 2.45PM
Location of Sampling	GCP-3&4

ANALYSIS RESULT

A.	General Information about stack		
1	Stack connected to	GCP Chimney-3&4	
2	Emission due to	---	
3	Material of Construction of Stack	M.S	
4	Shape of Stack	Circular	
5	Whether Stack is provided with Permanent Platform & Ladders	Yes	
6	Boiler/Furnace/DG/Kiln Capacity	NA	
B.	Physical Characteristics of Stack:		
1	Height of the stack		
	(a) from Ground Level (m)	16	
2	Diameter of the stack at sampling point (m)	2.0	
	(a) at bottom (m)	-	
3	Area of Stack (m ²)	3.14	
C.	Analysis/Characteristics of Stack		
1	Fuel used	NA	
2	Fuel consumption	NA	
D	Results of sampling & Analysis of gaseous emission	Result	Method
1	Temperature of emission (°C)	115	IS: 11255 (Part III)
2	Barometric Pressure (mmHg)	759	USEPA(Part 2)
3	Velocity of gas in duct (M/sec)	8.98	IS: 11255 (Part III)
4	Quantity of gas flow (Nm ³ /hr)	906549	IS: 11255 (Part III)
5	Concentration of SO ₂ (mg/Nm ³)	59.8	IS: 11255 (Part II)
6	Concentration of NO _x (mg/Nm ³)	76.2	IS: 11255 (Part 7)
7	Concentration of CO (% V/V)	3.4	IS: 5182 (Part 10)
8	Concentration of CO ₂ (% V/V)	5.2	IS: 13270
9	Concentration of PM (mg/Nm ³)	52	IS: 11255 (Part 1)
E	Pollution Control Device	NA	
	Details of pollution control device attached with the stack		
F	Remarks		

Authorized Signatory

Notes:

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Report No. - CEMC/TSL/040724/St1

Issued Date-04.07.2024

STACK EMISSION MONITORING TEST REPORT

Name & Address of the Client	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Nature of Sampling	Source Emission
Instrument Used	Stack Kit
Sampling Date & Time	07.06.2024 & 11.00AM
Location of Sampling	GCP-1&2

ANALYSIS RESULT

A.	General Information about stack		
1	Stack connected to	GCP Chimney-1&2	
2	Emission due to	----	
3	Material of Construction of Stack	M.S	
4	Shape of Stack	Circular	
5	Whether Stack is provided with Permanent Platform & Ladders	Yes	
6	Boiler/Furnace/DG/Kiln Capacity	NA	
B.	Physical Characteristics of Stack:		
1	Height of the stack		
	(a) from Ground Level (m)	25	
2	Diameter of the stack at sampling point (m)	2.0	
	(a) at bottom (m)	-	
3	Area of Stack (m ²)	3.14	
C.	Analysis/Characteristics of Stack		
1	Fuel used	NA	
2	Fuel consumption	NA	
D	Results of sampling & Analysis of gaseous emission	Result	Method
1	Temperature of emission (°C)	128	IS: 11255 (Part 3)
2	Barometric Pressure (mmHg)	759	USEPA(Part 2)
3	Velocity of gas in duct (m/sec)	8.12	IS: 11255 (Part 3)
4	Quantity of gas flow (Nm ³ /hr)	851689	IS: 11255 (Part 3)
5	Concentration of SO ₂ (mg/Nm ³)	53.2	IS: 11255 (Part 2)
6	Concentration of NO _x (mg/Nm ³)	60.4	IS: 11255 (Part 7)
7	Concentration of CO (% V/V)	4.1	IS: 13270
8	Concentration of CO ₂ (% V/V)	6.2	IS: 13270
9	Concentration of PM (mg/Nm ³)	48	IS: 11255 (Part 1)
E	Pollution Control Device	NA	
	Details of pollution control device attached with the stack		
F	Remarks	Nil	

Authorized Signatory

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Seal of Laboratory



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Report No. - CEMC/TSL/040724/St3

Issued Date-04.07.2024

STACK EMISSION MONITORING TEST REPORT

Name & Address of the Client	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Nature of Sampling	Source Emission
Instrument Used	Stack Kit
Sampling Date & Time	26.06.2024 & 10.45AM
Location of Sampling	GCP-1 & 2

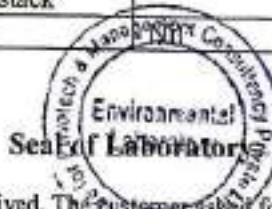
ANALYSIS RESULT

A.	General Information about stack		
1	Stack connected to	GCP Chimney-1&2	
2	Emission due to	-----	
3	Material of Construction of Stack	M.S	
4	Shape of Stack	Circular	
5	Whether Stack is provided with Permanent Platform & Ladders	Yes	
6	Boiler/Furnace/DG/Kiln Capacity	NA	
B.	Physical Characteristics of Stack:		
1	Height of the stack		
	(a) from Ground Level (m)	25	
2	Diameter of the stack at sampling point (m)	2.0	
	(a) at bottom (m)	-	
3	Area of Stack (m ²)	3.14	
C.	Analysis/Characteristics of Stack		
1	Fuel used	NA	
2	Fuel consumption	NA	
D	Results of sampling & Analysis of gaseous emission	Result	Method
1	Temperature of emission (°C)	128	IS: 11255 (Part 3)
2	Barometric Pressure (mmHg)	759	USEPA(Part 2)
3	Velocity of gas in duct (m/sec)	8.34	IS: 11255 (Part 3)
4	Quantity of gas flow (Nm ³ /hr)	866057	IS: 11255 (Part 3)
5	Concentration of SO ₂ (mg/Nm ³)	50.2	IS: 11255 (Part 2)
6	Concentration of NO _x (mg/Nm ³)	57.4	IS: 11255 (Part 7)
7	Concentration of CO (% V/V)	5.1	IS: 13270
8	Concentration of CO ₂ (% V/V)	6.8	IS: 13270
9	Concentration of PM (mg/Nm ³)	64	IS: 11255 (Part 1)
E	Pollution Control Device	NA	
	Details of pollution control device attached with the stack		
F	Remarks		

Authorized Signatory

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Report No. - CEMC/TSL/040724/St2

Issued Date-04.07.2024

STACK EMISSION MONITORING TEST REPORT

Name & Address of the Client	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Nature of Sampling	Source Emission
Instrument Used	Stack Kit
Sampling Date & Time	07.06.2024 & 3.00PM
Location of Sampling	GCP-3&4

ANALYSIS RESULT

A.	General Information about stack	
1	Stack connected to	GCP Chimney-3&4
2	Emission due to	---
3	Material of Construction of Stack	MS
4	Shape of Stack	Circular
5	Whether Stack is provided with Permanent Platform & Ladders	Yes
6	Boiler/Furnace/DG/Kiln Capacity	NA
B.	Physical Characteristics of Stack:	
1	Height of the stack	
	(a) from Ground Level (m)	16
2	Diameter of the stack at sampling point (m)	2.0
	(a) at bottom (m)	-
3	Area of Stack (m ²)	3.14
C.	Analysis/Characteristics of Stack	
1	Fuel used	NA
2	Fuel consumption	NA
D.	Results of sampling & Analysis of gaseous emission	Result Method
1	Temperature of emission (°C)	113 IS: 11255 (Part 3)
2	Barometric Pressure (mmHg)	759 USEPA(Part 2)
3	Velocity of gas in duct (m/sec)	8.98 IS: 11255 (Part 3)
4	Quantity of gas flow (Nm ³ /hr)	899708 IS: 11255 (Part 3)
5	Concentration of SO ₂ (mg/Nm ³)	60.4 IS: 11255 (Part 2)
6	Concentration of NO _x (mg/Nm ³)	77.2 IS: 11255 (Part 7)
7	Concentration of CO (% V/V)	3.2 IS: 13270
8	Concentration of CO ₂ (% V/V)	5.1 IS: 13270
9	Concentration of PM (mg/Nm ³)	42 IS: 11255 (Part 1)
E.	Pollution Control Device	NA
	Details of pollution control device attached with the stack	
F.	Remarks	

Authorized Signatory

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Report No. - CEMC/TSL/040724/St4

Issued Date-04.07.2024

STACK EMISSION MONITORING TEST REPORT

Name & Address of the Client	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Nature of Sampling	Source Emission
Instrument Used	Stack Kit
Sampling Date & Time	26.06.2024 & 3.00PM
Location of Sampling	GCP-3&4

ANALYSIS RESULT

A.	General Information about stack		
1	Stack connected to	GCP Chimney-3&4	
2	Emission due to	----	
3	Material of Construction of Stack	M.S	
4	Shape of Stack	Circular	
5	Whether Stack is provided with Permanent Platform & Ladders	Yes	
6	Boiler/Furnace/DG/Kiln Capacity	NA	
B.	Physical Characteristics of Stack:		
1	Height of the stack		
	(a) from Ground Level (m)	16	
2	Diameter of the stack at sampling point (m)	2.0	
	(a) at bottom (m)	-	
3	Area of Stack (m ²)	3.14	
C.	Analysis/Characteristics of Stack		
1	Fuel used	NA	
2	Fuel consumption	NA	
D	Results of sampling & Analysis of gaseous emission	Result	Method
1	Temperature of emission (°C)	119	IS: 11255 (Part 3)
2	Barometric Pressure (mmHg)	759	USEPA(Part 2)
3	Velocity of gas in duct (m/sec)	8.72	IS: 11255 (Part 3)
4	Quantity of gas flow (Nm ³ /hr)	882931	IS: 11255 (Part 3)
5	Concentration of SO ₂ (mg/Nm ³)	58.1	IS: 11255 (Part 2)
6	Concentration of NO _x (mg/Nm ³)	74.4	IS: 11255 (Part 7)
7	Concentration of CO (% V/V)	3.1	IS: 13270
8	Concentration of CO ₂ (% V/V)	4.6	IS: 13270
9	Concentration of PM (mg/Nm ³)	44	IS: 11255 (Part 1)
E	Pollution Control Device	NA	
	Details of pollution control device attached with the stack		
F	Remarks		

Authorized Signatory

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Report No. - CEMC/TSL/050824/Sr1

Issued Date-05.08.2024

STACK EMISSION MONITORING TEST REPORT

Name & Address of the Client	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Nature of Sampling	Source Emission
Instrument Used	Flue Gas Analyzer
Sampling Date & Time	11.07.2024 & 4.00 PM
Location of Sampling	GCP-1&2

ANALYSIS RESULT

ANALYSIS RESULT			
A. General Information about stack			
1	Stack connected to	GCP Chimney-1&2	
2	Emission due to	----	
3	Material of Construction of Stack	M.S	
4	Shape of Stack	Circular	
5	Whether Stack is provided with Permanent Platform & Ladders	Yes	
6	Boiler/Furnace/DG/Kiln Capacity	NA	
B. Physical Characteristics of Stack:			
1	Height of the stack		
	(a) from Ground Level (m)	25	
2	Diameter of the stack at sampling point (m)	2.0	
	(a) at bottom (m)	-	
3	Area of Stack (m ²)	3.14	
C. Analysis/Characteristics of Stack			
1	Fuel used	NA	
2	Fuel consumption	NA	
D Results of sampling & Analysis of gaseous emission		Result	Method
1	Temperature of emission (°C)	122	IS: 11255 (Part 3)
2	Barometric Pressure (mmHg)	759	USEPA(Part 2)
3	Velocity of gas in duct (M/sec)	7.88	IS: 11255 (Part 3)
4	Quantity of gas flow (Nm ³ /hr)	84888	IS: 11255 (Part 3)
5	Concentration of SO ₂ (mg/Nm ³)	54.2	IS: 11255 (Part 2)
6	Concentration of NO _x (mg/Nm ³)	67.1	IS: 11255 (Part 7)
7	Concentration of CO (% V/V)	3.7	IS: 13270
8	Concentration of CO ₂ (% V/V)	6.9	IS: 13270
9	Concentration of PM (mg/Nm ³)	52	IS: 11255 (Part 1)
E	Pollution Control Device	NA	
	Details of pollution control device attached with the stack		
F	Remarks	Nil	

Authorized Signatory

Notes:

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Report No. - CEMC/TSL/050824/St3

Issued Date-05.08.2024

STACK EMISSION MONITORING TEST REPORT

Name & Address of the Client	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Nature of Sampling	Source Emission
Instrument Used	Flue Gas Analyzer
Sampling Date & Time	23.07.2024 & 11.00 PM
Location of Sampling	GCP-1&2

ANALYSIS RESULT

A.	General Information about stack		
1	Stack connected to	GCP Chimney-1&2	
2	Emission due to	-----	
3	Material of Construction of Stack	M.S	
4	Shape of Stack	Circular	
5	Whether Stack is provided with Permanent Platform & Ladders	Yes	
6	Boiler/Furnace/DG/Kiln Capacity	NA	
B.	Physical Characteristics of Stack:		
1	Height of the stack		
	(a) from Ground Level (m)	75	
2	Diameter of the stack at sampling point (m)	2.0	
	(a) at bottom (m)	-	
3	Area of Stack (m ²)	3.14	
C.	Analysis/Characteristics of Stack		
1	Fuel used	NA	
2	Fuel consumption	NA	
D	Results of sampling & Analysis of gaseous emission	Result	Method
1	Temperature of emission (°C)	128	IS: 11255 (Part 3)
2	Barometric Pressure (mmHg)	759	USEPA(Part 2)
3	Velocity of gas in duct (M/sec)	7.67	IS: 11255 (Part 3)
4	Quantity of gas flow (Nm ³ /hr)	85920	IS: 11255 (Part 3)
5	Concentration of SO ₂ (mg/Nm ³)	55.6	IS: 11255 (Part 2)
6	Concentration of NO _x (mg/Nm ³)	66.4	IS: 11255 (Part 7)
7	Concentration of CO (% V/V)	3.9	IS: 13270
8	Concentration of CO ₂ (% V/V)	6.8	IS: 13270
9	Concentration of PM (mg/Nm ³)	56	IS: 11255 (Part 1)
E	Pollution Control Device	NA	
	Details of pollution control device attached with the stack		
F	Remarks		

Authorized Signatory

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Report No. - CEMC/TSL/050824/St2

Issued Date-05.08.2024

STACK EMISSION MONITORING TEST REPORT

Name & Address of the Client	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Nature of Sampling	Source Emission
Instrument Used	Flue Gas Analyzer
Sampling Date & Time	11.07.2024 & 12.45PM
Location of Sampling	GCP-3&4

ANALYSIS RESULT

ANALYSIS REPORT			
A. General Information about stack			
1	Stack connected to	GCP Chimney-3&4	
2	Emission due to	-----	
3	Material of Construction of Stack	M.S	
4	Shape of Stack	Circular	
5	Whether Stack is provided with Permanent Platform & Ladders	Yes	
6	Boiler/Furnace/DG/Kiln Capacity	NA	
B. Physical Characteristics of Stack:			
1	Height of the stack		
	(a) from Ground Level (m)	16	
2	Diameter of the stack at sampling point (m)	2.0	
	(a) at bottom (m)	-	
3	Area of Stack (m ²)	3.14	
C. Analysis/Characteristics of Stack			
1	Fuel used	NA	
2	Fuel consumption	NA	
D	Results of sampling & Analysis of gaseous emission	Result	Method
1	Temperature of emission (°C)	115	IS: 11255 (Part 3)
2	Barometric Pressure (mmHg)	759	USEPA(Part 2)
3	Velocity of gas in duct (M/sec)	8.34	IS: 11255 (Part 3)
4	Quantity of gas flow (Nm ³ /hr)	905291	IS: 11255 (Part 3)
5	Concentration of SO ₂ (mg/Nm ³)	64.2	IS: 11255 (Part 2)
6	Concentration of NO _x (mg/Nm ³)	70.1	IS: 11255 (Part 7)
7	Concentration of CO (% V/V)	4.9	IS: 13270
8	Concentration of CO ₂ (% V/V)	6.8	IS: 13270
9	Concentration of PM (mg/Nm ³)	49	IS: 11255 (Part 1)
E	Pollution Control Device	NA	
	Details of pollution control device attached with the stack		
F	Remarks		

Authorized Signatory

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Report No. - CEMC/TSL/050824/St4

Issued Date-05.08.2024

STACK EMISSION MONITORING TEST REPORT

Name & Address of the Client	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Nature of Sampling	Source Emission
Instrument Used	Flue Gas Analyzer
Sampling Date & Time	23.07.2024 & 3.00PM
Location of Sampling	GCP-3&4

ANALYSIS RESULT

A.	General Information about stack		
1	Stack connected to	GCP Chimney-3&4	
2	Emission due to	---	
3	Material of Construction of Stack	M.S	
4	Shape of Stack	Circular	
5	Whether Stack is provided with Permanent Platform & Ladders	Yes	
6	Boiler/Furnace/DG/Kiln Capacity	NA	
B.	Physical Characteristics of Stack:		
1	Height of the stack		
	(a) from Ground Level (m)	16	
2	Diameter of the stack at sampling point (m)	2.0	
	(a) at bottom (m)	-	
3	Area of Stack (m ²)	3.14	
C.	Analysis/Characteristics of Stack		
1	Fuel used	NA	
2	Fuel consumption	NA	
D.	Results of sampling & Analysis of gaseous emission	Result	Method
1	Temperature of emission (°C)	121	IS: 11255 (Part 3)
2	Barometric Pressure (mmHg)	759	USEPA (Part 2)
3	Velocity of gas in duct (M/sec)	8.69	IS: 11255 (Part 3)
4	Quantity of gas flow (Nm ³ /hr)	877977	IS: 11255 (Part 3)
5	Concentration of SO ₂ (mg/Nm ³)	61.8	IS: 11255 (Part 2)
6	Concentration of NO _x (mg/Nm ³)	69.1	IS: 11255 (Part 7)
7	Concentration of CO (% V/V)	4.4	IS: 13270
8	Concentration of CO ₂ (% V/V)	7.1	IS: 13270
9	Concentration of PM (mg/Nm ³)	48	IS: 11255 (Part 1)
E.	Pollution Control Device	NA	
	Details of pollution control device attached with the stack		
F.	Remarks		

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Report No. - CEMC/TSL/030924/St1

Issued Date-03.09.2024

STACK EMISSION MONITORING TEST REPORT

Name & Address of the Client	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jaipur
Nature of Sampling	Source Emission
Instrument Used	Flue Gas Analyzer
Sampling Date & Time	21.08.2024 & 3.00 PM
Location of Sampling	GCP-1&2

ANALYSIS RESULT

ANALYSIS RESULT

A.	General Information about stack	
1	Stack connected to	GCP Chimney-1&2
2	Emission due to	----
3	Material of Construction of Stack	M.S
4	Shape of Stack	Circular
5	Whether Stack is provided with Permanent Platform & Ladders	Yes
6	Boiler/Furnace/DG/Kiln Capacity	NA
B.	Physical Characteristics of Stack:	
1	Height of the stack	
	(a) from Ground Level (m)	25
2	Diameter of the stack at sampling point (m)	2.0
	(a) at bottom (m)	-
3	Area of Stack (m ²)	3.14
C.	Analysis/Characteristics of Stack	
1	Fuel used	NA
2	Fuel consumption	NA
D	Results of sampling & Analysis of gaseous emission	Result Method
1	Temperature of emission (°C)	126 IS: 11255 (Part 3)
2	Barometric Pressure (mmHg)	759 USEPA(Part 2)
3	Velocity of gas in duct (M/sec)	7.92 IS: 11255 (Part 3)
4	Quantity of gas flow (Nm ³ /hr)	85318.9 IS: 11255 (Part 3)
5	Concentration of SO ₂ (mg/Nm ³)	53.8 IS: 11255 (Part 2)
6	Concentration of NO _x (mg/Nm ³)	66.2 IS: 11255 (Part 7)
7	Concentration of CO (% V/V)	3.5 IS: 13270
8	Concentration of CO ₂ (% V/V)	6.9 IS: 13270
9	Concentration of PM (mg/Nm ³)	48 IS: 11255 (Part 1)
E	Pollution Control Device	NA
	Details of pollution control device attached with the stack	
F	Remarks	

Authorized Signatory

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Report No. - CEMC/TSL/030924/St3

Issued Date-03.09.2024

STACK EMISSION MONITORING TEST REPORT

Name & Address of the Client	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Nature of Sampling	Source Emission
Instrument Used	Flue Gas Analyzer
Sampling Date & Time	28.08.2024 & 11.00 AM
Location of Sampling	GCP-1&2

ANALYSIS RESULT

A.	General Information about stack		
1	Stack connected to	GCP Chimney-1&2	
2	Emission due to	---	
3	Material of Construction of Stack	M.S	
4	Shape of Stack	Circular	
5	Whether Stack is provided with Permanent Platform & Ladders	Yes	
6	Boiler/Furnace/DG/Kiln Capacity	NA	
B.	Physical Characteristics of Stack:		
1	Height of the stack		
	(a) from Ground Level (m)	25	
2	Diameter of the stack at sampling point (m)	2.0	
	(a) at bottom (m)	-	
3	Area of Stack (m ²)	3.14	
C.	Analysis/Characteristics of Stack		
1	Fuel used	NA	
2	Fuel consumption	NA	
D	Results of sampling & Analysis of gaseous emission	Result	Method
1	Temperature of emission (°C)	132	IS: 11255 (Part 3)
2	Barometric Pressure (mmHg)	759	USEPA(Part 2)
3	Velocity of gas in duct (M/sec)	7.54	IS: 11255 (Part 3)
4	Quantity of gas flow (Nm ³ /hr)	84464.1	IS: 11255 (Part 3)
5	Concentration of SO ₂ (mg/Nm ³)	54.7	IS: 11255 (Part 2)
6	Concentration of NO _x (mg/Nm ³)	64.8	IS: 11255 (Part 7)
7	Concentration of CO (% V/V)	3.6	IS: 13270
8	Concentration of CO ₂ (% V/V)	6.2	IS: 13270
9	Concentration of PM (mg/Nm ³)	53	IS: 11255 (Part 1)
E	Pollution Control Device	NA	
	Details of pollution control device attached with the stack		
F	Remarks		

Authorized Signatory

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Report No. - CEMC/TSL/030924/St2

Issued Date-03.09.2024

STACK EMISSION MONITORING TEST REPORT

Name & Address of the Client	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Nature of Sampling	Source Emission
Instrument Used	Flue Gas Analyzer
Sampling Date & Time	21.08.2024 & 11.20AM
Location of Sampling	GCP-3&4

ANALYSIS RESULT

ANALYSIS RESULT

A.	General Information about stack		
1	Stack connected to	GCP Chimney-3&4	
2	Emission due to	----	
3	Material of Construction of Stack	M.S	
4	Shape of Stack	Circular	
5	Whether Stack is provided with Permanent Platform & Ladders	Yes	
6	Boiler/Furnace/DG/Kiln Capacity	NA	
B.	Physical Characteristics of Stack:		
1	Height of the stack		
	(a) from Ground Level (m)	16	
2	Diameter of the stack at sampling point (m)	2.0	
	(a) at bottom (m)	-	
3	Area of Stack (m ²)	3.14	
C.	Analysis/Characteristics of Stack		
1	Fuel used	NA	
2	Fuel consumption	NA	
D	Results of sampling & Analysis of gaseous emission	Result	Method
1	Temperature of emission (°C)	119	IS: 11255 (Part 3)
2	Barometric Pressure (mmHg)	759	USEPA(Part 2)
3	Velocity of gas in duct (M/sec)	8.57	IS: 11255 (Part 3)
4	Quantity of gas flow (Nm ³ /hr)	930257.3	IS: 11255 (Part 3)
5	Concentration of SO ₂ (mg/Nm ³)	64.2	IS: 11255 (Part 2)
6	Concentration of NO _x (mg/Nm ³)	68.4	IS: 11255 (Part 7)
7	Concentration of CO (% V/V)	4.6	IS: 13270
8	Concentration of CO ₂ (% V/V)	6.4	IS: 13270
9	Concentration of PM (mg/Nm ³)	46	IS: 11255 (Part 1)
E	Pollution Control Device	NA	
	Details of pollution control device attached with the stack		
F	Remarks	Nil	

Authorized Signatory

Notes:

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Report No. - CEMC/TSL/030924/St4

Issued Date-03.09.2024

STACK EMISSION MONITORING TEST REPORT

Name & Address of the Client	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Nature of Sampling	Source Emission
Instrument Used	Flue Gas Analyzer
Sampling Date & Time	28.08.2024 & 3.20PM
Location of Sampling	GCP-3&4

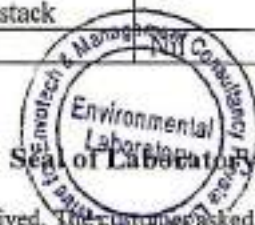
ANALYSIS RESULT

A.	General Information about stack		
1	Stack connected to	GCP Chimney-3&4	
2	Emission due to	---	
3	Material of Construction of Stack	M.S	
4	Shape of Stack	Circular	
5	Whether Stack is provided with Permanent Platform & Ladders	Yes	
6	Boiler/Furnace/DG/Kiln Capacity	NA	
B.	Physical Characteristics of Stack:		
1	Height of the stack		
	(a) from Ground Level (m)	16	
2	Diameter of the stack at sampling point (m)	2.0	
	(a) at bottom (m)	-	
3	Area of Stack (m ²)	3.14	
C.	Analysis/Characteristics of Stack		
1	Fuel used	NA	
2	Fuel consumption	NA	
D	Results of sampling & Analysis of gaseous emission	Result	Method
1	Temperature of emission (°C)	128	IS: 11255 (Part 3)
2	Barometric Pressure (mmHg)	759	USEPA(Part 2)
3	Velocity of gas in duct (M/sec)	8.43	IS: 11255 (Part 3)
4	Quantity of gas flow (Nm ³ /hr)	851708.5	IS: 11255 (Part 3)
5	Concentration of SO ₂ (mg/Nm ³)	60.4	IS: 11255 (Part 2)
6	Concentration of NO _x (mg/Nm ³)	67.2	IS: 11255 (Part 7)
7	Concentration of CO (% V/V)	4.1	IS: 13270
8	Concentration of CO ₂ (% V/V)	6.8	IS: 13270
9	Concentration of PM (mg/Nm ³)	45	IS: 11255 (Part 1)
E	Pollution Control Device	NA	
	Details of pollution control device attached with the stack		
F	Remarks		

Authorized Signatory

Notes:

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Report No. - CEMC/TSL/031024/St1

Issued Date-03.10.2024

STACK EMISSION MONITORING TEST REPORT

Name & Address of the Client	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Nature of Sampling	Source Emission
Instrument Used	Flue Gas Analyzer
Sampling Date & Time	09.09.2024 & 12.10 PM
Location of Sampling	GCP-1&2

ANALYSIS RESULT

A.	General Information about stack		
1	Stack connected to	GCP Chimney-1&2	
2	Emission due to	---	
3	Material of Construction of Stack	M.S	
4	Shape of Stack	Circular	
5	Whether Stack is provided with Permanent Platform & Ladders	Yes	
6	Boiler/Furnace/DG/Kiln Capacity	NA	
B.	Physical Characteristics of Stack:		
1	Height of the stack		
	(a) from Ground Level (m)	25	
2	Diameter of the stack at sampling point (m)	2.0	
	(a) at bottom (m)	-	
3	Area of Stack (m ²)	3.14	
C.	Analysis/Characteristics of Stack		
1	Fuel used	NA	
2	Fuel consumption	NA	
D.	Results of sampling & Analysis of gaseous emission	Result	Method
1	Temperature of emission (°C)	124	IS: 11255 (Part 3)
2	Barometric Pressure (mmHg)	759	USEPA(Part 2)
3	Velocity of gas in duct (M/sec)	8.11	IS: 11255 (Part 3)
4	Quantity of gas flow (Nm ³ /hr)	87365.7	IS: 11255 (Part 3)
5	Concentration of SO ₂ (mg/Nm ³)	52.4	IS: 11255 (Part 2)
6	Concentration of NO _x (mg/Nm ³)	65.6	IS: 11255 (Part 7)
7	Concentration of CO (% V/V)	3.2	IS: 13270
8	Concentration of CO ₂ (% V/V)	6.1	IS: 13270
9	Concentration of PM (mg/Nm ³)	45	IS: 11255 (Part 1)
E.	Pollution Control Device	NA	
	Details of pollution control device attached with the stack		
F.	Remarks	Nil	

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Report No. - CEMC/TSL/031024/S12

Issued Date-03.10.2024

STACK EMISSION MONITORING TEST REPORT

Name & Address of the Client	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Nature of Sampling	Source Emission
Instrument Used	Flue Gas Analyzer
Sampling Date & Time	28.09.2024 & 10.40 AM
Location of Sampling	GCP-1&2

ANALYSIS RESULT

A.	General Information about stack		
1	Stack connected to	GCP Chimney-1&2	
2	Emission due to	----	
3	Material of Construction of Stack	M.S	
4	Shape of Stack	Circular	
5	Whether Stack is provided with Permanent Platform & Ladders	Yes	
6	Boiler/Furnace/DG/Kiln Capacity	NA	
B.	Physical Characteristics of Stack:		
1	Height of the stack		
	(a) from Ground Level (m)	25	
2	Diameter of the stack at sampling point (m)	2.0	
	(a) at bottom (m)	-	
3	Area of Stack (m ²)	3.14	
C.	Analysis/Characteristics of Stack		
1	Fuel used	NA	
2	Fuel consumption	NA	
D	Results of sampling & Analysis of gaseous emission	Result	Method
1	Temperature of emission (°C)	129	IS: 11255 (Part 3)
2	Barometric Pressure (mmHg)	759	USEPA(Part 2)
3	Velocity of gas in duct (M/sec)	7.82	IS: 11255 (Part 3)
4	Quantity of gas flow (Nm ³ /hr)	87600.7	IS: 11255 (Part 3)
5	Concentration of SO ₂ (mg/Nm ³)	53.4	IS: 11255 (Part 2)
6	Concentration of NO _x (mg/Nm ³)	63.6	IS: 11255 (Part 7)
7	Concentration of CO (% V/V)	3.3	IS: 13270
8	Concentration of CO ₂ (% V/V)	5.8	IS: 13270
9	Concentration of PM (mg/Nm ³)	48	IS: 11255 (Part 1)
E	Pollution Control Device	NA	
	Details of pollution control device attached with the stack		
F	Remarks	Nil	

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Report no.-CEMC/TSL/040524/A1

Issued Date-04.05.2024

AMBIENT AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Sample Description	Ambient Air Quality
Sample Drawn Period/ Time	Monthly/ 0900 to 0900 next day
Sample Drawn by	Mr. Rabindranath Das
Sampling Location	Roof Top-ADM Building (Core Zone)
Average Flow Rate of PM (m^3/min)/ Gases (LPM)	1.1/1.0
Weather Conditions	Clear Sky
Reference No.	CEMC-04052024A1
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

ANALYSIS RESULT

Date	PM ₁₀ ($\mu g/m^3$)	PM _{2.5} ($\mu g/m^3$)	SO ₂ ($\mu g/m^3$)	NO _x ($\mu g/m^3$)	CO (mg/m^3)	NH ₃ ($\mu g/m^3$)	O ₃ ($\mu g/m^3$)	Pb ($\mu g/m^3$)	Ni (ng/m^3)	As (ng/m^3)	Benzene ($\mu g/m^3$)	BaP (ng/m^3)
01.04.24	94.2	45.8	11.8	21.3	0.41	<20	<10	<0.1	<0.6	<0.44	<5	<1
04.04.24	96.4	46.1	12.6	19.6	0.42	<20	<10	<0.1	<0.6	<0.44	<5	<1
08.04.24	89.6	43.4	13.2	20.8	0.43	<20	<10	<0.1	<0.6	<0.44	<5	<1
11.04.24	90.1	42.2	15.4	21.9	0.38	<20	<10	<0.1	<0.6	<0.44	<5	<1
15.04.24	93.5	39.3	13.9	22.6	0.45	<20	<10	<0.1	<0.6	<0.44	<5	<1
18.04.24	89.4	41.4	13.1	21.7	0.36	<20	<10	<0.1	<0.6	<0.44	<5	<1
22.04.24	94.8	36.2	13.9	19.6	0.38	<20	<10	<0.1	<0.6	<0.44	<5	<1
25.04.24	87.2	37.8	13.4	21.4	0.41	<20	<10	<0.1	<0.6	<0.44	<5	<1
29.04.24	86.7	38.7	12.8	21.8	0.42	<20	<10	<0.1	<0.6	<0.44	<5	<1
Avg	91.32	41.21	13.34	21.19	0.41	<20	<10	<0.1	<0.6	<0.44	<5	<1
NAAQ* Standard	100	60	80	80	4	400	100	1.0	20	6	5	1
Methods of Analysis	IS: 5182 (Part-23)	IS: 5182 (Part-24)	IS: 5182 (Part-2)	IS: 5182 (Part-6)	IS: 5182 (Part-10)	IS: 5182 (Part-25)	IS: 5182 (Part-9)	IS: 5182 (Part-22)	IS: 5182 (Part-26)	CPCB Method	IS: 5182 (Part-11)	IS: 5182 (Part-12)

N.B. *NAAQ- National Ambient Air Quality Standard as per 18th Nov, 2009 Gatt. Notification.

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Report no.-CEMC/TSL/040524/A2

Issued Date-04.05.2024

AMBIENT AIR QUALITY MONITORING TEST REPORT

Issued to:	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Sample Description	Ambient Air Quality
Sample Drawn Period/ Time	Monthly/ 0900 to 0900 next day
Sample Drawn by	Mr. Rabindranath Das
Sampling Location	Infront of FC cast House (Core Zone)
Average Flow Rate of PM (m ³ /min)/ Gases (LPM)	1.1/1.0
Weather Conditions	Clear Sky
Reference No.	CEMC-04052024A2
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

ANALYSIS RESULT

Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	O ₃ (µg/m ³)	Pb (µg/m ³)	Ni (ng/m ³)	As (ng/m ³)	Benzene (µg/m ³)	BaP (ng/m ³)
01.04.24	87.4	40.6	13.1	19.8	0.38	<20	<10	<0.1	<0.6	<0.44	<5	<1
04.04.24	91.4	41.3	13.4	18.6	0.41	<20	<10	<0.1	<0.6	<0.44	<5	<1
08.04.24	90.8	41.5	14.2	20.3	0.37	<20	<10	<0.1	<0.6	<0.44	<5	<1
11.04.24	88.5	38.2	15.4	21.4	0.39	<20	<10	<0.1	<0.6	<0.44	<5	<1
15.04.24	91.8	42.6	14.6	20.5	0.4	<20	<10	<0.1	<0.6	<0.44	<5	<1
18.04.24	94.3	42.4	14.5	21.1	0.38	<20	<10	<0.1	<0.6	<0.44	<5	<1
22.04.24	90.2	39.8	13.6	20.6	0.39	<20	<10	<0.1	<0.6	<0.44	<5	<1
25.04.24	91.4	38.6	14.7	22.4	0.43	<20	<10	<0.1	<0.6	<0.44	<5	<1
29.04.24	88.6	37.9	13.4	21.7	0.42	<20	<10	<0.1	<0.6	<0.44	<5	<1
Avg	90.49	40.32	14.10	20.71	0.40	<20	<10	<0.1	<0.6	<0.44	<5	<1
NAAQ* standard	100	60	80	80	4	400	100	1.0	20	6	5	1
Methods of Analysis	IS: 5182 (Part-23)	IS: 5182 (Part-24)	IS: 5182 (Part-2)	IS: 5182 (Part-6)	IS: 5182 (Part-10)	IS: 5182 (Part-25)	IS: 5182 (Part-9)	IS: 5182 (Part-22)	IS: 5182 (Part-26)	CPCB Method	IS: 5182 (Part-11)	IS: 5182 (Part-12)

N.B. *NAAQ- National Ambient Air Quality Standard as per 18th Nov, 2009 G.Ot. Notification.

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Report no.-CEMC/TSI/040524/A3

Issued Date-04.05.2024

AMBIENT AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Sample Description	Ambient Air Quality
Sample Drawn Period/ Time	Monthly/ 0900 to 0900 next day
Sample Drawn by	Mr. Rabindranath Das
Sampling Location	Infront of CPP (Core Zone)
Average Flow Rate of PM (m ³ /min)/ Gases (LPM)	1.1/1.0
Weather Conditions	Clear Sky
Reference No.	CEMC-04052024A3
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

ANALYSIS RESULT

Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	O ₃ (µg/m ³)	Pb (µg/m ³)	Ni (ng/m ³)	As (ng/m ³)	Benzene (µg/m ³)	BaP (ng/m ³)
01.04.24	88.2	37.8	12.5	20.2	0.37	<20	<10	<0.1	<0.6	<0.44	<5	<1
04.04.24	86.8	39.4	13.8	19.6	0.39	<20	<10	<0.1	<0.6	<0.44	<5	<1
08.04.24	91.6	36.6	13.4	20.8	0.41	<20	<10	<0.1	<0.6	<0.44	<5	<1
11.04.24	89.4	35.2	12.9	20.4	0.38	<20	<10	<0.1	<0.6	<0.44	<5	<1
15.04.24	90.8	37.4	13.1	19.6	0.4	<20	<10	<0.1	<0.6	<0.44	<5	<1
18.04.24	86.2	36.2	14.0	21.7	0.36	<20	<10	<0.1	<0.6	<0.44	<5	<1
22.04.24	85.6	35.1	14.4	19.2	0.35	<20	<10	<0.1	<0.6	<0.44	<5	<1
25.04.24	86.4	34.6	13.6	19.6	0.34	<20	<10	<0.1	<0.6	<0.44	<5	<1
29.04.24	88.6	36.5	13.9	21.8	0.42	<20	<10	<0.1	<0.6	<0.44	<5	<1
Avg	88.18	36.53	13.51	20.32	0.38	<20	<10	<0.1	<0.6	<0.44	<5	<1
NAAQ* Standard	100	60	80	80	4	400	100	1.0	20	6	5	1
Methods of Analysis	IS: 5182 (Part-23)	IS: 5182 (Part-24)	IS: 5182 (Part-2)	IS: 5182 (Part-6)	IS: 5182 (Part-10)	IS: 5182 (Part-25)	IS: 5182 (Part-9)	IS: 5182 (Part-22)	IS: 5182 (Part-26)	CPCB Method	IS: 5182 (Part-11)	IS: 5182 (Part-12)

N.B. *NAAQ- National Ambient Air Quality Standard as per 18th Nov. 2009 Gatt. Notification

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END OF REPORT

B.P. Das
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Report no.-CEMC/TSL/040524/A4

Issued Date-04.05.2024

AMBIENT AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Sample Description	Ambient Air Quality
Sample Drawn Period/ Time	Monthly/ 0900 to 0900 next day
Sample Drawn by	Mr. Rabindranath Das
Sampling Location	MRP Building (Core Zone)
Average Flow Rate of PM (m ³ /min)/ Gases (LPM)	1.1/1.0
Weather Conditions	Clear Sky
Reference No.	CEMC-04052024A4
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

ANALYSIS RESULT

Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	O ₃ (µg/m ³)	Pb (µg/m ³)	Ni (ng/m ³)	As (ng/m ³)	Benzene (µg/m ³)	BaP (ng/m ³)
01.04.24	84.3	35.4	12.3	19.4	0.34	<20	<10	<0.1	<0.6	<0.44	<5	<1
04.04.24	86.2	36.3	13.1	20.2	0.36	<20	<10	<0.1	<0.6	<0.44	<5	<1
08.04.24	85.4	34.7	12.4	18.3	0.29	<20	<10	<0.1	<0.6	<0.44	<5	<1
11.04.24	85.5	36.1	13.2	19.2	0.31	<20	<10	<0.1	<0.6	<0.44	<5	<1
15.04.24	87.3	34.5	13.5	19.8	0.32	<20	<10	<0.1	<0.6	<0.44	<5	<1
18.04.24	88.1	33.6	12.6	19.6	0.34	<20	<10	<0.1	<0.6	<0.44	<5	<1
22.04.24	86.5	36.4	13.8	20.4	0.37	<20	<10	<0.1	<0.6	<0.44	<5	<1
25.04.24	83.4	33.8	12.2	19.6	0.29	<20	<10	<0.1	<0.6	<0.44	<5	<1
29.04.24	87.8	36.5	13.4	21.2	0.41	<20	<10	<0.1	<0.6	<0.44	<5	<1
Avg	86.06	35.26	12.94	19.74	0.34	<20	<10	<0.1	<0.6	<0.44	<5	<1
NAAQ* Standard	100	60	80	80	4	400	100	1.0	20	6	5	1
Methods of Analysis	IS: 5182 (Part-23)	IS: 5182 (Part-24)	IS: 5182 (Part-2)	IS: 5182 (Part-6)	IS: 5182 (Part-10)	IS: 5182 (Part-25)	IS: 5182 (Part-9)	IS: 5182 (Part-22)	IS: 5182 (Part-26)	CPCB Method	IS: 5182 (Part-11)	IS: 5182 (Part-12)

N.B.- *NAAQ- National Ambient Air Quality Standard as per 18th Nov. 2009 Gatt. Notification.

"<" symbol implicates that the values are below the limit or undesirable and cannot be incorporated in the report

END OF REPORT

B.P. Das
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Report no.-CEMC/TSL/040524/A5

Issued Date-04.05.2024

AMBIENT AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Sample Description	Ambient Air Quality
Sample Drawn Period/ Time	Monthly/ 0900 to 0900 next day
Sample Drawn by	Mr. Rabindranath Das
Sampling Location	BQT (Briquette) (Core Zone)
Average Flow Rate of PM (m ³ /min)/ Gases (LPM)	1.1/1.0
Weather Conditions	Clear Sky
Reference No.	CEMC-04052024A5
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

ANALYSIS RESULT

Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	O ₃ (µg/m ³)	Pb (µg/m ³)	Ni (ng/m ³)	As (ng/m ³)	Benzene (µg/m ³)	BaP (ng/m ³)
01.04.24	102.3	44.6	13.4	19.8	0.38	<20	<10	<0.1	<0.6	<0.44	<5	<1
04.04.24	106.5	46.8	12.8	22.2	0.42	<20	<10	<0.1	<0.6	<0.44	<5	<1
08.04.24	98.8	45.1	12.6	19.6	0.36	<20	<10	<0.1	<0.6	<0.44	<5	<1
11.04.24	104.4	46.2	12.7	19.7	0.39	<20	<10	<0.1	<0.6	<0.44	<5	<1
15.04.24	101.6	43.4	13.4	20.2	0.41	<20	<10	<0.1	<0.6	<0.44	<5	<1
18.04.24	99.2	42.5	12.8	19.8	0.37	<20	<10	<0.1	<0.6	<0.44	<5	<1
22.04.24	102.8	43.6	13.2	21.6	0.43	<20	<10	<0.1	<0.6	<0.44	<5	<1
25.04.24	97.6	41.9	12.4	20.7	0.41	<20	<10	<0.1	<0.6	<0.44	<5	<1
29.04.24	105.4	45.4	13.5	21.9	0.42	<20	<10	<0.1	<0.6	<0.44	<5	<1
Avg	102.07	44.39	12.98	20.61	0.40	<20	<10	<0.1	<0.6	<0.44	<5	<1
NAAQ* Standard	100	60	80	80	4	400	100	1.0	20	6	5	1
Methods of Analysis	IS: 5182 (Part-23)	IS: 5182 (Part-24)	IS: 5182 (Part-2)	IS: 5182 (Part-6)	IS: 5182 (Part-10)	IS: 5182 (Part-25)	IS: 5182 (Part-9)	IS: 5182 (Part-22)	IS: 5182 (Part-26)	CPCB Method	IS: 5182 (Part-11)	IS: 5182 (Part-12)

N.B: *NAAQ- National Ambient Air Quality Standard as per 18th Nov. 2009 G.O. Notification.

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END OF REPORT

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Report no.-CEMC/TSL/050624/A1

Issued Date-05.06.2024

AMBIENT AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Sample Description	Ambient Air Quality
Sample Drawn Period/ Time	Monthly/ 0900 to 0900 next day
Sample Drawn by	Mr. Rabindranath Das
Sampling Location	Roof Top-ADM Building (Core Zone)
Average Flow Rate of PM (m ³ /min)/ Gases (LPM)	1.1/1.0
Weather Conditions	Clear Sky
Reference No.	CEMC-05062024A1
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

ANALYSIS RESULT

Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NOx (µg/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	O ₃ (µg/m ³)	Pb (µg/m ³)	Ni (ng/m ³)	As (ng/m ³)	Benzene (µg/m ³)	BaP (ng/m ³)
02.05.24	95.9	49.6	16.4	21.4	0.42	<20	<10	<0.1	<0.6	<0.44	<5	<1
06.05.24	97.1	42.9	14.9	23.7	0.44	<20	<10	<0.1	<0.6	<0.44	<5	<1
09.05.24	99.3	45.3	15.8	25.4	0.38	<20	<10	<0.1	<0.6	<0.44	<5	<1
13.05.24	95.1	47.9	16.2	21.8	0.39	<20	<10	<0.1	<0.6	<0.44	<5	<1
16.05.24	96.8	44.3	17.9	22.9	0.41	<20	<10	<0.1	<0.6	<0.44	<5	<1
20.05.24	101.6	50.1	18.2	23.2	0.42	<20	<10	<0.1	<0.6	<0.44	<5	<1
23.05.24	99.1	49.5	16.3	25.6	0.37	<20	<10	<0.1	<0.6	<0.44	<5	<1
27.05.24	92.7	48.4	15.4	29.9	0.40	<20	<10	<0.1	<0.6	<0.44	<5	<1
30.05.24	98.5	49.1	15.1	25.7	0.42	<20	<10	<0.1	<0.6	<0.44	<5	<1
Avg	97.34	47.46	16.24	24.40	0.41	<20	<10	<0.1	<0.6	<0.44	<5	<1
NAAQ* Standard	100	60	80	80	4	400	100	1.0	20	6	5	1
Methods of Analysis	IS: 5182 (Part-23)	IS: 5182 (Part-24)	IS: 5182 (Part-2)	IS: 5182 (Part-6)	IS: 5182 (Part-10)	IS: 5182 (Part-25)	IS: 5182 (Part-9)	IS: 5182 (Part-22)	IS: 5182 (Part-26)	CPCB Method	IS: 5182 (Part-11)	IS: 5182 (Part-12)

N.B- *NAAQ- National Ambient Air Quality Standard as per 18th Nov, 2009 Gatt. Notification.

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Report no.-CEMC/TSL/050624/A2

Issued Date-05.06.2024

AMBIENT AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Sample Description	Ambient Air Quality
Sample Drawn Period/ Time	Monthly/ 0900 to 0900 next day
Sample Drawn by	Mr. Rabindranath Das
Sampling Location	Infront of FC cast House (Core Zone)
Average Flow Rate of PM (m ³ /min)/ Gases (LPM)	1.1/1.0
Weather Conditions	Clear Sky
Reference No.	CEMC-05062024A2
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

ANALYSIS RESULT

Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	O ₃ (µg/m ³)	Pb (µg/m ³)	Ni (ng/m ³)	As (ng/m ³)	Benzene (µg/m ³)	BaP (ng/m ³)
02.05.24	90.3	41.9	13.7	19.4	0.38	<20	<10	<0.1	<0.6	<0.44	<5	<1
06.05.24	97.4	38.2	14.1	17.4	0.39	<20	<10	<0.1	<0.6	<0.44	<5	<1
09.05.24	101.6	41.2	17.6	24.3	0.39	<20	<10	<0.1	<0.6	<0.44	<5	<1
13.05.24	100.2	42.8	18.1	26.2	0.35	<20	<10	<0.1	<0.6	<0.44	<5	<1
16.05.24	99.4	33.6	16.3	18.9	0.39	<20	<10	<0.1	<0.6	<0.44	<5	<1
20.05.24	95.9	34.9	17.3	21.2	0.36	<20	<10	<0.1	<0.6	<0.44	<5	<1
23.05.24	90.4	32.6	15.7	19.3	0.38	<20	<10	<0.1	<0.6	<0.44	<5	<1
27.05.24	99.3	38.5	16.3	17.3	0.39	<20	<10	<0.1	<0.6	<0.44	<5	<1
30.05.24	94.3	38.1	17.2	19.1	0.41	<20	<10	<0.1	<0.6	<0.44	<5	<1
Avg	96.53	37.98	16.26	20.34	0.38	<20	<10	<0.1	<0.6	<0.44	<5	<1
NAAQ* Standard	100	60	80	80	4	400	100	1.0	20	6	5	1
Methods of Analysis	IS: 5182 (Part-23)	IS: 5182 (Part-24)	IS: 5182 (Part-2)	IS: 5182 (Part-6)	IS: 5182 (Part-10)	IS: 5182 (Part-25)	IS: 5182 (Part-9)	IS: 5182 (Part-22)	IS: 5182 (Part-26)	CPCB Method	IS: 5182 (Part-11)	IS: 5182 (Part-12)

N.B- *NAAQ- National Ambient Air Quality Standard as per 18th Nov, 2009 Govt. Notification.

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Report no.-CEMC/TSL/050624/A3

Issued Date-05.06.2024

AMBIENT AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Sample Description	Ambient Air Quality
Sample Drawn Period/ Time	Monthly/ 0900 to 0900 next day
Sample Drawn by	Mr. Rabindranath Das
Sampling Location	Infront of CPP (Core Zone)
Average Flow Rate of PM (m^3/min)/ Gases (LPM)	1.1/1.0
Weather Conditions	Clear Sky
Reference No.	CEMC-05062024A3
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

ANALYSIS RESULT

Date	PM ₁₀ ($\mu g/m^3$)	PM _{2.5} ($\mu g/m^3$)	SO ₂ ($\mu g/m^3$)	NOx ($\mu g/m^3$)	CO (mg/m^3)	NH ₃ ($\mu g/m^3$)	O ₃ ($\mu g/m^3$)	Pb ($\mu g/m^3$)	Ni (ng/m^3)	As (ng/m^3)	Benzene ($\mu g/m^3$)	BaP (ng/m^3)
02.05.24	87.5	34.3	15.6	19.4	0.33	<20	<10	<0.1	<0.6	<0.44	<5	<1
06.05.24	88.6	31.4	14.2	18.6	0.34	<20	<10	<0.1	<0.6	<0.44	<5	<1
09.05.24	85.9	37.7	12.6	19.3	0.37	<20	<10	<0.1	<0.6	<0.44	<5	<1
13.05.24	80.3	36.7	15.6	20.7	0.36	<20	<10	<0.1	<0.6	<0.44	<5	<1
16.05.24	89.9	34.5	13.2	17.4	0.33	<20	<10	<0.1	<0.6	<0.44	<5	<1
20.05.24	88.1	39.7	14.5	20.8	0.32	<20	<10	<0.1	<0.6	<0.44	<5	<1
23.05.24	90.1	34.7	15.6	17.4	0.37	<20	<10	<0.1	<0.6	<0.44	<5	<1
27.05.24	88.2	38.8	12.9	17.1	0.31	<20	<10	<0.1	<0.6	<0.44	<5	<1
30.05.24	87.4	36.6	15.4	18.6	0.32	<20	<10	<0.1	<0.6	<0.44	<5	<1
Avg	87.33	36.04	14.40	18.81	0.34	<20	<10	<0.1	<0.6	<0.44	<5	<1
NAAQ* Standard	100	60	80	80	4	400	100	1.0	20	6	5	1
Methods of Analysis	IS: 5182 (Part-23)	IS: 5182 (Part-24)	IS: 5182 (Part-2)	IS: 5182 (Part-6)	IS: 5182 (Part-10)	IS: 5182 (Part-25)	IS: 5182 (Part-9)	IS: 5182 (Part-22)	IS: 5182 (Part-26)	CPCB Method	IS: 5182 (Part-11)	IS: 5182 (Part-12)

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END OF REPORT

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Report no.-CEMC/TSI/050624/A4

Issued Date-05.06.2024

AMBIENT AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Sample Description	Ambient Air Quality
Sample Drawn Period/ Time	Monthly/ 0900 to 0900 next day
Sample Drawn by	Mr. Rabindranath Das
Sampling Location	MRP Building (Core Zone)
Average Flow Rate of PM (m ³ /min)/ Gases (LPM)	1.1/1.0
Weather Conditions	Clear Sky
Reference No.	CEMC-05062024A4
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

ANALYSIS RESULT

Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	O ₃ (µg/m ³)	Pb (µg/m ³)	Ni (ng/m ³)	As (ng/m ³)	Benzene (µg/m ³)	BaP (ng/m ³)
02.05.24	89.6	39.2	13.5	17.6	0.34	<20	<10	<0.1	<0.6	<0.44	<5	<1
06.05.24	88.9	31.7	12.4	18.1	0.33	<20	<10	<0.1	<0.6	<0.44	<5	<1
09.05.24	94.1	38.8	13.9	19.5	0.38	<20	<10	<0.1	<0.6	<0.44	<5	<1
13.05.24	88.6	32.9	12.4	17.4	0.34	<20	<10	<0.1	<0.6	<0.44	<5	<1
16.05.24	82.3	31.1	14.2	19.4	0.28	<20	<10	<0.1	<0.6	<0.44	<5	<1
20.05.24	81.6	35.4	12.8	18.7	0.32	<20	<10	<0.1	<0.6	<0.44	<5	<1
23.05.24	85.3	31.5	14.2	19.8	0.38	<20	<10	<0.1	<0.6	<0.44	<5	<1
27.05.24	90.5	35.3	13.5	19.4	0.30	<20	<10	<0.1	<0.6	<0.44	<5	<1
30.05.24	82.9	32.9	13.5	17.6	0.36	<20	<10	<0.1	<0.6	<0.44	<5	<1
Avg	87.09	34.31	13.38	18.61	0.34	<20	<10	<0.1	<0.6	<0.44	<5	<1
NAAQ* Standard	100	60	80	80	4	400	100	1.0	20	6	5	1
Methods of Analysis	IS: 5182 (Part-23)	IS: 5182 (Part-24)	IS: 5182 (Part-2)	IS: 5182 (Part-6)	IS: 5182 (Part-10)	IS: 5182 (Part-25)	IS: 5182 (Part-9)	IS: 5182 (Part-22)	IS: 5182 (Part-26)	CPCB Method	IS: 5182 (Part-11)	IS: 5182 (Part-12)

N.B- *NAAQ- National Ambient Air Quality Standard as per 18th Nov, 2009 Govt. Notification.

"<" symbol implicates that the values are below the limit or undesirable and cannot be incorporated in the report

END OF REPORT

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Report no.-CEMC/TSL/050624/A5

Issued Date-05.06.2024

AMBIENT AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Sample Description	Ambient Air Quality
Sample Drawn Period/ Time	Monthly/ 0900 to 0900 next day
Sample Drawn by	Mr. Rabindranath Das
Sampling Location	BQT (Briquette) (Core Zone)
Average Flow Rate of PM (m ³ /min)/ Gases (LPM)	1.1/1.0
Weather Conditions	Clear Sky
Reference No.	CEMC-05062024A5
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

ANALYSIS RESULT

Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	O ₃ (µg/m ³)	Pb (µg/m ³)	Ni (ng/m ³)	As (ng/m ³)	Benzene (µg/m ³)	BaP (ng/m ³)
02.05.24	99.2	49.2	17.6	21.5	0.44	<20	<10	<0.1	<0.6	<0.44	<5	<1
06.05.24	103.6	51.6	16.5	21.9	0.48	<20	<10	<0.1	<0.6	<0.44	<5	<1
09.05.24	100.1	50.2	16.2	19.4	0.41	<20	<10	<0.1	<0.6	<0.44	<5	<1
13.05.24	106.3	53.4	18.2	22.9	0.46	<20	<10	<0.1	<0.6	<0.44	<5	<1
16.05.24	97.6	43.1	15.6	20.4	0.49	<20	<10	<0.1	<0.6	<0.44	<5	<1
20.05.24	101.3	44.7	16.4	21.9	0.43	<20	<10	<0.1	<0.6	<0.44	<5	<1
23.05.24	100.2	49.8	17.6	22.1	0.49	<20	<10	<0.1	<0.6	<0.44	<5	<1
27.05.24	97.8	41.9	18.4	23.9	0.41	<20	<10	<0.1	<0.6	<0.44	<5	<1
30.05.24	99.3	50.1	16.9	20.1	0.40	<20	<10	<0.1	<0.6	<0.44	<5	<1
Avg	100.6	48.22	17.04	21.57	0.45	<20	<10	<0.1	<0.6	<0.44	<5	<1
NAAQ* Standard	100	60	80	80	4	400	100	1.0	20	6	5	1
Methods of Analysis	IS: 5182 (Part-23)	IS: 5182 (Part-24)	IS: 5182 (Part-2)	IS: 5182 (Part-6)	IS: 5182 (Part-10)	IS: 5182 (Part-25)	IS: 5182 (Part-9)	IS: 5182 (Part-22)	IS: 5182 (Part-26)	CPCB Method	IS: 5182 (Part-11)	IS: 5182 (Part-12)

N.B- *NAAQ- National Ambient Air Quality Standard as per 18th Nov, 2009 Govt. Notification

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Report no.-CEMC/TSL/040724/A1

Issued Date-04.07.2024

AMBIENT AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Sample Description	Ambient Air Quality
Sample Drawn Period/ Time	Monthly/ 0900 to 0900 next day
Sample Drawn by	Mr. Rabindranath Das
Sampling Location	Roof Top-ADM Building (Core Zone)
Average Flow Rate of PM (m ³ /min)/ Gases (LPM)	1.1/1.0
Weather Conditions	Clear Sky
Reference No.	CEMC-04072024A1
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

ANALYSIS RESULT

Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	O ₃ (µg/m ³)	Pb (µg/m ³)	Ni (ng/m ³)	As (ng/m ³)	Benzene (µg/m ³)	BaP (ng/m ³)
03.06.24	90.4	46.2	15.8	20.1	0.39	<20	<10	<0.1	<0.6	<0.44	<5	<1
06.06.24	94.6	41.4	14.1	22.4	0.41	<20	<10	<0.1	<0.6	<0.44	<5	<1
10.06.24	96.8	44.6	15.0	24.6	0.37	<20	<10	<0.1	<0.6	<0.44	<5	<1
13.06.24	92.4	46.2	15.4	20.2	0.36	<20	<10	<0.1	<0.6	<0.44	<5	<1
17.06.24	94.3	43.4	16.5	21.6	0.38	<20	<10	<0.1	<0.6	<0.44	<5	<1
20.06.24	86.2	38.6	13.6	19.4	0.35	<20	<10	<0.1	<0.6	<0.44	<5	<1
24.06.24	84.6	38.2	13.1	19.8	0.34	<20	<10	<0.1	<0.6	<0.44	<5	<1
27.06.24	82.4	37.6	12.8	19.2	0.32	<20	<10	<0.1	<0.6	<0.44	<5	<1
Avg	90.21	42.03	14.54	20.91	0.37	<20	<10	<0.1	<0.6	<0.44	<5	<1
NAAQ* standard	100	60	80	80	4	400	100	1.0	20	6	5	1
Methods of Analysis	IS: 5182 (Part-23)	IS: 5182 (Part-24)	IS: 5182 (Part-2)	IS: 5182 (Part-6)	IS: 5182 (Part-10)	IS: 5182 (Part-25)	IS: 5182 (Part-9)	IS: 5182 (Part-22)	IS: 5182 (Part-26)	CPCB Method	IS: 5182 (Part-11)	IS: 5182 (Part-12)

N.B- *NAAQ- National Ambient Air Quality Standard as per 18th Nov, 2009 Gatt. Notification.

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Report no.-CEMC/TSL/040724/A2

Issued Date-04.07.2024

AMBIENT AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Sample Description	Ambient Air Quality
Sample Drawn Period/ Time	Monthly/ 0900 to 0900 next day
Sample Drawn by	Mr. Rabindranath Das
Sampling Location	Infront of FC cast House (Core Zone)
Average Flow Rate of PM (m ³ /min)/ Gases (LPM)	1.1/1.0
Weather Conditions	Clear Sky
Reference No.	CEMC-04072024A2
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

ANALYSIS RESULT

Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	O ₃ (µg/m ³)	Pb (µg/m ³)	Ni (ng/m ³)	As (ng/m ³)	Benzene (µg/m ³)	BaP (ng/m ³)
03.06.24	88.2	39.6	12.8	18.3	0.37	<20	<10	<0.1	<0.6	<0.44	<5	<1
06.06.24	91.4	34.6	13.1	16.2	0.36	<20	<10	<0.1	<0.6	<0.44	<5	<1
10.06.24	92.3	40.6	17.1	23.6	0.38	<20	<10	<0.1	<0.6	<0.44	<5	<1
13.06.24	96.4	40.4	17.4	25.6	0.35	<20	<10	<0.1	<0.6	<0.44	<5	<1
17.06.24	94.2	36.2	15.6	17.8	0.37	<20	<10	<0.1	<0.6	<0.44	<5	<1
20.06.24	85.6	32.2	16.1	18.2	0.34	<20	<10	<0.1	<0.6	<0.44	<5	<1
24.06.24	82.8	30.4	15.2	17.4	0.32	<20	<10	<0.1	<0.6	<0.44	<5	<1
27.06.24	81.4	37.3	14.8	16.1	0.31	<20	<10	<0.1	<0.6	<0.44	<5	<1
Avg	89.04	36.41	15.26	19.15	0.35	<20	<10	<0.1	<0.6	<0.44	<5	<1
NAAQ* Standard	100	60	80	80	4	400	100	1.0	20	6	5	1
Methods of Analysis	IS: 5182 (Part-23)	IS: 5182 (Part-24)	IS: 5182 (Part-2)	IS: 5182 (Part-6)	IS: 5182 (Part-10)	IS: 5182 (Part-25)	IS: 5182 (Part-9)	IS: 5182 (Part-22)	IS: 5182 (Part-26)	CPCB Method	IS: 5182 (Part-11)	IS: 5182 (Part-12)

N.B- *NAAQ- National Ambient Air Quality Standard as per 18th Nov, 2009 Gatt. Notification

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Report no.-CEMC/TSL/040724/A3

Issued Date-04.07.2024

AMBIENT AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Sample Description	Ambient Air Quality
Sample Drawn Period/ Time	Monthly/ 0900 to 0900 next day
Sample Drawn by	Mr. Rabindranath Das
Sampling Location	Infront of CPP (Core Zone)
Average Flow Rate of PM (m ³ /min)/ Gases (LPM)	1.1/1.0
Weather Conditions	Clear Sky
Reference No.	CEMC-04072024A3
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

ANALYSIS RESULT

Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	O ₃ (µg/m ³)	Pb (µg/m ³)	Ni (ng/m ³)	As (ng/m ³)	Benzene (µg/m ³)	BaP (ng/m ³)
03.06.24	82.4	31.6	14.3	18.2	0.31	<20	<10	<0.1	<0.6	<0.44	<5	<1
06.06.24	83.2	30.2	13.5	17.8	0.32	<20	<10	<0.1	<0.6	<0.44	<5	<1
10.06.24	80.5	34.4	12.4	18.4	0.35	<20	<10	<0.1	<0.6	<0.44	<5	<1
13.06.24	78.6	33.3	13.8	20.1	0.34	<20	<10	<0.1	<0.6	<0.44	<5	<1
17.06.24	84.8	33.2	12.6	16.3	0.31	<20	<10	<0.1	<0.6	<0.44	<5	<1
20.06.24	76.4	32.8	13.8	19.2	0.30	<20	<10	<0.1	<0.6	<0.44	<5	<1
24.06.24	85.2	33.4	14.2	16.2	0.35	<20	<10	<0.1	<0.6	<0.44	<5	<1
27.06.24	83.4	34.2	12.1	16.4	0.32	<20	<10	<0.1	<0.6	<0.44	<5	<1
Avg	81.81	32.89	13.34	17.83	0.33	<20	<10	<0.1	<0.6	<0.44	<5	<1
NAAQ* Standard	100	60	80	80	4	400	100	1.0	20	6	5	1
Methods of Analysis	IS: 5182 (Part-23)	IS: 5182 (Part-24)	IS: 5182 (Part-2)	IS: 5182 (Part-6)	IS: 5182 (Part-10)	IS: 5182 (Part-25)	IS: 5182 (Part-9)	IS: 5182 (Part-22)	IS: 5182 (Part-26)	CPCB Method	IS: 5182 (Part-11)	IS: 5182 (Part-12)

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Report no.-CEMC/TSL/040724/A4

Issued Date-04.07.2024

AMBIENT AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Sample Description	Ambient Air Quality
Sample Drawn Period/ Time	Monthly/ 0900 to 0900 next day
Sample Drawn by	Mr. Rabindranath Das
Sampling Location	MRP Building (Core Zone)
Average Flow Rate of PM (m^3/min) / Gases (LPM)	1.1/1.0
Weather Conditions	Clear Sky
Reference No.	CEMC-04072024A4
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

ANALYSIS RESULT

Date	PM ₁₀ ($\mu g/m^3$)	PM _{2.5} ($\mu g/m^3$)	SO ₂ ($\mu g/m^3$)	NO _x ($\mu g/m^3$)	CO (mg/m^3)	NH ₃ ($\mu g/m^3$)	O ₃ ($\mu g/m^3$)	Pb ($\mu g/m^3$)	Ni (ng/m^3)	As (ng/m^3)	Benzene ($\mu g/m^3$)	BaP (ng/m^3)
03.06.24	85.2	33.7	12.8	16.4	0.33	<20	<10	<0.1	<0.6	<0.44	<5	<1
06.06.24	84.6	30.8	11.8	16.1	0.31	<20	<10	<0.1	<0.6	<0.44	<5	<1
10.06.24	86.6	35.4	13.2	18.6	0.36	<20	<10	<0.1	<0.6	<0.44	<5	<1
13.06.24	84.4	31.6	11.8	16.6	0.31	<20	<10	<0.1	<0.6	<0.44	<5	<1
17.06.24	78.4	29.8	13.1	18.2	0.27	<20	<10	<0.1	<0.6	<0.44	<5	<1
20.06.24	74.6	30.2	11.4	17.2	0.29	<20	<10	<0.1	<0.6	<0.44	<5	<1
24.06.24	76.4	30.6	13.6	18.4	0.32	<20	<10	<0.1	<0.6	<0.44	<5	<1
27.06.24	82.2	31.1	12.8	18.2	0.28	<20	<10	<0.1	<0.6	<0.44	<5	<1
Avg	81.55	31.65	12.56	17.46	0.31	<20	<10	<0.1	<0.6	<0.44	<5	<1
NAAQ* Standard	100	60	80	80	4	400	100	1.0	20	6	5	1
Methods of Analysis	IS: 5182 (Part-23)	IS: 5182 (Part-24)	IS: 5182 (Part-2)	IS: 5182 (Part-6)	IS: 5182 (Part-10)	IS: 5182 (Part-25)	IS: 5182 (Part-9)	IS: 5182 (Part-22)	IS: 5182 (Part-26)	CPCB Method	IS: 5182 (Part-11)	IS: 5182 (Part-12)

N.B. *NAAQ- National Ambient Air Quality Standard as per 18th Nov, 2009 Govt. Notification

"<" symbol implicates that the values are below the limit or undesirable and cannot be incorporated in the report

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Report no.-CEMC/TS/040724/A5

Issued Date-04.07.2024

AMBIENT AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Sample Description	Ambient Air Quality
Sample Drawn Period/ Time	Monthly/ 0900 to 0900 next day
Sample Drawn by	Mr. Rabindranath Das
Sampling Location	BQT (Briquette) (Core Zone)
Average Flow Rate of PM (m ³ /min)/ Gases (LPM)	1.1/1.0
Weather Conditions	Clear Sky
Reference No.	CEMC-04072024A5
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

ANALYSIS RESULT

Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	O ₃ (µg/m ³)	Pb (µg/m ³)	Ni (ng/m ³)	As (ng/m ³)	Benzene (µg/m ³)	BaP (ng/m ³)
03.06.24	95.8	46.5	16.4	20.4	0.43	<20	<10	<0.1	<0.6	<0.44	<5	<1
06.06.24	98.4	47.6	15.2	19.2	0.45	<20	<10	<0.1	<0.6	<0.44	<5	<1
10.06.24	96.4	49.4	15.8	18.6	0.39	<20	<10	<0.1	<0.6	<0.44	<5	<1
13.06.24	99.6	50.2	17.6	21.7	0.44	<20	<10	<0.1	<0.6	<0.44	<5	<1
17.06.24	92.4	42.6	14.8	19.2	0.47	<20	<10	<0.1	<0.6	<0.44	<5	<1
20.06.24	86.4	40.2	15.6	20.7	0.41	<20	<10	<0.1	<0.6	<0.44	<5	<1
24.06.24	85.6	44.4	16.7	21.2	0.46	<20	<10	<0.1	<0.6	<0.44	<5	<1
27.06.24	84.8	40.6	17.4	22.8	0.39	<20	<10	<0.1	<0.6	<0.44	<5	<1
Avg	92.43	45.19	16.19	20.48	0.43	<20	<10	<0.1	<0.6	<0.44	<5	<1
NAAQ* Standard	100	60	80	80	4	400	100	1.0	20	6	5	1
Methods of Analysis	IS: 5182 (Part-23)	IS: 5182 (Part-24)	IS: 5182 (Part-2)	IS: 5182 (Part-6)	IS: 5182 (Part-10)	IS: 5182 (Part-25)	IS: 5182 (Part-9)	IS: 5182 (Part-22)	IS: 5182 (Part-26)	CPCB Method	IS: 5182 (Part-11)	IS: 5182 (Part-12)

N.B- *NAAQ- National Ambient Air Quality Standard as per 18th Nov, 2009 Govt. Notification.

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Report no.-CEMC/TSL/050824/A1

Issued Date-05.08.2024

AMBIENT AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Sample Description	Ambient Air Quality
Sample Drawn Period/ Time	Monthly/ 0900 to 0900 next day
Sample Drawn by	Mr. Rabindranath Das
Sampling Location	Roof Top-ADMI Building (Core Zone)
Average Flow Rate of PM (m^3/min)/ Gases (LPM)	1.1/1.0
Weather Conditions	Clear Sky
Reference No.	CEMC-05082024A1
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

ANALYSIS RESULT

Date	PM ₁₀ ($\mu g/m^3$)	PM _{2.5} ($\mu g/m^3$)	SO ₂ ($\mu g/m^3$)	NO _x ($\mu g/m^3$)	CO (mg/m^3)	NH ₃ ($\mu g/m^3$)	O ₃ ($\mu g/m^3$)	Pb ($\mu g/m^3$)	Ni (ng/m^3)	As (ng/m^3)	Benzene ($\mu g/m^3$)	BaP (ng/m^3)
01.07.24	83.4	42.4	11.1	20.6	0.39	<20	<10	<0.1	<0.6	<0.44	<5	<1
04.07.24	82.6	41.8	11.7	18.4	0.4	<20	<10	<0.1	<0.6	<0.44	<5	<1
08.07.24	71.6	40.4	11.2	19.8	0.43	<20	<10	<0.1	<0.6	<0.44	<5	<1
11.07.24	82.8	42.6	11.9	20.9	0.38	<20	<10	<0.1	<0.6	<0.44	<5	<1
15.07.24	80.5	40.3	11.9	18.6	0.45	<20	<10	<0.1	<0.6	<0.44	<5	<1
18.07.24	72.4	39.2	10.1	20.7	0.36	<20	<10	<0.1	<0.6	<0.44	<5	<1
22.07.24	78.8	41.4	11.5	19.2	0.38	<20	<10	<0.1	<0.6	<0.44	<5	<1
25.07.24	72.1	38.9	11.8	20.4	0.39	<20	<10	<0.1	<0.6	<0.44	<5	<1
29.07.24	80.6	39.4	11.4	19.6	0.38	<20	<10	<0.1	<0.6	<0.44	<5	<1
Avg	78.31	40.71	11.40	19.80	0.40	<20	<10	<0.1	<0.6	<0.44	<5	<1
NAAQ* Standard	100	60	80	80	4	400	100	1.0	20	6	5	1
Methods of Analysis	IS: 5182 (Part-2)	IS: 5182 (Part-2)	IS: 5182 (Part-2)	IS: 5182 (Part-6)	IS: 5182 (Part-16)	IS: 5182 (Part-25)	IS: 5182 (Part-9)	IS: 5182 (Part-22)	IS: 5182 (Part-26)	CPCB Method	IS: 5182 (Part-41)	IS: 5182 (Part-12)

N.B- *NAAQ- National Ambient Air Quality Standard as per 18th Nov, 2009 Gatt. Notification.

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END OF REPORT

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Report no.-CEMC/TSL/050824/A2

Issued Date-05.08.2024

AMBIENT AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Sample Description	Ambient Air Quality
Sample Drawn Period/ Time	Monthly/ 0900 to 0900 next day
Sample Drawn by	Mr. Rabindranath Das
Sampling Location	Infront of TC east House (Core Zone)
Average Flow Rate of PM (m^3/min)/ Gases (LPM)	1.1/1.0
Weather Conditions	Clear Sky
Reference No.	CEMC-05082024A2
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

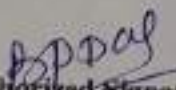
ANALYSIS RESULT

Date	PM ₁₀ ($\mu g/m^3$)	PM _{2.5} ($\mu g/m^3$)	SO ₂ ($\mu g/m^3$)	NO _x ($\mu g/m^3$)	CO (mg/m^3)	NH ₃ ($\mu g/m^3$)	O ₃ ($\mu g/m^3$)	Pb ($\mu g/m^3$)	Ni (ng/m^3)	As (ng/m^3)	Benzene ($\mu g/m^3$)	BaP (ng/m^3)
01.07.24	82.6	38.4	12.8	18.6	0.37	<20	<10	<0.1	<0.6	<0.44	<5	<1
04.07.24	81.4	39.6	12.4	18.2	0.35	<20	<10	<0.1	<0.6	<0.44	<5	<1
08.07.24	79.8	39.1	12.1	18.5	0.38	<20	<10	<0.1	<0.6	<0.44	<5	<1
11.07.24	80.6	37.8	12.6	19.4	0.36	<20	<10	<0.1	<0.6	<0.44	<5	<1
15.07.24	83.2	40.4	13.2	19.6	0.39	<20	<10	<0.1	<0.6	<0.44	<5	<1
18.07.24	80.1	40.6	13.3	18.8	0.36	<20	<10	<0.1	<0.6	<0.44	<5	<1
22.07.24	82.2	38.2	12.4	19.8	0.38	<20	<10	<0.1	<0.6	<0.44	<5	<1
25.07.24	79.8	37.4	13.1	20.1	0.39	<20	<10	<0.1	<0.6	<0.44	<5	<1
29.07.24	78.6	37.0	12.6	19.4	0.37	<20	<10	<0.1	<0.6	<0.44	<5	<1
Avg	80.92	38.72	12.72	19.16	0.37	<20	<10	<0.1	<0.6	<0.44	<5	<1
NAAQ* Standard	100	60	80	80	4	400	100	1.0	20	6	5	1
Methods of Analysis	IS: 5182 (Part-23)	IS: 5182 (Part-24)	IS: 5182 (Part-2)	IS: 5182 (Part-6)	IS: 5182 (Part-10)	IS: 5182 (Part-25)	IS: 5182 (Part-9)	IS: 5182 (Part-22)	IS: 5182 (Part-26)	CPCB Method	IS: 5182 (Part-11)	IS: 5182 (Part-12)

N.B- *NAAQ- National Ambient Air Quality Standard as per 18th Nov, 2009 Govt. Notification.

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Report no.-CEMC/TSL/050824/A3

Issued Date-05.08.2024

AMBIENT AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Sample Description	Ambient Air Quality
Sample Drawn Period/ Time	Monthly/ 0900 to 0900 next day
Sample Drawn by	Mr. Rabindranath Das
Sampling Location	Infront of CPP (Core Zone)
Average Flow Rate of PM (m ³ /min)/ Gases (LPM)	1.1/1.0
Weather Conditions	Clear Sky
Reference No.	CEMC-05082024A3
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

ANALYSIS RESULT

Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NOx (µg/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	O ₃ (µg/m ³)	Pb (µg/m ³)	Ni (ng/m ³)	As (ng/m ³)	Benzene (µg/m ³)	BaP (ng/m ³)
01.07.24	78.6	36.6	12.1	18.4	0.36	<20	<10	<0.1	<0.6	<0.44	<5	<1
04.07.24	79.4	38.2	12.6	18.9	0.34	<20	<10	<0.1	<0.6	<0.44	<5	<1
08.07.24	80.2	35.8	12.9	19.1	0.38	<20	<10	<0.1	<0.6	<0.44	<5	<1
11.07.24	81.6	34.6	12.2	19.6	0.36	<20	<10	<0.1	<0.6	<0.44	<5	<1
15.07.24	78.2	36.2	12.4	19.2	0.35	<20	<10	<0.1	<0.6	<0.44	<5	<1
18.07.24	77.6	35.4	12.8	18.5	0.34	<20	<10	<0.1	<0.6	<0.44	<5	<1
22.07.24	79.2	34.6	13.6	18.6	0.33	<20	<10	<0.1	<0.6	<0.44	<5	<1
25.07.24	77.8	33.4	12.4	19.2	0.32	<20	<10	<0.1	<0.6	<0.44	<5	<1
29.07.24	76.4	35.2	12.3	20.1	0.36	<20	<10	<0.1	<0.6	<0.44	<5	<1
Avg	78.78	35.56	12.59	19.07	0.35	<20	<10	<0.1	<0.6	<0.44	<5	<1
NAAQ* Standard	100	60	80	80	4	400	100	1.0	20	6	5	1
Methods of Analysis	IS: 5182 (Part-23)	IS: 5182 (Part-24)	IS: 5182 (Part-2)	IS: 5182 (Part-6)	IS: 5182 (Part-10)	IS: 5182 (Part-25)	IS: 5182 (Part-9)	IS: 5182 (Part-22)	IS: 5182 (Part-26)	CPCB Method	IS: 5182 (Part-11)	IS: 5182 (Part-12)

N.B- *NAAQ- National Ambient Air Quality Standard as per 18th Nov, 2009 Gatt. Notification.

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Report no.-CEMC/TSL/050824/A4

Issued Date-05.08.2024

AMBIENT AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Sample Description	Ambient Air Quality
Sample Drawn Period/ Time	Monthly/ 0900 to 0900 next day
Sample Drawn by	Mr. Rabindranath Das
Sampling Location	MRP Building (Core Zone)
Average Flow Rate of PM (m ³ /min)/ Gases (LPM)	1.1/1.0
Weather Conditions	Clear Sky
Reference No.	CEMC-05082024A4
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

ANALYSIS RESULT

Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	O ₃ (µg/m ³)	Pb (µg/m ³)	Ni (ng/m ³)	As (ng/m ³)	Benzene (µg/m ³)	BaP (ng/m ³)
01.07.24	78.2	34.6	11.8	18.8	0.32	<20	<10	<0.1	<0.6	<0.44	<5	<1
04.07.24	77.6	35.4	11.2	19.4	0.34	<20	<10	<0.1	<0.6	<0.44	<5	<1
08.07.24	76.4	33.6	11.6	18.6	0.31	<20	<10	<0.1	<0.6	<0.44	<5	<1
11.07.24	77.8	35.2	10.4	18.6	0.29	<20	<10	<0.1	<0.6	<0.44	<5	<1
15.07.24	79.4	33.6	12.2	18.4	0.30	<20	<10	<0.1	<0.6	<0.44	<5	<1
18.07.24	80.4	32.8	12.1	18.9	0.32	<20	<10	<0.1	<0.6	<0.44	<5	<1
22.07.24	78.6	35.6	12.4	19.2	0.35	<20	<10	<0.1	<0.6	<0.44	<5	<1
25.07.24	75.8	32.4	11.8	18.2	0.27	<20	<10	<0.1	<0.6	<0.44	<5	<1
29.07.24	81.4	33.3	12.3	19.6	0.38	<20	<10	<0.1	<0.6	<0.44	<5	<1
Avg	78.40	34.08	11.76	18.79	0.32	<20	<10	<0.1	<0.6	<0.44	<5	<1
NAAQ* Standard	100	60	80	80	4	400	100	1.0	20	6	5	1
Methods of Analysis	IS: 5182 (Part-22)	IS: 5182 (Part-24)	IS: 5182 (Part-2)	IS: 5182 (Part-6)	IS: 5182 (Part-10)	IS: 5182 (Part-25)	IS: 5182 (Part-9)	IS: 5182 (Part-22)	IS: 5182 (Part-20)	CPCB Method	IS: 5182 (Part-11)	IS: 5182 (Part-12)

N.B- *NAAQ- National Ambient Air Quality Standard as per 18th Nov, 2009 G.Ot. Notification

"<" symbol implicates that the values are below the limit or undesirable and cannot be incorporated in the report

END OF REPORT

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Report no.-CEMC/TSL/050824/A5

Issued Date-05.08.2024

AMBIENT AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Sample Description	Ambient Air Quality
Sample Drawn Period/ Time	Monthly/ 0900 to 0900 next day
Sample Drawn by	Mr. Rabindranath Das
Sampling Location	BQT (Briquette) (Core Zone)
Average Flow Rate of PM (m ³ /min)/ Gases (LPM)	1.1/1.0
Weather Conditions	Clear Sky
Reference No.	CEMC-05082024A5
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

ANALYSIS RESULT

Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	O ₃ (µg/m ³)	Pb (µg/m ³)	Ni (ng/m ³)	As (ng/m ³)	Benzene (µg/m ³)	BaP (ng/m ³)
01.07.24	81.6	42.4	12.8	19.1	0.37	<20	<10	<0.1	<0.6	<0.44	<5	<1
04.07.24	85.2	43.2	13.1	20.4	0.41	<20	<10	<0.1	<0.6	<0.44	<5	<1
08.07.24	76.4	42.6	13.4	20.8	0.38	<20	<10	<0.1	<0.6	<0.44	<5	<1
11.07.24	86.8	44.4	12.6	19.4	0.37	<20	<10	<0.1	<0.6	<0.44	<5	<1
15.07.24	72.4	41.6	12.8	19.2	0.39	<20	<10	<0.1	<0.6	<0.44	<5	<1
18.07.24	74.6	40.8	12.4	19.4	0.36	<20	<10	<0.1	<0.6	<0.44	<5	<1
22.07.24	81.8	42.3	12.2	20.1	0.41	<20	<10	<0.1	<0.6	<0.44	<5	<1
25.07.24	86.6	40.2	11.8	19.6	0.39	<20	<10	<0.1	<0.6	<0.44	<5	<1
29.07.24	83.2	42.6	13.2	21.9	0.4	<20	<10	<0.1	<0.6	<0.44	<5	<1
Avg	80.95	42.26	12.70	19.99	0.39	<20	<10	<0.1	<0.6	<0.44	<5	<1
NAAQ* Standard	100	60	80	80	4	400	100	1.0	20	6	5	1
Methods of Analysis	IS: 5182 (Part-22)	IS: 5182 (Part-24)	IS: 5182 (Part-2)	IS: 5182 (Part-6)	IS: 5182 (Part-10)	IS: 5182 (Part-25)	IS: 5182 (Part-9)	IS: 5182 (Part-22)	IS: 5182 (Part-26)	CPCB Method (Part-11)	IS: 5182 (Part-13)	IS: 5182 (Part-12)

N.B. *NAAQ- National Ambient Air Quality Standard as per 18th Nov, 2009 G.Ot. Notification.

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END OF REPORT

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Report no.-CEMC/TSL/030924/A1

Issued Date-03.09.2024

AMBIENT AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Sample Description	Ambient Air Quality
Sample Drawn Period/ Time	Monthly/ 0900 to 0900 next day
Sample Drawn by	Mr. Rabindranath Das
Sampling Location	Roof Top-ADM Building (Core Zone)
Average Flow Rate of PM (m ³ /min)/ Gases (LPM)	1.1/1.0
Weather Conditions	Clear Sky
Reference No.	CEMC-03092024A1
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

ANALYSIS RESULT

Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	O ₃ (µg/m ³)	Pb (µg/m ³)	Ni (ng/m ³)	As (ng/m ³)	Benzene (µg/m ³)	BaP (ng/m ³)
01.08.24	80.2	40.2	10.6	20.2	0.38	<20	<10	<0.1	<0.6	<0.44	<5	<1
05.08.24	79.5	38.9	11.4	17.7	0.37	<20	<10	<0.1	<0.6	<0.44	<5	<1
08.08.24	68.4	38.1	10.9	19.5	0.41	<20	<10	<0.1	<0.6	<0.44	<5	<1
12.08.24	79.6	40.4	11.6	20.5	0.35	<20	<10	<0.1	<0.6	<0.44	<5	<1
15.08.24	77.3	38.1	11.4	18.3	0.41	<20	<10	<0.1	<0.6	<0.44	<5	<1
19.08.24	69.6	37.3	9.9	20.4	0.34	<20	<10	<0.1	<0.6	<0.44	<5	<1
22.08.24	74.7	39.6	11.3	19.1	0.37	<20	<10	<0.1	<0.6	<0.44	<5	<1
26.08.24	69.4	36.7	11.6	19.7	0.37	<20	<10	<0.1	<0.6	<0.44	<5	<1
29.08.24	77.4	37.2	11.1	19.3	0.36	<20	<10	<0.1	<0.6	<0.44	<5	<1
Avg	75.12	38.50	11.09	19.41	0.37	<20	<10	<0.1	<0.6	<0.44	<5	<1
NAAQ* Standard	100	60	80	80	4	400	100	1.0	20	6	5	1
Methods of Analysis	IS: 5182 (Part-23)	IS: 5182 (Part-24)	IS: 5182 (Part-2)	IS: 5182 (Part-6)	IS: 5182 (Part-10)	IS: 5182 (Part-25)	IS: 5182 (Part-9)	IS: 5182 (Part-22)	IS: 5182 (Part-26)	CPCB Method (Part-11)	IS: 5182 (Part-11)	IS: 5182 (Part-12)

N.B- *NAAQ- National Ambient Air Quality Standard as per 18th Nov, 2009 G.Ot. Notification.

"<" symbol implicates that the values are below the limit or undetectable and cannot be incorporated in the report.

END OF REPORT

B.P. Das
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Report no.-CEMC/TSL/030924/A2

Issued Date-03.09.2024

AMBIENT AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Sample Description	Ambient Air Quality
Sample Drawn Period/ Time	Monthly/ 0900 to 0900 next day
Sample Drawn by	Mr. Rabindranath Das
Sampling Location	Infront of FC cast House (Core Zone)
Average Flow Rate of PM (m ³ /min)/ Gases (LPM)	1.1/1.0
Weather Conditions	Clear Sky
Reference No.	CEMC-03092024A2
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

ANALYSIS RESULT

Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	O ₃ (µg/m ³)	Pb (µg/m ³)	Ni (ng/m ³)	As (ng/m ³)	Benzene (µg/m ³)	BaP (ng/m ³)
01.08.24	79.4	36.3	12.5	18.2	0.35	<20	<10	<0.1	<0.6	<0.44	<5	<1
05.08.24	78.6	37.5	12.1	17.8	0.34	<20	<10	<0.1	<0.6	<0.44	<5	<1
08.08.24	76.4	37.2	11.8	18.1	0.37	<20	<10	<0.1	<0.6	<0.44	<5	<1
12.08.24	77.2	35.6	12.1	18.7	0.34	<20	<10	<0.1	<0.6	<0.44	<5	<1
15.08.24	80.3	38.5	12.7	19.2	0.36	<20	<10	<0.1	<0.6	<0.44	<5	<1
19.08.24	77.5	38.1	12.8	18.5	0.33	<20	<10	<0.1	<0.6	<0.44	<5	<1
22.08.24	79.3	36.4	12.2	19.4	0.36	<20	<10	<0.1	<0.6	<0.44	<5	<1
26.08.24	76.5	35.7	12.8	19.7	0.37	<20	<10	<0.1	<0.6	<0.44	<5	<1
29.08.24	75.2	35.11	12.4	18.6	0.35	<20	<10	<0.1	<0.6	<0.44	<5	<1
Avg	77.82	36.71	12.38	18.69	0.35	<20	<10	<0.1	<0.6	<0.44	<5	<1
NAAQ* Standard	100	60	80	80	4	400	100	1.0	20	6	5	1
Methods of Analysis	IS: 5182 (Part-23)	IS: 5182 (Part-24)	IS: 5182 (Part-2)	IS: 5182 (Part-6)	IS: 5182 (Part-10)	IS: 5182 (Part-25)	IS: 5182 (Part-9)	IS: 5182 (Part-22)	IS: 5182 (Part-26)	CPCB Method	IS: 5182 (Part-11)	IS: 5182 (Part-12)

N.B. *NAAQ- National Ambient Air Quality Standard as per 18th Nov, 2009 Gatt. Notification

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END OF REPORT

B.P. Das
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Report no.-CEMC/TSL/030924/A3

Issued Date-03.09.2024

AMBIENT AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Sample Description	Ambient Air Quality
Sample Drawn Period/ Time	Monthly/ 0900 to 0900 next day
Sample Drawn by	Mr. Rabindranath Das
Sampling Location	Infront of CPP (Core Zone)
Average Flow Rate of PM (m ³ /min)/ Gases (LPM)	1.1/1.0
Weather Conditions	Clear Sky
Reference No.	CEMC-03092024A3
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

ANALYSIS RESULT

Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	O ₃ (µg/m ³)	Pb (µg/m ³)	Ni (ng/m ³)	As (ng/m ³)	Benzene (µg/m ³)	BaP (ng/m ³)
01.08.24	75.4	34.5	11.8	17.8	0.35	<20	<10	<0.1	<0.6	<0.44	<5	<1
05.08.24	76.5	36.3	12.3	18.5	0.33	<20	<10	<0.1	<0.6	<0.44	<5	<1
08.08.24	77.1	33.7	12.6	18.7	0.36	<20	<10	<0.1	<0.6	<0.44	<5	<1
12.08.24	78.7	32.5	11.7	19	0.34	<20	<10	<0.1	<0.6	<0.44	<5	<1
15.08.24	75.1	34.3	12.1	18.8	0.32	<20	<10	<0.1	<0.6	<0.44	<5	<1
19.08.24	74.7	33.5	12.5	18.1	0.31	<20	<10	<0.1	<0.6	<0.44	<5	<1
22.08.24	76.3	32.5	13.3	18.2	0.35	<20	<10	<0.1	<0.6	<0.44	<5	<1
26.08.24	74.7	31.5	12.1	18.6	0.29	<20	<10	<0.1	<0.6	<0.44	<5	<1
29.08.24	73.5	33.3	11.8	19.7	0.34	<20	<10	<0.1	<0.6	<0.44	<5	<1
Avg	75.78	33.57	12.24	18.60	0.33	<20	<10	<0.1	<0.6	<0.44	<5	<1
NAAQ* Standard	100	60	80	80	4	400	100	1.0	20	6	5	1
Methods of Analysis	IS: 5182 (Part-23)	IS: 5182 (Part-24)	IS: 5182 (Part-2)	IS: 5182 (Part-6)	IS: 5182 (Part-10)	IS: 5182 (Part-25)	IS: 5182 (Part-9)	IS: 5182 (Part-22)	IS: 5182 (Part-26)	CPCB Method (Part-11)	IS: 5182 (Part-11)	IS: 5182 (Part-12)

N.B. *NAAQ- National Ambient Air Quality Standard as per 18th Nov. 2009 Govt. Notification

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END OF REPORT

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Report no.-CEMC/TSL/030924/A4

Issued Date-03.09.2024

AMBIENT AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Sample Description	Ambient Air Quality
Sample Drawn Period/ Time	Monthly/ 0900 to 0900 next day
Sample Drawn by	Mr. Rabindranath Das
Sampling Location	MRP Building (Core Zone)
Average Flow Rate of PM (m ³ /min)/ Gases (LPM)	1.1/1.0
Weather Conditions	Clear Sky
Reference No.	CEMC-03092024A4
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

ANALYSIS RESULT

Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	O ₃ (µg/m ³)	Pb (µg/m ³)	Ni (ng/m ³)	As (ng/m ³)	Benzene (µg/m ³)	BaP (ng/m ³)
01.08.24	75.3	32.7	11.5	18.4	0.29	<20	<10	<0.1	<0.6	<0.44	<5	<1
05.08.24	74.7	33.5	10.9	19.1	0.32	<20	<10	<0.1	<0.6	<0.44	<5	<1
08.08.24	73.5	31.7	11.3	17.6	0.28	<20	<10	<0.1	<0.6	<0.44	<5	<1
12.08.24	74.7	33.4	10.2	18.2	0.27	<20	<10	<0.1	<0.6	<0.44	<5	<1
15.08.24	76.2	31.4	11.7	17.8	0.28	<20	<10	<0.1	<0.6	<0.44	<5	<1
19.08.24	77.2	30.7	11.6	18.3	0.31	<20	<10	<0.1	<0.6	<0.44	<5	<1
22.08.24	75.4	33.5	12.1	18.6	0.33	<20	<10	<0.1	<0.6	<0.44	<5	<1
26.08.24	72.6	30.3	11.5	17.6	0.25	<20	<10	<0.1	<0.6	<0.44	<5	<1
29.08.24	78.5	31.2	11.8	19.2	0.34	<20	<10	<0.1	<0.6	<0.44	<5	<1
Avg	75.34	32.04	11.40	18.31	0.30	<20	<10	<0.1	<0.6	<0.44	<5	<1
AAQ* Standard	100	60	80	80	4	400	100	1.0	20	6	5	1
Methods of Analysis	IS: 5182 (Part-23)	IS: 5182 (Part-24)	IS: 5182 (Part-2)	IS: 5182 (Part-6)	IS: 5182 (Part-10)	IS: 5182 (Part-25)	IS: 5182 (Part-9)	IS: 5182 (Part-22)	IS: 5182 (Part-26)	CPCB Method (Part-11)	IS: 5182 (Part-11)	IS: 5182 (Part-12)

N.B- *AAQ- National Ambient Air Quality Standard as per 18th Nov, 2009 Gatt. Notification.

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END OF REPORT

B.P. Das
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Report no.-CEMC/TSL/030924/A5

Issued Date-03.09.2024

AMBIENT AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Sample Description	Ambient Air Quality
Sample Drawn Period/ Time	Monthly/ 0900 to 0900 next day
Sample Drawn by	Mr. Rabindranath Das
Sampling Location	BQT (Briquette) (Core Zone)
Average Flow Rate of PM (m ³ /min)/ Gases (LPM)	1.1/1.0
Weather Conditions	Clear Sky
Reference No.	CEMC-03092024A5
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

ANALYSIS RESULT

Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NOx (µg/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	O ₃ (µg/m ³)	Pb (µg/m ³)	Ni (ng/m ³)	As (ng/m ³)	Benzene (µg/m ³)	BaP (ng/m ³)
01.08.24	78.4	40.1	12.5	18.7	0.36	<20	<10	<0.1	<0.6	<0.44	<5	<1
05.08.24	82.3	41.3	12.6	19.8	0.39	<20	<10	<0.1	<0.6	<0.44	<5	<1
08.08.24	73.2	40.6	12.8	20.1	0.37	<20	<10	<0.1	<0.6	<0.44	<5	<1
12.08.24	83.4	42.2	12.3	18.8	0.35	<20	<10	<0.1	<0.6	<0.44	<5	<1
15.08.24	69.6	39.5	12.6	18.5	0.34	<20	<10	<0.1	<0.6	<0.44	<5	<1
19.08.24	71.4	38.6	12	18.7	0.35	<20	<10	<0.1	<0.6	<0.44	<5	<1
22.08.24	78.6	40.1	11.7	19.5	0.39	<20	<10	<0.1	<0.6	<0.44	<5	<1
26.08.24	83.5	38.3	11.5	19.2	0.37	<20	<10	<0.1	<0.6	<0.44	<5	<1
29.08.24	80.4	40.2	12.6	21.5	0.38	<20	<10	<0.1	<0.6	<0.44	<5	<1
Avg	77.87	40.10	12.29	19.42	0.37	<20	<10	<0.1	<0.6	<0.44	<5	<1
AAQ* Standard	100	60	80	80	4	400	100	1.0	20	6	5	1
Methods of Analysis	IS: 5182 (Part-23)	IS: 5182 (Part-24)	IS: 5182 (Part-2)	IS: 5182 (Part-6)	IS: 5182 (Part-10)	IS: 5182 (Part-25)	IS: 5182 (Part-9)	IS: 5182 (Part-22)	IS: 5182 (Part-26)	CPCB Method	IS: 5182 (Part-11)	IS: 5182 (Part-12)

N.B- *AAQ- National Ambient Air Quality Standard as per 18th Nov, 2009 Gati. Notification.

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END OF REPORT

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Report no.-CEMC/TSL/031024/A1

Issued Date-03.10.2024

AMBIENT AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Sample Description	Ambient Air Quality
Sample Drawn Period/ Time	Monthly/ 0900 to 0900 next day
Sample Drawn by	Mr. Rabindranath Das
Sampling Location	Roof Top-ADM Building (Core Zone)
Average Flow Rate of PM (m^3/min)/ Gases (LPM)	1.1/1.0
Weather Conditions	Clear Sky
Reference No.	CEMC-03102024A1
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

ANALYSIS RESULT

Date	PM ₁₀ ($\mu g/m^3$)	PM _{2.5} ($\mu g/m^3$)	SO ₂ ($\mu g/m^3$)	NO _x ($\mu g/m^3$)	CO (mg/m^3)	NH ₃ ($\mu g/m^3$)	O ₃ ($\mu g/m^3$)	Pb ($\mu g/m^3$)	Ni (ng/m^3)	As (ng/m^3)	Benzene ($\mu g/m^3$)	BaP (ng/m^3)
02.09.24	78.4	38.6	10.5	19.8	0.37	<20	<10	<0.1	<0.6	<0.44	<5	<1
05.09.24	77.6	36.6	10.9	17.5	0.35	<20	<10	<0.1	<0.6	<0.44	<5	<1
09.09.24	72.4	37.1	10.6	19.1	0.39	<20	<10	<0.1	<0.6	<0.44	<5	<1
12.09.24	77.2	38.2	11.4	20.1	0.34	<20	<10	<0.1	<0.6	<0.44	<5	<1
16.09.24	75.6	37.4	10.8	18.8	0.38	<20	<10	<0.1	<0.6	<0.44	<5	<1
19.09.24	70.4	35.8	10.2	19.7	0.36	<20	<10	<0.1	<0.6	<0.44	<5	<1
23.09.24	72.2	38.2	10.7	18.6	0.35	<20	<10	<0.1	<0.6	<0.44	<5	<1
26.09.24	73.1	37.4	11.2	19.5	0.36	<20	<10	<0.1	<0.6	<0.44	<5	<1
30.09.24	74.2	36.6	10.8	18.6	0.37	<20	<10	<0.1	<0.6	<0.44	<5	<1
Avg	74.57	37.32	10.79	19.08	0.36	<20	<10	<0.1	<0.6	<0.44	<5	<1
NAAQ* Standard	100	60	80	80	4	400	100	1.0	20	6	5	1
Methods of Analysis	IS: 5182 (Part-23)	IS: 5182 (Part-24)	IS: 5182 (Part-2)	IS: 5182 (Part-6)	IS: 5182 (Part-10)	IS: 5182 (Part-25)	IS: 5182 (Part-9)	IS: 5182 (Part-22)	IS: 5182 (Part-26)	CPCB Method	IS: 5182 (Part-11)	IS: 5182 (Part-12)

N.B. *NAAQ- National Ambient Air Quality Standard as per 18th Nov, 2009 Gatt. Notification.

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Report no.-CEMC/TSL/031024/A2

Issued Date-03.10.2024

AMBIENT AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Sample Description	Ambient Air Quality
Sample Drawn Period/ Time	Monthly/ 0900 to 0900 next day
Sample Drawn by	Mr. Rabindranath Das
Sampling Location	Infront of FC cast House (Core Zone)
Average Flow Rate of PM (m^3/min) / Gases (LPM)	1 / 1.0
Weather Conditions	Clear Sky
Reference No.	CEMC-03102024A2
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

ANALYSIS RESULT

Date	PM ₁₀ ($\mu g/m^3$)	PM _{2.5} ($\mu g/m^3$)	SO ₂ ($\mu g/m^3$)	NO _x ($\mu g/m^3$)	CO (mg/m^3)	NH ₃ ($\mu g/m^3$)	O ₃ ($\mu g/m^3$)	Pb ($\mu g/m^3$)	Ni (ng/m^3)	As (ng/m^3)	Benzene ($\mu g/m^3$)	BaP (ng/m^3)
02.09.24	77.6	36.2	12.1	17.9	0.34	<20	<10	<0.1	<0.6	<0.44	<5	<1
05.09.24	76.4	36.4	11.8	17.5	0.33	<20	<10	<0.1	<0.6	<0.44	<5	<1
09.09.24	74.8	36.8	11.4	17.6	0.35	<20	<10	<0.1	<0.6	<0.44	<5	<1
12.09.24	75.6	35.8	11.9	18.2	0.33	<20	<10	<0.1	<0.6	<0.44	<5	<1
16.09.24	78.2	37.2	12.2	18.8	0.35	<20	<10	<0.1	<0.6	<0.44	<5	<1
19.09.24	75.8	36.4	12.4	18.2	0.34	<20	<10	<0.1	<0.6	<0.44	<5	<1
23.09.24	77.4	38.8	11.9	18.8	0.33	<20	<10	<0.1	<0.6	<0.44	<5	<1
26.09.24	74.8	36.4	12.2	19.1	0.35	<20	<10	<0.1	<0.6	<0.44	<5	<1
30.09.24	73.4	37.8	12.1	18.8	0.34	<20	<10	<0.1	<0.6	<0.44	<5	<1
Avg	76.00	36.87	12.00	18.32	0.34	<20	<10	<0.1	<0.6	<0.44	<5	<1
NAAQ* Standard	100	60	80	80	4	400	100	1.0	20	6	5	1
Methods of Analysis	IS: 5182 (Part-23)	IS: 5182 (Part-24)	IS: 5182 (Part-2)	IS: 5182 (Part-6)	IS: 5182 (Part-10)	IS: 5182 (Part-25)	IS: 5182 (Part-9)	IS: 5182 (Part-22)	IS: 5182 (Part-26)	CPCB Method	IS: 5182 (Part-11)	IS: 5182 (Part-12)

N.B. *NAAQ- National Ambient Air Quality Standard as per 18th Nov, 2009 Govt. Notification

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Report no.-CEMC/TSL/031024/A3

Issued Date-03.10.2024

AMBIENT AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Sample Description	Ambient Air Quality
Sample Drawn Period/ Time	Monthly/ 0900 to 0900 next day
Sample Drawn by	Mr. Rabindranath Das
Sampling Location	Infront of CPP (Core Zone)
Average Flow Rate of PM (m ³ /min)/ Gases (LPM)	1.1/1.0
Weather Conditions	Clear Sky
Reference No.	CEMC-03102024A3
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

ANALYSIS RESULT

Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	O ₃ (µg/m ³)	Pb (µg/m ³)	Ni (ng/m ³)	As (ng/m ³)	Benzene (µg/m ³)	BaP (ng/m ³)
02.09.24	73.8	32.1	11.4	17.1	0.34	<20	<10	<0.1	<0.6	<0.44	<5	<1
05.09.24	74.2	34.2	11.8	17.9	0.32	<20	<10	<0.1	<0.6	<0.44	<5	<1
09.09.24	75.4	31.6	12.4	18.4	0.35	<20	<10	<0.1	<0.6	<0.44	<5	<1
12.09.24	76.2	33.2	11.3	18.2	0.33	<20	<10	<0.1	<0.6	<0.44	<5	<1
16.09.24	73.2	33.4	11.8	18.6	0.34	<20	<10	<0.1	<0.6	<0.44	<5	<1
19.09.24	72.1	31.8	12.2	17.4	0.29	<20	<10	<0.1	<0.6	<0.44	<5	<1
23.09.24	74.4	31.6	12.9	17.8	0.34	<20	<10	<0.1	<0.6	<0.44	<5	<1
26.09.24	72.6	32.4	11.8	18.4	0.31	<20	<10	<0.1	<0.6	<0.44	<5	<1
30.09.24	74.8	34.2	12.2	19.9	0.35	<20	<10	<0.1	<0.6	<0.44	<5	<1
Avg	74.08	32.72	11.98	18.19	0.33	<20	<10	<0.1	<0.6	<0.44	<5	<1
NAAQ* standard	100	60	80	80	4	400	100	1.0	20	6	5	1
Methods of Analysis	IS: 5182 (Part-23)	IS: 5182 (Part-24)	IS: 5182 (Part-2)	IS: 5182 (Part-6)	IS: 5182 (Part-10)	IS: 5182 (Part-25)	IS: 5182 (Part-9)	IS: 5182 (Part-22)	IS: 5182 (Part-26)	CPCB Method	IS: 5182 (Part-11)	IS: 5182 (Part-12)

N.B. *NAAQ: National Ambient Air Quality Standard as per 18th Nov, 2009 Govt. Notification.

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Report no.-CEMC/TSL/031024/A4

Issued Date-03.10.2024

AMBIENT AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Sample Description	Ambient Air Quality
Sample Drawn Period/ Time	Monthly/ 0900 to 0900 next day
Sample Drawn by	Mr. Rabindranath Das
Sampling Location	MRP Building (Core Zone)
Average Flow Rate of PM (m ³ /min)/ Gases (LPM)	1.1/1.0
Weather Conditions	Clear Sky
Reference No.	CEMC-031024A4
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

ANALYSIS RESULT

Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	O ₃ (µg/m ³)	Pb (µg/m ³)	Ni (ng/m ³)	As (ng/m ³)	Benzene (µg/m ³)	BaP (ng/m ³)
02.09.24	76.2	35.2	11.8	17.8	0.35	<20	<10	<0.1	<0.6	<0.44	<5	<1
05.09.24	77.6	37.5	12.4	18.5	0.33	<20	<10	<0.1	<0.6	<0.44	<5	<1
09.09.24	78.4	34.6	12.6	18.6	0.36	<20	<10	<0.1	<0.6	<0.44	<5	<1
12.09.24	79.8	33.4	11.8	19.2	0.35	<20	<10	<0.1	<0.6	<0.44	<5	<1
16.09.24	76.4	35.6	12.1	18.9	0.34	<20	<10	<0.1	<0.6	<0.44	<5	<1
19.09.24	75.2	34.2	12.4	18.3	0.33	<20	<10	<0.1	<0.6	<0.44	<5	<1
23.09.24	77.8	33.4	12.9	18.1	0.32	<20	<10	<0.1	<0.6	<0.44	<5	<1
26.09.24	75.6	32.8	11.7	18.6	0.31	<20	<10	<0.1	<0.6	<0.44	<5	<1
30.09.24	74.2	34.6	12.1	19.6	0.35	<20	<10	<0.1	<0.6	<0.44	<5	<1
Avg	76.80	34.59	12.20	18.62	0.34	<20	<10	<0.1	<0.6	<0.44	<5	<1
NAAQ* Standard	100	60	80	80	4	400	100	1.0	20	6	5	1
Methods of Analysis	IS: 5182 (Part-23)	IS: 5182 (Part-24)	IS: 5182 (Part-2)	IS: 5182 (Part-6)	IS: 5182 (Part-10)	IS: 5182 (Part-25)	IS: 5182 (Part-9)	IS: 5182 (Part-22)	IS: 5182 (Part-26)	CPCB Method	IS: 5182 (Part-11)	IS: 5182 (Part-12)

N.B. *NAAQ- National Ambient Air Quality Standard as per 18th Nov. 2009 Govt. Notification.

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Report no.-CEMC/TSI/031024/A5

Issued Date-03.10.2024

AMBIENT AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Sample Description	Ambient Air Quality
Sample Drawn Period/ Time	Monthly/ 0900 to 0900 next day
Sample Drawn by	Mr. Rabindranath Das
Sampling Location	BQT (Briquette) (Core Zone)
Average Flow Rate of PM (m ³ /min)/ Gases (LPM)	1.1/1.0
Weather Conditions	Clear Sky
Reference No.	CEMC-03102024A5
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

ANALYSIS RESULT

Date	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	O ₃ (µg/m ³)	Pb (µg/m ³)	Ni (ng/m ³)	As (ng/m ³)	Benzene (µg/m ³)	BaP (ng/m ³)
02.09.24	76.8	38.6	12.3	18.1	0.35	<20	<10	<0.1	<0.6	<0.44	<5	<1
05.09.24	80.4	39.2	12.4	19.4	0.37	<20	<10	<0.1	<0.6	<0.44	<5	<1
09.09.24	75.6	38.4	12.6	19.8	0.35	<20	<10	<0.1	<0.6	<0.44	<5	<1
12.09.24	81.8	40.3	12.1	18.4	0.34	<20	<10	<0.1	<0.6	<0.44	<5	<1
16.09.24	73.2	39.8	12.4	18.3	0.33	<20	<10	<0.1	<0.6	<0.44	<5	<1
19.09.24	74.6	37.2	11.8	18.5	0.34	<20	<10	<0.1	<0.6	<0.44	<5	<1
23.09.24	76.2	38.8	11.5	19.1	0.37	<20	<10	<0.1	<0.6	<0.44	<5	<1
26.09.24	81.2	36.4	11.7	18.6	0.35	<20	<10	<0.1	<0.6	<0.44	<5	<1
30.09.24	78.8	39.6	12.4	20.4	0.37	<20	<10	<0.1	<0.6	<0.44	<5	<1
Avg	77.62	38.70	12.13	18.96	0.35	<20	<10	<0.1	<0.6	<0.44	<5	<1
NAAQ* Standard	100	60	80	80	4	400	100	1.0	20	6	5	1
Methods of Analysis	IS: 5182 (Part-23)	IS: 5182 (Part-24)	IS: 5182 (Part-2)	IS: 5182 (Part-6)	IS: 5182 (Part-10)	IS: 5182 (Part-25)	IS: 5182 (Part-9)	IS: 5182 (Part-22)	IS: 5182 (Part-26)	CPCB Method	IS: 5182 (Part-11)	IS: 5182 (Part-12)

N.B- *NAAQ- National Ambient Air Quality Standard as per 18th Nov, 2009 Gatt. Notification.

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Report no.-CEMC/TSL/040524/A6

Issued Date-04.05.2024

AMBIENT AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Sample Description	Ambient Air Quality
Date of Sampling/Period	26.04.2024 & 27.04.2024/ 24 hrs sampling
Sample Drawn by	Mr. Rabindranath Das
Average Flow Rate of PM (m ³ /min)/ Gases (LPM)	1.1/1.0
Weather Conditions	Clear Sky
Reference No.	CEMC-04052024A6
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

ANALYSIS RESULT

(Buffer Zone)

Location	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	Nox (µg/m ³)	CO (mg/m ³)	NH ₃ (µg/m ³)	O ₃ (µg/m ³)	Pb (µg/m ³)	Ni (ng/m ³)	As (ng/m ³)	Benzene (µg/m ³)	BaP (ng/m ³)
Bangala	61.4	39.2	9.2	14.8	0.32	<20	<10	<0.1	<0.6	<0.44	<5	<1
Rabana	60.2	38.4	8.9	14.4	0.31	<20	<10	<0.1	<0.6	<0.44	<5	<1
Lakhapura	55.3	32.3	8.4	13.9	0.27	<20	<10	<0.1	<0.6	<0.44	<5	<1
Kumudi Sahi	53.8	32.1	8.2	14.1	0.29	<20	<10	<0.1	<0.6	<0.44	<5	<1
NAAQ* Standard	100	60	80	80	4	400	100	1.0	20	6	5	1
Methods of Analysis	IS: 5182 (Part-23)	IS: 5182 (Part-24)	IS: 5182 (Part-2)	IS: 5182 (Part-6)	IS: 5182 (Part-10)	IS: 5182 (Part-25)	IS: 5182 (Part-9)	IS: 5182 (Part-22)	IS: 5182 (Part-26)	CPCB Method	IS: 5182 (Part-11)	IS: 5182 (Part-12)

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Report no.-CEMC/TSL/040524/A7

Issued Date-04.05.2024

AMBIENT AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Sample Description	Ambient Air Quality
Sample Drawn Period/ Time	Monthly/ 0900 to 0900 next day
Sample Drawn by	Mr. Rabindranath Das
Average Flow Rate of PM (m ³ /min)/ Gases(lpm)	1.1/1.0
Weather Conditions	Clear Sky
Date of Sampling	04.04.2024
Reference No.	CEMC-04052024A7
Instrument Used	Respirable Dust Sampler
Sample Description	Heavy Metals in Air

ANALYSIS RESULT

Locations	Iron ($\mu\text{g}/\text{m}^3$)	Zinc ($\mu\text{g}/\text{m}^3$)	Cadmium ($\mu\text{g}/\text{m}^3$)	T. Chromium ($\mu\text{g}/\text{m}^3$)	Hexa Cr ($\mu\text{g}/\text{m}^3$)
BQT (Briquette)	23.95	10.08	<0.02	0.8	0.5
MRP	8.84	4.57	<0.02	<0.03	<0.03
Product Handling Yard (Finish Yard)	12.24	7.32	<0.02	0.09	<0.03
Furnace Area	19.12	8.21	<0.02	0.52	0.23
Methods of Analysis	ICP method	ICP method	ICP method	ICP method	Colorimetric method

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Report no.-CEMC/TSL/050624/A6

Issued Date-05.06.2024

AMBIENT AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Sample Description	Ambient Air Quality
Date of Sampling/Period	14.05.2024 & 15.05.2024/ 24 hrs sampling
Sample Drawn by	Mr. Rabindranath Das
Average Flow Rate of PM (m^3/min) / Gases (LPM)	1.1/1.0
Weather Conditions	Clear Sky
Reference No.	CEMC-05062024A6
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

ANALYSIS RESULT (Buffer Zone)

Location	PM ₁₀ ($\mu g/m^3$)	PM _{2.5} ($\mu g/m^3$)	SO ₂ ($\mu g/m^3$)	NO _x ($\mu g/m^3$)	CO (mg/m^3)	NH ₃ ($\mu g/m^3$)	O ₃ ($\mu g/m^3$)	Pb ($\mu g/m^3$)	Ni (ng/m^3)	As (ng/m^3)	Benzene ($\mu g/m^3$)	BaP (ng/m^3)
Bangala	61.9	39.2	8.4	12.9	0.17	<20	<10	<0.1	<0.6	<0.44	<5	<1
Rabana	59.3	32.4	8.9	13.5	0.19	<20	<10	<0.1	<0.6	<0.44	<5	<1
Jakhapura	55.1	33.9	7.4	13.1	0.21	<20	<10	<0.1	<0.6	<0.44	<5	<1
Kumudi Sahi	52.8	31.9	9.6	14.6	0.23	<20	<10	<0.1	<0.6	<0.44	<5	<1
NAAQ* Standard	100	60	80	80	4	400	100	1.0	20	6	5	1
Methods of Analysis	IS: 5182 (Part-23)	IS: 5182 (Part-24)	IS: 5182 (Part-2)	IS: 5182 (Part-6)	IS: 5182 (Part-10)	IS: 5182 (Part-25)	IS: 5182 (Part-9)	IS: 5182 (Part-22)	IS: 5182 (Part-26)	CPCB Method	IS: 5182 (Part-11)	IS: 5182 (Part-12)

N.B: *NAAQ- National Ambient Air Quality Standard as per 18th Nov, 2009 Govt. Notification.

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Report no.-CEMC/TSL/040724/A6

Issued Date-04.07.2024

AMBIENT AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Sample Description	Ambient Air Quality
Date of Sampling/Period	07.06.2024 & 08.06.2024/ 24 hrs sampling
Sample Drawn by	Mr. Rabindranath Das
Average Flow Rate of PM (m^3/min)/ Gases (LPM)	1.1/1.0
Weather Conditions	Clear Sky
Reference No.	CEMC-04072024A6
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

ANALYSIS RESULT

(Buffer Zone)

Location	PM ₁₀ ($\mu g/m^3$)	PM _{2.5} ($\mu g/m^3$)	SO ₂ ($\mu g/m^3$)	NO _x ($\mu g/m^3$)	CO (mg/m^3)	NH ₃ ($\mu g/m^3$)	O ₃ ($\mu g/m^3$)	Pb ($\mu g/m^3$)	Ni (ng/m^3)	As (ng/m^3)	Benzene ($\mu g/m^3$)	BaP (ng/m^3)
Bangala	58.4	37.4	8.1	11.3	0.15	<20	<10	<0.1	<0.6	<0.44	<5	<1
Rabana	57.2	30.6	7.8	12.4	0.16	<20	<10	<0.1	<0.6	<0.44	<5	<1
Lakhapura	53.6	32.2	7.2	12.2	0.19	<20	<10	<0.1	<0.6	<0.44	<5	<1
Kumudi Sahi	50.3	29.4	8.7	13.2	0.21	<20	<10	<0.1	<0.6	<0.44	<5	<1
NAAQ* Standard	100	60	80	80	4	400	100	1.0	20	6	5	1
Methods of Analysis	IS: 5182 (Part-23)	IS: 5182 (Part-24)	IS: 5182 (Part-2)	IS: 5182 (Part-6)	IS: 5182 (Part-10)	IS: 5182 (Part-25)	IS: 5182 (Part-9)	IS: 5182 (Part-22)	IS: 5182 (Part-26)	CPCB Method	IS: 5182 (Part-11)	IS: 5182 (Part-12)

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Report no.-CEMC/TSL/050824/A6

Issued Date-05.08.2024

AMBIENT AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Sample Description	Ambient Air Quality
Date of Sampling/Period	12.07.2024 & 13.07.2024/ 24 hrs sampling
Sample Drawn by	Mr. Rabindranath Das
Average Flow Rate of PM (m^3/min)/ Gases (LPM)	1.1/1.0
Weather Conditions	Clear Sky
Reference No.	CEMC-05082024A6
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

ANALYSIS RESULT (Buffer Zone)

Location	PM ₁₀ ($\mu g/m^3$)	PM _{2.5} ($\mu g/m^3$)	SO ₂ ($\mu g/m^3$)	Nox ($\mu g/m^3$)	CO (mg/m^3)	NH ₃ ($\mu g/m^3$)	O ₃ ($\mu g/m^3$)	Pb ($\mu g/m^3$)	Ni (ng/m^3)	As (ng/m^3)	Benzene ($\mu g/m^3$)	BaP (ng/m^3)
Bangala	54.8	36.4	8.8	14.2	0.29	<20	<10	<0.1	<0.6	<0.44	<5	<1
Rabana	52.6	35.8	8.1	13.8	0.28	<20	<10	<0.1	<0.6	<0.44	<5	<1
Kalinga Nagar	49.4	30.6	7.9	13.4	0.26	<20	<10	<0.1	<0.6	<0.44	<5	<1
Kumudi Sahi	50.6	29.4	7.7	13.2	0.28	<20	<10	<0.1	<0.6	<0.44	<5	<1
NAAQ* Standard	100	60	80	80	4	400	100	1.0	20	6	5	1
Methods of Analysis	IS: 5182 (Part-23)	IS: 5182 (Part-24)	IS: 5182 (Part-2)	IS: 5182 (Part-6)	IS: 5182 (Part-10)	IS: 5182 (Part-25)	IS: 5182 (Part-9)	IS: 5182 (Part-22)	IS: 5182 (Part-26)	CPCB Method	IS: 5182 (Part-11)	IS: 5182 (Part-12)

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Report no.-CEMC/TSL/030924/A6

Issued Date-03.09.2024

AMBIENT AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Sample Description	Ambient Air Quality
Date of Sampling/Period	22.08.2024 & 23.08.2024/ 24 hrs sampling
Sample Drawn by	Mr. Rabindranath Das
Average Flow Rate of PM (m^3/min)/ Gases (LPM)	1.1/1.0
Weather Conditions	Clear Sky
Reference No.	CEMC-03092024A6
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

ANALYSIS RESULT (Buffer Zone)

Location	PM ₁₀ ($\mu g/m^3$)	PM _{2.5} ($\mu g/m^3$)	SO ₂ ($\mu g/m^3$)	Nox ($\mu g/m^3$)	CO (mg/m^3)	NH ₃ ($\mu g/m^3$)	O ₃ ($\mu g/m^3$)	Pb ($\mu g/m^3$)	Ni (ng/m^3)	As (ng/m^3)	Benzene ($\mu g/m^3$)	BaP (ng/m^3)
Bangala	51.6	34.8	8.6	13.9	0.28	<20	<10	<0.1	<0.6	<0.44	<5	<1
Rabana	50.2	33.6	7.9	13.6	0.27	<20	<10	<0.1	<0.6	<0.44	<5	<1
Bhakhapura	47.8	28.4	7.7	13.2	0.25	<20	<10	<0.1	<0.6	<0.44	<5	<1
Kumudi Sahi	48.4	27.6	7.5	13.1	0.26	<20	<10	<0.1	<0.6	<0.44	<5	<1
NAAQ* Standard	100	60	80	80	4	400	100	1.0	20	6	5	1
Methods of Analysis	IS: 5182 (Part-23)	IS: 5182 (Part-24)	IS: 5182 (Part-2)	IS: 5182 (Part-6)	IS: 5182 (Part-10)	IS: 5182 (Part-25)	IS: 5182 (Part-9)	IS: 5182 (Part-22)	IS: 5182 (Part-26)	CPCB Method	IS: 5182 (Part-11)	IS: 5182 (Part-12)

N.B.- *NAAQ- National Ambient Air Quality Standard as per 18th Nov, 2009 Gatt. Notification.

"<" symbol implicates that the values are below the limit or undesirable and cannot be incorporated in the report.

END OF REPORT

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Report no.-CEMC/TSI/031024/A6

Issued Date-03.10.2024

AMBIENT AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Sample Description	Ambient Air Quality
Date of Sampling/Period	10.09.2024 & 28.09.2024/ 24 hrs sampling
Sample Drawn by	Mr. Rabindranath Das
Average Flow Rate of PM (m^3/min) / Gases (LPM)	1.1/1.0
Weather Conditions	Clear Sky
Reference No.	CEMC-03102024A6
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

ANALYSIS RESULT (Buffer Zone)

Location	PM ₁₀ ($\mu g/m^3$)	PM _{2.5} ($\mu g/m^3$)	SO ₂ ($\mu g/m^3$)	Nox ($\mu g/m^3$)	CO (mg/m^3)	NH ₃ ($\mu g/m^3$)	O ₃ ($\mu g/m^3$)	Pb ($\mu g/m^3$)	Ni (ng/m^3)	As (ng/m^3)	Benzene ($\mu g/m^3$)	BaP (ng/m^3)
Bangala	48.2	32.4	8.4	13.2	0.27	<20	<10	<0.1	<0.6	<0.44	<5	<1
Rabana	48.8	32.6	7.5	13.2	0.26	<20	<10	<0.1	<0.6	<0.44	<5	<1
Lakhapura	45.4	27.2	7.4	12.9	0.24	<20	<10	<0.1	<0.6	<0.44	<5	<1
Kumudi Sahi	45.6	27.2	7.3	12.8	0.25	<20	<10	<0.1	<0.6	<0.44	<5	<1
NAAQ* Standard	100	60	80	80	4	400	100	1.0	20	6	5	1
Methods of Analysis	IS: 5182 (Part-23)	IS: 5182 (Part-24)	IS: 5182 (Part-2)	IS: 5182 (Part-6)	IS: 5182 (Part-10)	IS: 5182 (Part-25)	IS: 5182 (Part-9)	IS: 5182 (Part-22)	IS: 5182 (Part-26)	CPCB Method	IS: 5182 (Part-11)	IS: 5182 (Part-12)

N.B. *NAAQ- National Ambient Air Quality Standard as per 18th Nov, 2009 Govt. Notification.

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Report no.-CEMC/TSL/040524/F1

Issued Date-04.05.2024

FUGITIVE AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Sample Description	Fugitive Air Quality
Sample Drawn Period	Monthly Once
Sample Drawn by	Mr. Rabindranath Das
Instrument Used	Respirable Dust Sampler
Date of Sampling	03.04.2024 & 04.04.2024
Reference No	CEMC-04052024F1

ANALYSIS RESULT

Sl. No.	Locations	Suspended Particulate Matter (SPM)	Respirable Particulate Matter (RPM)
1	GCP Area	590	143
2	MRP Site	652	194
3	Product Handling Yard (Finish Yard)	568	165
4	Furnace Cast House	704	181
5	Weigh Bridge	411	138
MoEF&CC Notification 03 rd Feb, 2006		1200	
Unit		$\mu\text{g}/\text{m}^3$	
Testing Method		IS: 5182(Part-4) Gravimetric method	

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Report no.-CEMC/TSL/050624/F1

Issued Date-05.06.2024

FUGITIVE AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Sample Description	Fugitive Air Quality
Sample Drawn Period	Monthly Once
Sample Drawn by	Mr. Rabindranath Das
Instrument Used	Respirable Dust Sampler
Date of Sampling	13.05.2024
Reference No.	CEMC-05062024F1

ANALYSIS RESULT

Sl. No.	Locations	Suspended Particulate Matter (SPM)	Respirable Particulate Matter (RPM)
1	GCP Area	602	142
2	MRP Site	671	178
3	Product Handling Yard (Finish Yard)	506	134
4	Furnace Cast House	658	145
5	Weigh Bridge	399	132
MoEF&CC Notification 03 rd Feb, 2006		1200	
Unit		$\mu\text{g}/\text{m}^3$	
Testing Method		IS: 5182(Part-4) Gravimetric method	

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Report no.-CEMC/TSL/040724/F1

Issued Date-04.07.2024

FUGITIVE AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Sample Description	Fugitive Air Quality
Sample Drawn Period	Monthly Once
Sample Drawn by	Mr. Rabindranath Das
Instrument Used	Respirable Dust Sampler
Date of Sampling	07.06.2024 & 08.06.2024
Reference No.	CEMC-04072024F1

ANALYSIS RESULT

Sl. No.	Locations	Suspended Particulate Matter (SPM)	Respirable Particulate Matter (RPM)
1	GCP Area	588	134
2	MRP Site	654	162
3	Product Handling Yard (Finish Yard)	492	124
4	Furnace Cast House	634	138
5	Weigh Bridge	386	120
MoEF&CC Notification 03 rd Feb, 2006		1200	
Unit		µg/m ³	
Testing Method		IS: 5182 (Part-4) Gravimetric method	

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Report no.-CEMC/TSL/050824/F1

Issued Date-05.08.2024

FUGITIVE AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Sample Description	Fugitive Air Quality
Sample Drawn Period	Monthly Once
Sample Drawn by	Mr. Rabindranath Das
Instrument Used	Respirable Dust Sampler
Date of Sampling	11.07.2024 & 12.07.2024
Reference No.	CEMC-05082024F1

ANALYSIS RESULT

Sl. No.	Locations	Suspended Particulate Matter (SPM)	Respirable Particulate Matter (RPM)
1	GCP Area	462	122
2	MRP Site	530	154
3	Product Handling Yard (Finish Yard)	446	122
4	Furnace Cast House	578	114
5	Weigh Bridge	270	107
MoEF&CC Notification 03 rd Feb, 2006		1200	
Unit		$\mu\text{g}/\text{m}^3$	
Testing Method		IS: 5182(Part-4) Gravimetric method	

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Report no.-CEMC/TSL/030924/F1

Issued Date-03.09.2024

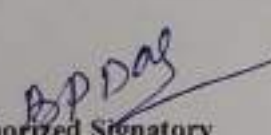
FUGITIVE AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Sample Description	Fugitive Air Quality
Sample Drawn Period	Monthly Once
Sample Drawn by	Mr. Rabindranath Das
Instrument Used	Respirable Dust Sampler
Date of Sampling	21.08.2024 & 22.08.2024
Reference No.	CEMC-03092024F1

ANALYSIS RESULT

Sl. No.	Locations	Suspended Particulate Matter (SPM)	Respirable Particulate Matter (RPM)
1	GCP Area	454	118
2	MRP Site	515	142
3	Product Handling Yard (Finish Yard)	432	114
4	Furnace Cast House	562	106
5	Weigh Bridge	254	98
MoEF&CC Notification 03 rd Feb, 2006		1200	
Unit		$\mu\text{g}/\text{m}^3$	
Testing Method		IS: 5182(Part-4) Gravimetric method	

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Report no.-CEMC/TSL/031024/F1

Issued Date-03.10.2024

FUGITIVE AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Sample Description	Fugitive Air Quality
Sample Drawn Period	Monthly Once
Sample Drawn by	Mr. Rabindranath Das
Instrument Used	Respirable Dust Sampler
Date of Sampling	09.09.2024 & 10.09.2024
Reference No.	CEMC-03102024F1

ANALYSIS RESULT

Sl. No.	Locations	Suspended Particulate Matter (SPM)	Respirable Particulate Matter (RPM)
1	GCP Area	438	108
2	MRP Site	492	136
3	Product Handling Yard (Finish Yard)	426	102
4	Furnace Cast House	548	92
5	Weigh Bridge	226	72
MoEF&CC Notification 03 rd Feb, 2006		1200	
Unit		$\mu\text{g}/\text{m}^3$	
Testing Method		IS: 5182(Part-4) Gravimetric method	

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Annexure 4- ETP and STP Newly Installed



ETP-720KLD

Major Facilities of Effluent Treatment Plant:

- Central Effluent Collection tank.
- Final Treated Collection Tank and Clarified water Storage Tank
- High-Rate Solid Contact Clarifier, Reaction Tank with Baffle Reactor and Pump & Blower room



- STP 10KLD 2 numbers installed
 - Located at QC Lab
 - Located at Briquette Plant



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Report no. - CEMC/TSL/040524/GWI

Issued Date-04.05.2024

GROUND WATER QUALITY TEST REPORT

Name & Address of the Client : M/s. TATA Steel Ltd., (Ferro Alloys Plant),
Kalinga Nagar, Jajpur
Date of Sampling : 03.04.2024
Sampling by : Mr. Rabindra Nath Das
Date of Sample Received : 03.04.2024
Sample Description : Ground Water
Sample Location : Near Main Gate
Date of Analysis : 04.04.2024 to 15.04.2024
Reference No. : CEMC-04052024GWI

ANALYSIS RESULT

Sl. No	Parameter	Unit of measurement	Testing Method	Standard as per IS: 10500, 2012		Result
				Acceptable Limit	Permissible Limit	
1	Colour	Hazen	APHA 2120 B,C	5	15	<5
2	Odour	--	APHA 2150 B	AL	AL	AL
3	Turbidity	NTU	APHA 2130 B	1	5	<1
4	pH Value @ 25°C	--	APHA 4500H ⁺ B	6.5-8.5	No Relaxation	6.71
5	Total Hardness (as CaCO ₃)	mg/l	APHA 2340 C	200	600	188
6	Iron (as Fe)	mg/l	APHA 3500Fe, B	0.3	No Relaxation	<0.05
7	Chloride (as Cl)	mg/l	APHA 4500Cl ⁻ B	250	1000	25.9
8	Residual, free Chlorine	mg/l	APHA 4500Cl ₂ B	0.2	1.0	ND
9	Total Dissolved Solids	mg/l	APHA 2540 C	500	2000	302.4
10	Calcium (as Ca)	mg/l	APHA 3500Ca B	75	200	37.67
11	Magnesium (as Mg)	mg/l	APHA 3500Mg B	30	100	22.84
12	Sulphate (as SO ₄)	mg/l	APHA 4500 SO ₄ ²⁻ E	200	400	72.4
13	Fluoride (as F)	mg/l	APHA 4500F ⁻ C	1.0	1.5	<0.05
14	Total Alkalinity (as CaCO ₃)	mg/l	APHA 2320 B	200	600	186
15	Anionic Detergents (as MBAS)	mg/l	APHA 5540 C	0.2	1.0	ND
16	Chloramines (as Cl ₂)	mg/l	IS 3025 (P-26)	4.0	No Relaxation	ND
17	Boron (as B)	mg/l	APHA 4500B, B	0.5	1.0	<0.2

NB: ND- Not Detectable, AL- Agreeable.

Authorized Signatory

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Report no. - CEMC/TSL/040524/GW2

Issued Date-04.05.2024

GROUND WATER QUALITY TEST REPORT

Name & Address of the Client : M/s. TATA Steel Ltd., (Ferro Alloys Plant),
Kalinga Nagar, Jajpur
Date of Sampling : 03.04.2024
Sampling by : Mr. Rabindra Nath Das
Date of Sample Received : 03.04.2024
Sample Description : Ground Water
Sample Location : Near CPP
Date of Analysis : 04.04.2024 to 15.04.2024
Reference No. : CEMC-04052024GW2

ANALYSIS RESULT

Sl. No	Parameter	Unit of measurement	Testing Method	Standard as per IS: 10500, 2012		Result
				Acceptable Limit	Permissible Limit	
1	Colour	Hazen	APHA 2120 B,C	5	15	<5
2	Odour	--	APHA 2150 B	AL	AL	AL
3	Turbidity	NTU	APHA 2130 B	1	5	<1
4	pH Value @ 25°C	--	APHA 4500H ⁺ B	6.5-8.5	No Relaxation	7.03
5	Total Hardness (as CaCO ₃)	mg/l	APHA 2340 C	200	600	184
6	Iron (as Fe)	mg/l	APHA 3500Fe, B	0.3	No Relaxation	<0.05
7	Chloride (as Cl)	mg/l	APHA 4500Cl ⁻ B	250	1000	37.9
8	Residual, free Chlorine	mg/l	APHA 4500Cl ₂ B	0.2	1.0	ND
9	Total Dissolved Solids	mg/l	APHA 2540 C	500	2000	352.4
10	Calcium (as Ca)	mg/l	APHA 3500Ca B	75	200	45.7
11	Magnesium (as Mg)	mg/l	APHA 3500Mg B	30	100	17.01
12	Sulphate (as SO ₄)	mg/l	APHA 4500 SO ₄ ²⁻ E	200	400	24.6
13	Fluoride (as F)	mg/l	APHA 4500F ⁻ C	1.0	1.5	<0.05
14	Total Alkalinity (as CaCO ₃)	mg/l	APHA 2320 B	200	600	198
15	Anionic Detergents (as MBAS)	mg/l	APHA 5540 C	0.2	1.0	ND
16	Chloramines (as Cl ₂)	mg/l	IS 3025 (P-26)	4.0	No Relaxation	ND
17	Boron (as B)	mg/l	APHA 4500B, B	0.5	1.0	<0.2

NB: ND- Not Detectable, AL- Agreeable.

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Report no. - CEMC/TSL/040524/GW3

Issued Date-04.05.2024

GROUND WATER QUALITY TEST REPORT

Name & Address of the Client : M/s. TATA Steel Ltd., (Ferro Alloys Plant),
Kalinga Nagar, Jajpur
Date of Sampling : 03.04.2024
Sampling by : Mr. Rabindra Nath Das
Date of Sample Received : 03.04.2024
Sample Description : Ground Water
Sample Location : MRP
Date of Analysis : 04.04.2024 to 15.04.2024
Reference No. : CEMC-04052024GW3

ANALYSIS RESULT

Sl. No	Parameter	Unit of measurement	Testing Method	Standard as per IS: 10500, 2012		Result
				Acceptable Limit	Permissible Limit	
1	Colour	Hazen	APHA 2120 B,C	5	15	<5
2	Odour	—	APHA 2150 B	AL	AL	AL
3	Turbidity	NTU	APHA 2130 B	1	5	<1
4	pH Value @ 25°C	—	APHA 4500H ⁺ B	6.5-8.5	No Relaxation	6.92
5	Total Hardness (as CaCO ₃)	mg/l	APHA 2340 C	200	600	278
6	Iron (as Fe)	mg/l	APHA 3500Fe, B	0.3	No Relaxation	<0.05
7	Chloride (as Cl)	mg/l	APHA 4500Cl ⁻ B	250	1000	49.9
8	Residual, free Chlorine	mg/l	APHA 4500Cl ⁻ B	0.2	1.0	ND
9	Total Dissolved Solids	mg/l	APHA 2540 C	500	2000	562.4
10	Calcium (as Ca)	mg/l	APHA 3500Ca B	75	200	67.33
11	Magnesium (as Mg)	mg/l	APHA 3500Mg B	30	100	26.73
12	Sulphate (as SO ₄)	mg/l	APHA 4500 SO ₄ ²⁻ E	200	400	42.4
13	Fluoride (as F)	mg/l	APHA 4500F ⁻ C	1.0	1.5	<0.05
14	Total Alkalinity (as CaCO ₃)	mg/l	APHA 2320 B	200	600	226
15	Anionic Detergents (as MBAS)	mg/l	APHA 5540 C	0.2	1.0	ND
16	Chloramines (as Cl ₂)	mg/l	IS 3025 (P-26)	4.0	No Relaxation	ND
17	Boron (as B)	mg/l	APHA 4500B, B	0.5	1.0	<0.2

NB: ND- Not Detectable, AL- Agreeable.

Authorized Signatory

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Report No. - CEMC/TSL/040524/SW1

Issued Date-04.05.2024

SURFACE WATER QUALITY TEST REPORT

Name & Address of the Client

: M/s. TATA Steel Ltd., (Ferro Alloys Plant),
Kalinga Nagar, Jajpur

Date of Sampling

: 03.04.2024

Sampling by

: Mr. Rabindra Nath Das

Date of Sample Received

: 03.04.2024

Sample Description

: Surface Water

Sample Quantity

: 2.0 Ltrs

Location

: Nala Water near Bridge area

Date of Analysis

: 04.04.2024 to 15.04.2024

Reference No.

: CEMC-04052024SW1

ANALYSIS RESULT

Sl. No	Parameter	Unit of measurement	IS 2490: Discharge into Inland Surface Water	Testing Method	Result
1	Colour	Hazen	—	APHA 2120 B,C &	10
2	Odour	—	—	APHA 2150 B	U/O
3	Total Suspended Solids	mg/l	100	APHA 2540 D	26.4
4	Particular size of SS	—	Shall pass 850	APHA 2540 D	<850
5	pH Value @ 25°C	—	5.5 to 9.0	APHA 4500H ⁺ B	7.17
6	Temperature	°C	Shall not Exceed 40 within 15 m d/s from effluent Outlet	APHA 2550 B	26.8
7	Oil & Grease	mg/l	10	APHA 5520 B	<1
8	Residual Free Chlorine	mg/l	1.0	APHA 4500Cl ₂ B	ND
9	Ammonical Nitrogen	mg/l	50	APHA 4500NH ₃ B,C	ND
10	Total Kjeldahl Nitrogen as N	mg/l	100	APHA 4500 N, B	4.2
11	Free Ammonia	mg/l	5.0	Calculation Method	ND
12	Biochemical Oxygen Demand	mg/l	30	APHA 5210 B	6.2
13	Chemical Oxygen Demand	mg/l	250	APHA 5220 C	20
14	Arsenic (as As)	mg/l	0.2	APHA 3114 B	<0.001
15	Mercury (as Hg)	mg/l	0.01	APHA 3500Hg	<0.001
16	Lead (as Pb)	mg/l	0.1	APHA 3111 B,C	<0.01
17	Cadmium (as Cd)	mg/l	2.0	APHA 3111 B,C	<0.01
18	Hexavalent Chromium (as Cr ^{VI})	mg/l	0.1	APHA 3500Cr B	0.09
19	Total Chromium (as Cr)	mg/l	2.0	APHA 3111 B,C	0.22
20	Copper (as Cu)	mg/l	3.0	APHA 3111 B,C	<0.03
21	Zinc (as Zn)	mg/l	5.0	APHA 3111 B,C	<0.05
22	Selenium (as Se)	mg/l	0.05	APHA 3114 B	<0.001
23	Nickel (as Ni)	mg/l	3.0	APHA 3111 B,C	<0.05
24	Cyanide (as CN)	mg/l	0.2	APHA 4500CN ⁻ C,D	ND
25	Fluoride (as F)	mg/l	2.0	APHA 4500F ⁻ C	0.08
26	Dissolved Phosphate (as PO ₄)	mg/l	5.0	APHA 4500P D	0.62
27	Sulphide (as S)	mg/l	2.0	APHA 4500 S ²⁻ D	<0.1

N.B: U/O-Unobjectionable, ND-Not Detectable

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Report No. - CEMC/TSL/040524/SW1

Issued Date-04.05.2024

28	Phenolic Compounds (as C_6H_5OH)	mg/l	1.0	APHA 5530 B,D	<0.001
29	Bioassay Test	--	90% survival of fish after 96 hours in 100% effluent	APHA 8910 C	95%
30	Manganese (as Mn)	mg/l	2.0	APHA 3500Mn B	<0.05
31	Iron (as Fe)	mg/l	3.0	APHA 3500Fe, B	0.28
32	Vanadium (as V)	mg/l	0.2	APHA 3111 B,C	<0.01
33	Nitrate (as NO_3)	mg/l	10	APHA 4500 NO_3^- E	3.6
34	Dissolved Oxygen	mg/l	--	APHA 4500O C	6.2

End of the Report

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Report No. - CEMC/TS/040524/SW2

Issued Date-04.05.2024

SURFACE WATER QUALITY TEST REPORT

Name & Address of the Client

: M/s. TATA Steel Ltd., (Ferro Alloys Plant),
Kalinga Nagar, Jajpur

Date of Sampling

: 03.04.2024

Sampling by

: Mr. Rabindra Nath Das

Date of Sample Received

: 03.04.2024

Sample Description

: Surface Water

Sample Quantity

: 2.0 Ltrs

Location

: IDCO Water to the Reservoir

Date of Analysis

: 04.04.2024 to 15.04.2024

Reference No.

: CEMC-04052024SW2

ANALYSIS RESULT

Sl. No	Parameter	Unit of measurement	IS 2490: Discharge into Inland Surface Water	Testing Method	Result
1	Colour	Hazen	—	APHA 2120 B,C &	<5
2	Odour	—	—	APHA 2150 B	U/O
3	Total Suspended Solids	mg/l	100	APHA 2540 D	<5
4	Particular size of SS	—	Shall pass 850	APHA 2540 D	<850
5	pH Value @ 25°C	—	5.5 to 9.0	APHA 4500H ⁺ B	7.41
6	Temperature	°C	Shall not Exceed 40 within 15 m d/s from effluent Outlet	APHA 2550 B	26.2
7	Oil & Grease	mg/l	10	APHA 5520 B	<1
8	Residual Free Chlorine	mg/l	1.0	APHA 4500Cl ₂ B	ND
9	Ammonical Nitrogen	mg/l	50	APHA 4500NH ₃ B,C	ND
10	Total Kjeldahl Nitrogen as N	mg/l	100	APHA 4500 N, B	2.6
11	Free Ammonia	mg/l	5.0	Calculation Method	ND
12	Biochemical Oxygen Demand	mg/l	30	APHA 5210 B	<2
13	Chemical Oxygen Demand	mg/l	250	APHA 5220 C	10
14	Arsenic (as As)	mg/l	0.2	APHA 3114 B	<0.001
15	Mercury (as Hg)	mg/l	0.01	APHA 3500Hg	<0.001
16	Lead (as Pb)	mg/l	0.1	APHA 3111 B,C	<0.01
17	Cadmium (as Cd)	mg/l	2.0	APHA 3111 B,C	<0.01
18	Hexavalent Chromium (as Cr ⁶⁺)	mg/l	0.1	APHA 3500Cr B	<0.05
19	Total Chromium (as Cr)	mg/l	2.0	APHA 3111 B,C	<0.05
20	Copper (as Cu)	mg/l	3.0	APHA 3111 B,C	<0.03
21	Zinc (as Zn)	mg/l	5.0	APHA 3111 B,C	<0.05
22	Selenium (as Se)	mg/l	0.05	APHA 3114 B	<0.001
23	Nickel (as Ni)	mg/l	3.0	APHA 3111 B,C	<0.05
24	Cyanide (as CN)	mg/l	0.2	APHA 4500CN ⁻ C,D	ND
25	Fluoride (as F)	mg/l	2.0	APHA 4500F ⁻ C	<0.05
26	Dissolved Phosphate (as PO ₄)	mg/l	5.0	APHA 4500P D	<0.05
27	Sulphide (as S)	mg/l	2.0	APHA 4500 S ²⁻ D	<0.1

N.B: U/O-Unobjectionable, ND-Not Detectable

Pg-3 of 4

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Report No. - CEMC/TSL/040524/SW2

Issued Date-04.05.2024

28	Phenolic Compounds (as C_6H_5OH)	mg/l	1.0	APHA 5530 B,D	<0.001
29	Bioassay Test	--	90% survival of fish after 96 hours in 100% effluent	APHA 8910 C	95%
30	Manganese (as Mn)	mg/l	2.0	APHA 3500Mn B	<0.05
31	Iron (as Fe)	mg/l	3.0	APHA 3500Fe, B	1.3
32	Vanadium (as V)	mg/l	0.2	APHA 3111 B,C	<0.01
33	Nitrate (as NO_3)	mg/l	10	APHA 4500 NO_3^- E	1.9
34	Dissolved Oxygen	mg/l	--	APHA 4500O C	5.9

End of the Report


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Report no. - CEMC/ISL/050824/GW1

Issued Date-05.08.2024

GROUND WATER QUALITY TEST REPORT

Name & Address of the Client

: M/s. TATA Steel Ltd., (Ferro Alloys Plant),
Kalinga Nagar, Jajpur

Date of Sampling

: 12.07.2024

Sampling by

: Mr. Rabindranath Das

Date of Sample Received

: 13.07.2024

Sample Description

: Ground Water

Sample Quantity

: 1.0 Ltr

Sample Location

: Near Main Gate

Date of Analysis

: 13.07.2024 to 23.07.2024

Reference No.

: CEMC-05082024GW1

ANALYSIS RESULT

Sl. No	Parameter	Unit of measurement	Testing Method	Standard as per IS: 10500, 2012		Result
				Acceptable Limit	Permissible Limit	
1	Colour	Hazen	APHA 2120 B,C	5	15	<5
2	Odour	--	APHA 2150 B	AL	AL	AL
3	Turbidity	NTU	APHA 2130 B	1	5	<1
4	pH Value @ 25°C	--	APHA 4500H ⁺ B	6.5-8.5	No Relaxation	7.14
5	Total Hardness (as CaCO ₃)	mg/l	APHA 2340 C	200	600	190
6	Iron (as Fe)	mg/l	APHA 3500Fe, B	1.0	No Relaxation	<0.05
7	Chloride (as Cl)	mg/l	APHA 4500Cl ⁻ B	250	1000	26.9
8	Residual, free Chlorine	mg/l	APHA 4500Cl ₂ B	0.2	1.0	ND
9	Total Dissolved Solids	mg/l	APHA 2540 C	500	2000	336.2
10	Calcium (as Ca)	mg/l	APHA 3500Ca B	75	200	38.47
11	Magnesium (as Mg)	mg/l	APHA 3500Mg B	30	100	22.84
12	Sulphate (as SO ₄)	mg/l	APHA 4500 SO ₄ ²⁻ E	200	400	73.2
13	Fluoride (as F)	mg/l	APHA 4500F ⁻ C	1.0	1.5	<0.05
14	Total Alkalinity (as CaCO ₃)	mg/l	APHA 2320 B	200	600	194
15	Anionic Detergents (as MBAS)	mg/l	APHA 5540 C	0.2	1.0	ND
16	Chloramines (as Cl ₂)	mg/l	IS 3025 (P-26)	4.0	No Relaxation	ND
17	Boron (as B)	mg/l	APHA 4500B, B	0.5	1.0	<0.2

NB: ND- Not Detectable, AL- Agreeable.

Authorized Signatory

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Report no. - CEMC/TSL/050824/GW2

Issued Date-05.08.2024

GROUND WATER QUALITY TEST REPORT

Name & Address of the Client

: M/s. TATA Steel Ltd., (Ferro Alloys Plant),
Kalinga Nagar, Jajpur

Date of Sampling

: 12.07.2024

Sampling by

: Mr. Rabindranath Das

Date of Sample Received

: 13.07.2024

Sample Description

: Ground Water

Sample Quantity

: 1.0 Ltr

Sample Location

: Near CPP

Date of Analysis

: 13.07.2024 to 23.07.2024

Reference No.

: CEMC-05082024GW2

ANALYSIS RESULT

Sl. No	Parameter	Unit of measurement	Testing Method	Standard as per IS: 10500, 2012		Result
				Acceptable Limit	Permissible Limit	
1	Colour	Hazen	APHA 2120 B,C	5	15	<5
2	Odour	--	APHA 2150 B	AL	AL	AL
3	Turbidity	NTU	APHA 2130 B	1	5	<1
4	pH Value @ 25°C	--	APHA 4500H ⁺ B	6.5-8.5	No Relaxation	6.98
5	Total Hardness (as CaCO ₃)	mg/l	APHA 2340 C	200	600	182
6	Iron (as Fe)	mg/l	APHA 3500Fe, B	1.0	No Relaxation	<0.05
7	Chloride (as Cl)	mg/l	APHA 4500Cl ⁻ B	250	1000	36.9
8	Residual, free Chlorine	mg/l	APHA 4500Cl ⁻ B	0.2	1.0	ND
9	Total Dissolved Solids	mg/l	APHA 2540 C	500	2000	341.2
10	Calcium (as Ca)	mg/l	APHA 3500Ca B	75	200	44.88
11	Magnesium (as Mg)	mg/l	APHA 3500Mg B	30	100	17.01
12	Sulphate (as SO ₄)	mg/l	APHA 4500 SO ₄ ²⁻ E	200	400	23.8
13	Fluoride (as F)	mg/l	APHA 4500F ⁻ C	1.0	1.5	<0.05
14	Total Alkalinity (as CaCO ₃)	mg/l	APHA 2320 B	200	600	194
15	Anionic Detergents (as MBAS)	mg/l	APHA 5540 C	0.2	1.0	ND
16	Chloramines (as Cl ₂)	mg/l	IS 3025 (P-26)	4.0	No Relaxation	ND
17	Boron (as B)	mg/l	APHA 4500B, B	0.5	1.0	<0.2

NB: ND- Not Detectable, AL- Agreeable.

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Report no. - CEMC/TSL/050824/GW3

Issued Date-05.08.2024

GROUND WATER QUALITY TEST REPORT

Name & Address of the Client

M/s. TATA Steel Ltd., (Ferro Alloys Plant),
Kalinga Nagar, Jajpur

Date of Sampling

: 12.07.2024

Sampling by

: Mr. Rabindranath Das

Date of Sample Received

: 13.07.2024

Sample Description

: Ground Water

Sample Quantity

: 1.0 Ltr

Sample Location

: MRP

Date of Analysis

: 13.07.2024 to 23.07.2024

Reference No.

: CEMC-05082024GW3

ANALYSIS RESULT

Sl. No	Parameter	Unit of measurement	Testing Method	Standard as per IS: 10500, 2012		Result
				Acceptable Limit	Permissible Limit	
1	Colour	Hazen	APHA 2120 B,C	5	15	<5
2	Odour	--	APHA 2150 B	AL	AL	AL
3	Turbidity	NTU	APHA 2130 B	1	5	<1
4	pH Value @ 25°C	--	APHA 4500H ⁺ B	6.5-8.5	No Relaxation	7.21
5	Total Hardness (as CaCO ₃)	mg/l	APHA 2340 C	200	600	274
6	Iron (as Fe)	mg/l	APHA 3500Fe, B	1.0	No Relaxation	<0.05
7	Chloride (as Cl)	mg/l	APHA 4500Cl ⁻ B	250	1000	48.9
8	Residual, free Chlorine	mg/l	APHA 4500Cl ₂ B	0.2	1.0	ND
9	Total Dissolved Solids	mg/l	APHA 2540 C	500	2000	550.8
10	Calcium (as Ca)	mg/l	APHA 3500Ca B	75	200	66.53
11	Magnesium (as Mg)	mg/l	APHA 3500Mg B	30	100	26.24
12	Sulphate (as SO ₄)	mg/l	APHA 4500 SO ₄ ²⁻ E	200	400	41.8
13	Fluoride (as F)	mg/l	APHA 4500F ⁻ C	1.0	1.5	<0.05
14	Total Alkalinity (as CaCO ₃)	mg/l	APHA 2320 B	200	600	230
15	Anionic Detergents (as MBAS)	mg/l	APHA 5540 C	0.2	1.0	ND
16	Chloramines (as Cl ₂)	mg/l	IS 3025 (P-26)	4.0	No Relaxation	ND
17	Boron (as B)	mg/l	APHA 4500B, B	0.5	1.0	<0.2

NB: ND- Not Detectable, AL- Agreeable.

Authorized Signatory

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Report No. - CEMC/TS/050824/SW1

Issued Date-05.08.2024

SURFACE WATER QUALITY TEST REPORT

Name & Address of the Client

M/s. TATA Steel Ltd., (Ferro Alloys Plant),
Kalinga Nagar, Jajpur

Date of Sampling

: 12.07.2024

Sampling by

: Mr. Rabindranath Das

Date of Sample Received

: 13.07.2024

Sample Description

: Surface Water

Sample Quantity

: 2.0 Ltrs

Location

: Nala Water near Bridge area

Date of Analysis

: 13.07.2024 to 23.07.2024

Reference No.

: CEMC-05082024SW1

ANALYSIS RESULT

SL No	Parameter	Unit of measurement	IS 2490: Discharge into Inland Surface Water	Testing Method	Result
1	Colour	Hazen	--	APHA 2120 B,C &	100
2	Odour	--	--	APHA 2150 B	U/O
3	Total Suspended Solids	mg/l	100	APHA 2540 D	68.4
4	Particular size of SS	--	Shall pass 850	APIA 2540 D	<850
5	pH Value @ 25°C	--	5.5 to 9.0	APHA 4500H ⁺ B	7.94
6	Temperature	°C	Shall not Exceed 40 within 15 m d/s from effluent Outlet	APHA 2550 B	25.6
7	Oil & Grease	mg/l	10	APHA 5520 B	<1
8	Residual Free Chlorine	mg/l	1.0	APHA 4500Cl ₂ B	ND
9	Ammonical Nitrogen	mg/l	50	APHA 4500NH ₃ B,C	ND
10	Total Kjeldahl Nitrogen as N	mg/l	100	APHA 4500 N, B	6.2
11	Free Ammonia	mg/l	5.0	Calculation Method	ND
12	Biochemical Oxygen Demand	mg/l	30	APHA 5210 B	16
13	Chemical Oxygen Demand	mg/l	250	APHA 5220 C	80
14	Arsenic (as As)	mg/l	0.2	APHA 3114 B	<0.001
15	Mercury (as Hg)	mg/l	0.01	APHA 3500Hg	<0.001
16	Lead (as Pb)	mg/l	0.1	APHA 3111 B,C	<0.01
17	Cadmium (as Cd)	mg/l	2.0	APHA 3111 B,C	<0.01
18	Hexavalent Chromium (as Cr ⁶⁺)	mg/l	0.1	APHA 3500Cr ₆ B	0.08
19	Total Chromium (as Cr)	mg/l	2.0	APHA 3111 B,C	0.21
20	Copper (as Cu)	mg/l	3.0	APHA 3111 B,C	<0.03
21	Zinc (as Zn)	mg/l	5.0	APHA 3111 B,C	0.14
22	Selenium (as Se)	mg/l	0.05	APHA 3114 B	<0.001
23	Nickel (as Ni)	mg/l	3.0	APHA 3111 B,C	<0.05
24	Cyanide (as CN)	mg/l	0.2	APHA 4500CN ⁻ C,D	ND
25	Fluoride (as F)	mg/l	2.0	APHA 4500F ⁻ C	0.58
26	Dissolved Phosphate (as PO ₄)	mg/l	5.0	APHA 4500P D	0.52
27	Sulphide (as S)	mg/l	2.0	APHA 4500 S ²⁻ D	1.4

N.B: U/O-Unobjectionable, ND-Not Detectable

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Report No. - CEMC/TSL/050824/SW1

Issued Date-05.08.2024

28	Phenolic Compounds (as C_6H_5OH)	mg/l	1.0	APHA 5530 B,D	<0.001
29	Bioassay Test	--	90% survival of fish after 96 hours in 100% effluent	APHA 8910 C	93%
30	Manganese (as Mn)	mg/l	2.0	APHA 3500Mn B	0.12
31	Iron (as Fe)	mg/l	3.0	APHA 3500Fe, B	2.86
32	Vanadium (as V)	mg/l	0.2	APHA 3111 B,C	<0.01
33	Nitrate (as NO_3)	mg/l	10	APHA 4500 NO_3^- E	4.6
34	Dissolved Oxygen	mg/l	--	APHA 4500O C	5.9

End of the Report

Authorized Signatory

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Report No. - CEMC/TSL/050824/SW2

Issued Date-05.08.2024

SURFACE WATER QUALITY TEST REPORT

Name & Address of the Client

: M/s. TATA Steel Ltd., (Ferro Alloys Plant),
Kalinga Nagar, Jajpur

Date of Sampling

: 12.07.2024

Sampling by

: Mr. Rabindranath Das

Date of Sample Received

: 13.07.2024

Sample Description

: Surface Water

Sample Quantity

: 2.0 Ltrs

Location

: IDCO Water to the Reservoir

Date of Analysis

: 13.07.2024 to 23.07.2024

Reference No.

: CEMC-05082024SW2

ANALYSIS RESULT

Sl. No	Parameter	Unit of measurement	IS 2490: Discharge into Inland Surface Water	Testing Method	Result
1	Colour	Hazen	--	APHA 2120 B,C &	<5
2	Odour	--	--	APHA 2150 B	U/O
3	Total Suspended Solids	mg/l	100	APHA 2540 D	<5
4	Particular size of SS	--	Shall pass 650	APHA 2540 D	<50
5	pH Value @ 25°C	--	5.5 to 9.0	APHA 4500H ⁺ B	7.33
6	Temperature	°C	Shall not Exceed 40 within 15 m d/s from effluent Outlet	APHA 2550 B	25.8
7	Oil & Grease	mg/l	10	APHA 5520 D	<1
8	Residual Free Chlorine	mg/l	1.0	APHA 4500Cl ₂ B	ND
9	Ammonical Nitrogen	mg/l	50	APHA 4500NH ₃ B,C	ND
10	Total Kjeldahl Nitrogen as N	mg/l	100	APHA 4500 N, B	2.2
11	Free Ammonia	mg/l	5.0	Calculation Method	ND
12	Biochemical Oxygen Demand	mg/l	30	APHA 5210 B	<2
13	Chemical Oxygen Demand	mg/l	250	APHA 5220 C	10
14	Arsenic (as As)	mg/l	0.2	APHA 3114 B	<0.001
15	Mercury (as Hg)	mg/l	0.01	APHA 3500Hg	<0.001
16	Lead (as Pb)	mg/l	0.1	APHA 3111 B,C	<0.01
17	Cadmium (as Cd)	mg/l	2.0	APHA 3111 B,C	<0.01
18	Hexavalent Chromium (as Cr ^{VI})	mg/l	0.1	APHA 3500Cr B	<0.05
19	Total Chromium (as Cr)	mg/l	2.0	APHA 3111 B,C	<0.05
20	Copper (as Cu)	mg/l	3.0	APHA 3111 B,C	<0.03
21	Zinc (as Zn)	mg/l	5.0	APHA 3111 B,C	<0.05
22	Selenium (as Se)	mg/l	0.05	APHA 3114 B	<0.001
23	Nickel (as Ni)	mg/l	3.0	APHA 3111 B,C	<0.05
24	Cyanide (as CN)	mg/l	0.2	APHA 4500CN ⁻ C,D	ND
25	Fluoride (as F)	mg/l	2.0	APHA 4500F ⁻ C	<0.05
26	Dissolved Phosphate (as PO ₄)	mg/l	5.0	APHA 4500P D	<0.05
27	Sulphide (as S)	mg/l	2.0	APHA 4500 S ²⁻ D	<0.1

N.B: U/O-Unobjectionable, ND-Not Detectable

Pg-3 of 4

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Report No. - CEMC/TSL/050824/SW2

Issued Date-05.08.2024

28	Phenolic Compounds (as C_6H_5OH)	mg/l	1.0	APHA 5530 B,D	<0.001
29	Bioassay Test	--	90% survival of fish after 96 hours in 100% effluent	APHA 8910 C	96%
30	Manganese (as Mn)	mg/l	2.0	APHA 3500Mn B	<0.05
31	Iron (as Fe)	mg/l	3.0	APHA 3500Fe, B	1.1
32	Vanadium (as V)	mg/l	0.2	APHA 3111 B,C	<0.01
33	Nitrate (as NO_3)	mg/l	10	APHA 4500 NO_3^- E	1.6
34	Dissolved Oxygen	mg/l	--	APHA 4500O C	6.2

End of the Report

Authorized Signatory

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Report No. - CEMC/TS/050724/SW1

Issued Date-05.07.2024

SURFACE WATER QUALITY TEST REPORT

Name & Address of the Client

: M/s. TATA Steel Ltd., (Ferro Alloys Plant),
Kalinga Nagar, Jajpur

Date of Sampling

: 02.07.2024

Sampling by

: Mr. Rabindranath Das

Date of Sample Received

: 02.07.2024

Sample Description

: Surface Water

Sample Quantity

: 2.0 Ltrs

Location

: Finishing Yard Sump Pit

Date of Analysis

: 02.07.2024 to 05.07.2024

Reference No.

: CEMC-05072024SW1

ANALYSIS RESULT

Sl. No	Parameter	Unit of measurement	IS 2490: Discharge into Inland Surface Water	Testing Method	Result
1	Colour	Hazen	--	APHA 2120 B,C &	120
2	Odour	--	--	APHA 2150 B	U/O
3	Total Suspended Solids	mg/l	100	APHA 2540 D	134
4	Particular size of SS	--	Shall pass 850	APHA 2540 D	<850
5	pH Value @ 25°C	--	5.5 to 9.0	APHA 4500H ⁺ B	8.01
6	Temperature	°C	Shall not Exceed 40 within 15 m d/s from effluent Outlet	APHA 2550 B	25.1
7	Oil & Grease	mg/l	10	APHA 5520 D	<1
8	Residual Free Chlorine	mg/l	1.0	APHA 4500Cl ₂ B	ND
9	Ammonical Nitrogen	mg/l	50	APHA 4500NH ₃ B,C	ND
10	Total Kjeldahl Nitrogen as N	mg/l	100	APHA 4500 N, B	7.14
11	Free Ammonia	mg/l	5.0	Calculation Method	1.28
12	Biochemical Oxygen Demand	mg/l	30	APHA 5210 B	60
13	Chemical Oxygen Demand	mg/l	250	APHA 5220 C	200
14	Arsenic (as As)	mg/l	0.2	APHA 3114 B	<0.001
15	Mercury (as Hg)	mg/l	0.01	APHA 3500Hg	<0.001
16	Lead (as Pb)	mg/l	0.1	APHA 3111 B,C	0.01
17	Cadmium (as Cd)	mg/l	2.0	APHA 3111 B,C	<0.005
18	Hexavalent Chromium (as Cr ⁶⁺)	mg/l	0.1	APHA 3500Cr B	0.07
19	Total Chromium (as Cr)	mg/l	2.0	APHA 3111 B,C	0.17
20	Copper (as Cu)	mg/l	3.0	APHA 3111 B,C	0.02
21	Zinc (as Zn)	mg/l	5.0	APHA 3111 B,C	0.19
22	Selenium (as Se)	mg/l	0.05	APHA 3114 B	<0.001
23	Nickel (as Ni)	mg/l	3.0	APHA 3111 B,C	0.037
24	Cyanide (as CN)	mg/l	0.2	APHA 4500CN ⁻ C,D	ND
25	Fluoride (as F)	mg/l	2.0	APHA 4500F ⁻ C	1.05
26	Dissolved Phosphate (as PO ₄)	mg/l	5.0	APHA 4500P D	0.38
27	Sulphide (as S)	mg/l	2.0	APHA 4500 S ²⁻ D	1.2

N.B: U/O-Unobjectionable, ND-Not Detectable

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Environmental Studies (EIA & EMP), Monitoring, Forest Diversion Planning, DPR, Wildlife Management Plan, Hazardous & Safety Studies, RS& GIS, Baseline Survey, Hydrological & Geological Studies, Socio-economic Studies, DGPS & ETS Survey.

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Report No. - CEMC/TSL/050724/SW1

Issued Date-05.07.2024

28	Phenolic Compounds (as C_6H_5OH)	mg/l	1.0	APHA 5530 B,D	<0.001
29	Bioassay Test	--	90% survival of fish after 96 hours in 100% effluent	APHA 8910 C	94%
30	Manganese (as Mn)	mg/l	2.0	APHA 3500Mn B	0.16
31	Iron (as Fe)	mg/l	3.0	APHA 3500Fe, B	3.05
32	Vanadium (as V)	mg/l	0.2	APHA 3111 B,C	<0.005
33	Nitrate (as NO_3)	mg/l	10	APHA 4500 NO_3^- E	1.37
34	Dissolved Oxygen	mg/l	--	APHA 4500O C	5.4

End of the Report

Authorized Signatory

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Report No. - CEMC/TSI/050724/SW2

Issued Date-05.07.2024

SURFACE WATER QUALITY TEST REPORT

Name & Address of the Client

: M/s. TATA Steel Ltd., (Ferro Alloys Plant),
Kalinga Nagar, Jajpur

Date of Sampling

: 02.07.2024

Sampling by

: Mr. Rabindranath Das

Date of Sample Received

: 02.07.2024

Sample Description

: Surface Water

Sample Quantity

: 2.0 Ltrs

Location

: Furnace Backside Sump Drain

Date of Analysis

: 02.07.2024 to 05.07.2024

Reference No.

: CEMC-05072024SW2

ANALYSIS RESULT

Sl. No	Parameter	Unit of measurement	IS 2490: Discharge into Inland Surface Water	Testing Method	Result
1	Colour	Hazen	--	APHA 2120 B,C &	190
2	Odour	--	--	APHA 2150 B	U/O
3	Total Suspended Solids	mg/l	100	APHA 2540 D	170
4	Particular size of SS	--	Small pass 850	APHA 2540 D	<850
5	pH Value @ 25°C	--	5.5 to 9.0	APHA 4500H ⁺ B	7.57
6	Temperature	°C	Shall not Exceed 40 within 15 m d/s from effluent Outlet	APHA 2550 B	25.3
7	Oil & Grease	mg/l	10	APHA 5520 B	<1
8	Residual Free Chlorine	mg/l	1.0	APHA 4500Cl ₂ B	ND
9	Ammonical Nitrogen	mg/l	50	APHA 4500NH ₃ B,C	ND
10	Total Kjeldahl Nitrogen as N	mg/l	100	APHA 4500 N, B	8.28
11	Free Ammonia	mg/l	5.0	Calculation Method	1.56
12	Biochemical Oxygen Demand	mg/l	30	APHA 5210 B	160
13	Chemical Oxygen Demand	mg/l	250	APHA 5220 C	400
14	Arsenic (as As)	mg/l	0.2	APHA 3114 B	<0.001
15	Mercury (as Hg)	mg/l	0.01	APHA 3500Hg	<0.001
16	Lead (as Pb)	mg/l	0.1	APHA 3111 B,C	0.005
17	Cadmium (as Cd)	mg/l	2.0	APHA 3111 B,C	<0.005
18	Hexavalent Chromium (as Cr ^{VI})	mg/l	0.1	APHA 3500Cr B	0.05
19	Total Chromium (as Cr)	mg/l	2.0	APHA 3111 B,C	0.42
20	Copper (as Cu)	mg/l	3.0	APHA 3111 B,C	0.01
21	Zinc (as Zn)	mg/l	5.0	APHA 3111 B,C	0.15
22	Selenium (as Se)	mg/l	0.05	APHA 3114 B	<0.001
23	Nickel (as Ni)	mg/l	3.0	APHA 3111 B,C	0.11
24	Cyanide (as CN)	mg/l	0.2	APHA 4500CN ⁻ C,D	ND
25	Fluoride (as F)	mg/l	2.0	APHA 4500F ⁻ C	0.98
26	Dissolved Phosphate (as PO ₄)	mg/l	5.0	APHA 4500P D	0.19
27	Sulphide (as S)	mg/l	2.0	APHA 4500 S ²⁻ D	3.2

N.B: U/O-Unobjectionable, ND-Not Detectable

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Environmental Studies (EIA & EMP), Monitoring, Forest Diversion Planning, DPR, Wildlife Management Plan, Hazardous & Safety Studies, RS& GIS, Baseline Survey, Hydrological & Geological Studies, Socio-economic Studies, DGPS & ETS Survey.

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Report No. - CEMC/TSI/050724/SW2

Issued Date-05.07.2024

28	Phenolic Compounds (as C_6H_5OH)	mg/l	1.0	APHA 5530 B,D	<0.001
29	Bioassay Test	—	90% survival of fish after 96 hours in 100% effluent	APHA 8910 C	93%
30	Manganese (as Mn)	mg/l	2.0	APHA 3500Mn B	0.2
31	Iron (as Fe)	mg/l	3.0	APHA 3500Fe, B	3.38
32	Vanadium (as V)	mg/l	0.2	APHA 3111 B,C	<0.01
33	Nitrate (as NO_3)	mg/l	10	APHA 4500 NO_3^- E	13.15
34	Dissolved Oxygen	mg/l	—	APHA 4500O C	5.1

End of the Report

Authorized Signatory

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Report No. - CEMC/TSL/050724/SW3

Issued Date-05.07.2024

SURFACE WATER QUALITY TEST REPORT

Name & Address of the Client

: M/s. TATA Steel Ltd., (Ferro Alloys Plant),
Kalinga Nagar, Jajpur

Date of Sampling

: 02.07.2024

Sampling by

: Mr. Rabindranath Das

Date of Sample Received

: 02.07.2024

Sample Description

: Surface Water

Sample Quantity

: 2.0 Ltrs

Location

: Surface Drain Near Furnance-i

Date of Analysis

: 02.07.2024 to 05.07.2024

Reference No.

: CEMC-05072024SW3

ANALYSIS RESULT

Sl. No	Parameter	Unit of measurement	IS 2490: Discharge into Inland Surface Water	Testing Method	Result
1	Colour	Hazen	--	APHA 2120 B,C &	50
2	Odour	--	--	APHA 2150 B	U/O
3	Total Suspended Solids	mg/l	100	APHA 2540 D	119
4	Particular size of SS	--	Shall pass 850	APHA 2540 D	<850
5	pH Value @ 25°C	--	5.5 to 9.0	APHA 4500H ⁺ B	7.29
6	Temperature	°C	Shall not Exceed 40 within 15 m d/s from effluent Outlet	APHA 2550 B	25.1
7	Oil & Grease	mg/l	10	APHA 5520 B	<1
8	Residual Free Chlorine	mg/l	1.0	APHA 4500Cl ₂ B	ND
9	Ammonical Nitrogen	mg/l	50	APHA 4500NH ₃ B,C	ND
10	Total Kjeldahl Nitrogen as N	mg/l	100	APHA 4500 N _T B	5.14
11	Free Ammonia	mg/l	5.0	Calculation Method	0.86
12	Biochemical Oxygen Demand	mg/l	30	APHA 5210 B	140
13	Chemical Oxygen Demand	mg/l	250	APHA 5220 C	400
14	Arsenic (as As)	mg/l	0.2	APHA 3114 B	<0.001
15	Mercury (as Hg)	mg/l	0.01	APHA 3500Hg	<0.001
16	Lead (as Pb)	mg/l	0.1	APHA 3111 B,C	<0.005
17	Cadmium (as Cd)	mg/l	2.0	APHA 3111 B,C	<0.005
18	Hexavalent Chromium (as Cr ⁶⁺)	mg/l	0.1	APHA 3500Cr B	<0.05
19	Total Chromium (as Cr)	mg/l	2.0	APHA 3111 B,C	0.48
20	Copper (as Cu)	mg/l	3.0	APHA 3111 B,C	0.01
21	Zinc (as Zn)	mg/l	5.0	APHA 3111 B,C	0.13
22	Selenium (as Se)	mg/l	0.05	APHA 3114 B	<0.001
23	Nickel (as Ni)	mg/l	3.0	APHA 3111 B,C	0.07
24	Cyanide (as CN)	mg/l	0.2	APHA 4500CN ⁻ C,D	ND
25	Fluoride (as F)	mg/l	2.0	APHA 4500F ⁻ C	1.42
26	Dissolved Phosphate (as PO ₄)	mg/l	5.0	APHA 4500P D	0.68
27	Sulphide (as S)	mg/l	2.0	APHA 4500 S ²⁻ D	<0.1

N.B: U/O-Unobjectionable, ND-Not Detectable

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Environmental Studies (EIA & EMP), Monitoring, Forest Diversion Planning, DPR, Wildlife Management Plan, Hazardous & Safety Studies, RS& GIS, Baseline Survey, Hydrological & Geological Studies, Socio-economic Studies, DGPS & ETS Survey.

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Report No. - CEMC/TSL/050724/SW3

Issued Date-05.07.2024

28	Phenolic Compounds (as C_6H_5OH)	mg/l	1.0	APHA 5530 B,D	<0.001
29	Bioassay Test	--	90% survival of fish after 96 hours in 100% effluent	APHA 8910 C	93%
30	Manganese (as Mn)	mg/l	2.0	APHA 3500Mn B	0.12
31	Iron (as Fe)	mg/l	3.0	APHA 3500Fe, B	2.1
32	Vanadium (as V)	mg/l	0.2	APHA 3111 B,C	<0.01
33	Nitrate (as NO_3)	mg/l	10	APHA 4500 NO_3^- E	4.31
34	Dissolved Oxygen	mg/l	--	APHA 4500O C	5.2

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Report No. - CEMC/TSL/050724/SW4

Issued Date-05.07.2024

SURFACE WATER QUALITY TEST REPORT

Name & Address of the Client

: M/s. TATA Steel Ltd., (Ferro Alloys Plant),
Kalinga Nagar, Jajpur

Date of Sampling

: 02.07.2024

Sampling by

: Mr. Rabindranath Das

Date of Sample Received

: 02.07.2024

Sample Description

: Surface Water

Sample Quantity

: 2.0 Ltrs

Location

: Sump Pit Near ETP

Date of Analysis

: 02.07.2024 to 05.07.2024

Reference No.

: CEMC-05072024SW4

ANALYSIS RESULT

Sl. No	Parameter	Unit of measurement	IS 2490: Discharge into Inland Surface Water	Testing Method	Result
1	Colour	Hazen	--	APHA 2120 B,C &	30
2	Odour	--	--	APHA 2150 B	U/O
3	Total Suspended Solids	mg/l	100	APHA 2540 D	73
4	Particular size of SS	--	Siuli pass 850	APHA 2540 D	<850
5	pH Value @ 25°C	--	5.5 to 9.0	APHA 4500H ⁺ B	7.51
6	Temperature	°C	Shall not Exceed 40 within 15 m d/s from effluent Outlet	APHA 2550 B	25.3
7	Oil & Grease	mg/l	10	APHA 5520 D	<1
8	Residual Free Chlorine	mg/l	1.0	APHA 4500Cl ₂ B	ND
9	Ammonical Nitrogen	mg/l	50	APHA 4500NH ₃ B,C	ND
10	Total Kjeldahl Nitrogen as N	mg/l	100	APHA 4500 N, B	3.5
11	Free Ammonia	mg/l	5.0	Calculation Method	ND
12	Biochemical Oxygen Demand	mg/l	30	APHA 5210 B	18
13	Chemical Oxygen Demand	mg/l	250	APHA 5220 C	60
14	Arsenic (as As)	mg/l	0.2	APHA 3114 B	<0.001
15	Mercury (as Hg)	mg/l	0.01	APHA 3500Hg	<0.001
16	Lead (as Pb)	mg/l	0.1	APHA 3111 B,C	0.01
17	Cadmium (as Cd)	mg/l	2.0	APHA 3111 B,C	<0.005
18	Hexavalent Chromium (as Cr ⁶⁺)	mg/l	0.1	APHA 3500Cr B	0.55
19	Total Chromium (as Cr)	mg/l	2.0	APHA 3111 B,C	0.67
20	Copper (as Cu)	mg/l	3.0	APHA 3111 B,C	0.01
21	Zinc (as Zn)	mg/l	5.0	APHA 3111 B,C	0.11
22	Selenium (as Se)	mg/l	0.05	APHA 3114 B	<0.001
23	Nickel (as Ni)	mg/l	3.0	APHA 3111 B,C	0.01
24	Cyanide (as CN)	mg/l	0.2	APHA 4500CN ⁻ C,D	ND
25	Fluoride (as F ⁻)	mg/l	2.0	APHA 4500F ⁻ C	1.64
26	Dissolved Phosphate (as PO ₄)	mg/l	5.0	APHA 4500P D	0.31
27	Sulphide (as S)	mg/l	2.0	APHA 4500 S ²⁻ D	0.8

N.B: U/O-Unobjectionable, ND-Not Detectable

Pg-3 of 4

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Report No. - CEMC/TSL/050724/SW4

Issued Date-05.07.2024

28	Phenolic Compounds (as C_6H_5OH)	mg/l	1.0	APHA 5530 B,D	<0.001
29	Bioassay Test	--	90% survival of fish after 96 hours in 100% effluent	APHA 8910 C	94%
30	Manganese (as Mn)	mg/l	2.0	APHA 3500Mn B	0.04
31	Iron (as Fe)	mg/l	3.0	APHA 3500Fe, B	1.46
32	Vanadium (as V)	mg/l	0.2	APHA 3111 B,C	<0.01
33	Nitrate (as NO_3)	mg/l	10	APHA 4500 NO_3^- E	4.31
34	Dissolved Oxygen	mg/l	--	APHA 4500O C	5.4

End of the Report

Authorized Signatory

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Report No. - CEMC/TSL/050724/SW5

Issued Date-05.07.2024

SURFACE WATER QUALITY TEST REPORT

Name & Address of the Client : M/s. TATA Steel Ltd., (Ferro Alloys Plant),
Kalinga Nagar, Jajpur
Date of Sampling : 02.07.2024
Sampling by : Mr. Rabindranath Das
Date of Sample Received : 02.07.2024
Sample Description : Surface Water
Sample Quantity : 2.0 Ltrs
Location : Surface Drain Raw Material Yard, Coal Yard
Date of Analysis : 02.07.2024 to 05.07.2024
Reference No. : CEMC-05072024SW5

ANALYSIS RESULT

Sl. No	Parameter	Unit of measurement	IS 2490: Discharge into Inland Surface Water	Testing Method	Result
1	Colour	Hazen	--	APHA 2120 B,C &	110
2	Odour	--	--	APHA 2150 B	U/O
3	Total Suspended Solids	mg/l	100	APHA 2540 D	146
4	Particular size of SS	--	Shall pass 850	APHA 2540 D	<850
5	pH Value @ 25°C	--	5.5 to 9.0	APHA 4500H ⁺ B	7.41
6	Temperature	°C	Shall not Exceed 40 within 15 m d/s from effluent Outlet	APHA 2550 B	25.4
7	Oil & Grease	mg/l	10	APHA 5520 D	<1
8	Residual Free Chlorine	mg/l	1.0	APHA 4500Cl ₂ B	ND
9	Ammonical Nitrogen	mg/l	50	APHA 4500NH ₃ B,C	ND
10	Total Kjeldahl Nitrogen as N	mg/l	100	APHA 4500 N, B	7.56
11	Free Ammonia	mg/l	5.0	Calculation Method	1.28
12	Biochemical Oxygen Demand	mg/l	30	APHA 5210 B	50
13	Chemical Oxygen Demand	mg/l	250	APHA 5220 C	200
14	Arsenic (as As)	mg/l	0.2	APHA 3114 B	<0.001
15	Mercury (as Hg)	mg/l	0.01	APHA 3500Hg	<0.001
16	Lead (as Pb)	mg/l	0.1	APHA 3111 B,C	0.01
17	Cadmium (as Cd)	mg/l	2.0	APHA 3111 B,C	<0.005
18	Hexavalent Chromium (as Cr ⁺⁶)	mg/l	0.1	APHA 3500Cr B	0.28
19	Total Chromium (as Cr)	mg/l	2.0	APHA 3111 B,C	0.32
20	Copper (as Cu)	mg/l	3.0	APHA 3111 B,C	0.01
21	Zinc (as Zn)	mg/l	5.0	APHA 3111 B,C	0.13
22	Selenium (as Se)	mg/l	0.05	APHA 3114 B	<0.001
23	Nickel (as Ni)	mg/l	3.0	APHA 3111 B,C	0.12
24	Cyanide (as CN)	mg/l	0.2	APHA 4500CN ⁻ C,D	ND
25	Fluoride (as F ⁻)	mg/l	2.0	APHA 4500F ⁻ C	1.68
26	Dissolved Phosphate (as PO ₄)	mg/l	5.0	APHA 4500P D	0.76
27	Sulphide (as S)	mg/l	2.0	APHA 4500 S ²⁻ D	0.8

N.B: U/O-Unobjectionable, ND-Not Detectable

Pg-3 of 4

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Report No. - CEMC/TSL/050724/SW5

Issued Date-05.07.2024

28	Phenolic Compounds (as C_6H_5OH)	mg/l	1.0	APHA 5530 B,D	<0.001
29	Bioassay Test	--	90% survival of fish after 96 hours in 100% effluent	APHA 8910 C	94%
30	Manganese (as Mn)	mg/l	2.0	APHA 3500Mn B	0.25
31	Iron (as Fe)	mg/l	3.0	APHA 3500Fe, B	2.1
32	Vanadium (as V)	mg/l	0.2	APHA 3111 B,C	<0.01
33	Nitrate (as NO_3)	mg/l	10	APHA 4500 NO_3^- E	13.93
34	Dissolved Oxygen	mg/l	--	APHA 4500O C	5.5

End of the Report

Authorized Signatory

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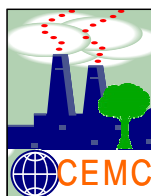


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Report no. - CEMC/TSL/140624/SL1

Issued Date-14.06.2024

TCLP TEST REPORT

Name & Address of the Client : M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur

Date of Sampling : 08.06.2024

Sampling by : Mr. Rabindra Nath Das

Date of Sample Received : 08.06.2024

Sample Description : Slag Sample

Date of Analysis : 08.06.2024 to 13.06.2024

Reference No. : CEMC-14062024SL1

ANALYSIS RESULT

Sl. No	Parameter	Unit of measurement	Standard*	Testing Method	Result
1	Arsenic as As	mg/l	5.0	TCLP With Zero Head Extraction Followed by Analysis in ICP-OES	<0.001
2	Cadmium as Cd	mg/l	1.0		<0.005
3	Chromium as Cr	mg/l	5.0		<0.005
4	Lead as Pb	mg/l	5.0		<0.005
5	Mercury as Hg	mg/l	0.2		<0.001
6	Selenium as Se	mg/l	1.0		<0.005
7	Nickel as Ni	mg/l	20.0		<0.005
8	Zinc as Zn	mg/l	20.0		0.12
9	Manganese as Mn	mg/l	250.0		0.63
10	Copper as Cu	mg/l	10.0		0.091

* Govt. of India, MoEF & CC Schedule-II based on leachable concentration limits (TCLP) or Soluble Threshold limit Concentration (STLC), Class A, 2016

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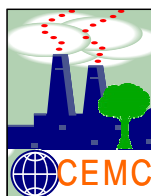


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Report no. - CEMC/TSL/170924/SL1

Issued Date-17.09.2024

TCLP TEST REPORT

Name & Address of the Client : M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga
Nagar, Jajpur

Date of Sampling : 09.09.2024

Sampling by : Mr. Rabindra Nath Das

Date of Sample Received : 10.09.2024

Sample Description : Slag Sample

Date of Analysis : 10.09.2024 to 16.09.2024

Reference No. : CEMC-17092024SL1

ANALYSIS RESULT

Sl. No	Parameter	Unit of measurement	Standard*	Testing Method	Result
1	Arsenic as As	mg/l	5.0	TCLP With Zero Head Extraction Followed by Analysis in ICP-OES	<0.001
2	Cadmium as Cd	mg/l	1.0		<0.005
3	Chromium as Cr	mg/l	5.0		<0.005
4	Lead as Pb	mg/l	5.0		<0.005
5	Mercury as Hg	mg/l	0.2		<0.001
6	Selenium as Se	mg/l	1.0		<0.005
7	Nickel as Ni	mg/l	20.0		<0.005
8	Zinc as Zn	mg/l	20.0		0.045
9	Manganese as Mn	mg/l	250.0		0.31
10	Copper as Cu	mg/l	10.0		0.052

* Govt. of India, MoEF & CC Schedule-II based on leachable concentration limits (TCLP) or Soluble Threshold limit Concentration (STLC), Class A, 2016

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DIRECTORATE OF FACTORIES & BOILERS, ODISHA

APPROVAL OF ONSITE EMERGENCY PLAN

Certificate no: **JAJ/OEP/2024/006448**

Dt: **01/08/2024**

In pursuance of provision contained under **Section 41-B(4) of the Factories Act, 1948**, the On-Site Emergency Plan of **TATA STEEL MINING LTD, FERRO ALLOYS PLANT, JAJPUR, Kalinga Nagar Industrial Complex, Po- Manatira, PS- Jakhapura, Via-Danagadi, Dist-Jajpur, JAJPUR, JAJPUR** having following identified Hazardous substances is hereby provisionally accepted, subject to the conditions as mentioned hereunder:-

Inventory of hazardous substances

#	Name of hazardous substance	Storage capacity (MT)	Operating capacity (MT)	Mode of storage	Mode of disposal	Container type
1	2	3	4	5	6	7
1	Oxygen	13 MT	9 MT	Above ground	na	vertical
2	High Speed Diesel	20 MT	12 MT	Underground	NA	horizontal
3	Transformer Oil	147.081 MT	80 MT	--Select mode of storage--	NA	--Select mode of storage--

Hazardous gas produced/ substances generated

#	Name of hazardous gas/substance generated during the process	Rate of production	Mode of storage/use	Maximum one time storage
1	2	3	4	5
1	Flu gases	150000	Furnace 1	0
2	Flue Gas	150000	Furnace -2	0
3	Flue Gas	300000	Furnace-3 and 4	0

- Consequent upon any modification / alteration in future the On-Site Emergency plan shall be prepared and submitted for acceptance.
- The possible hazards associated with the factory and 'Dos' and Don'ts' shall be displayed in prominent place adjacent to main gate & conspicuous places inside the factory with the measures to be taken in case of such incident
- Each key personnel of the command structure shall be provided with a worksheet containing their duties and responsibilities.
- Mock Drill shall be scheduled through PARESHRAM portal at least once in every six months involving zonal Asst. Director of Factories and Boilers/ Divisional Dy.Directors of Factories and Boilers concerned & DCG members
- Annual report on hold of Mock Drills shall be submitted to the authorities of DistrictAdministration under intimation to Assistant Director of Factories & Boilers/DeputyDirector of Factories & Boilers/Director of Factories & Boilers.
- Awareness programmes on hazard & mitigation shall be made amongst workers and people living in the vicinity

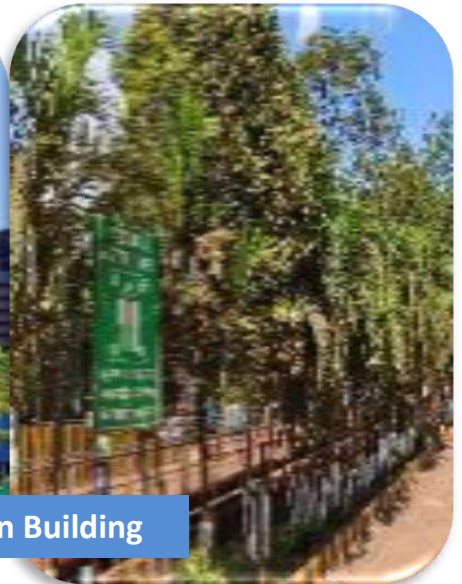
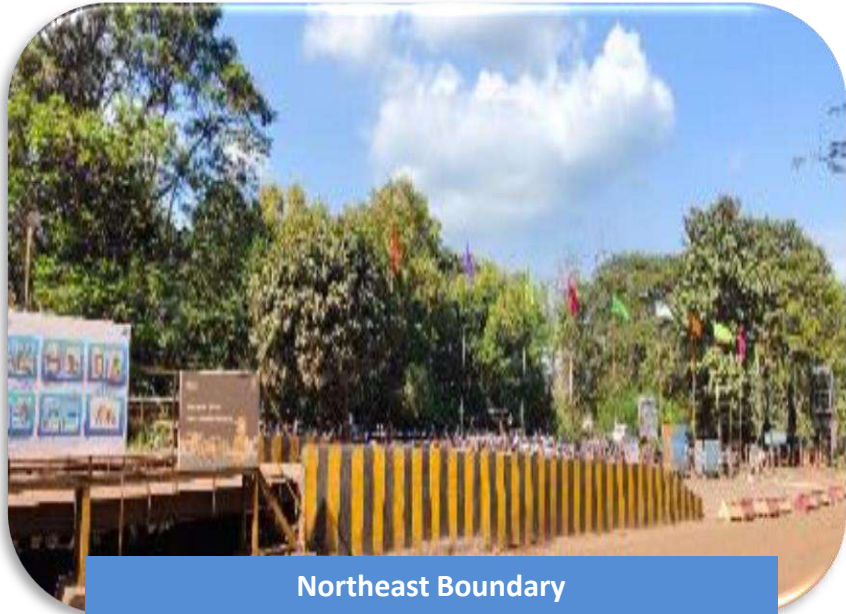
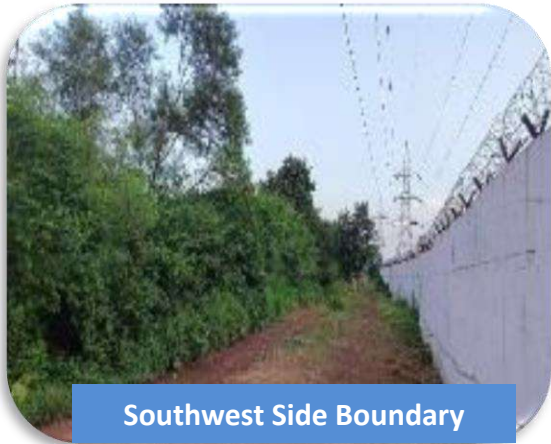
The approved copy of the On-Site Emergency Plan shall be downloaded and be provided to the Collector & District Magistrate, Superintendent of Police, District Fire Officer and Chief Medical Officer of the District.

Director of Factories & Boilers,
Odisha

NOTE :

- (i) This is a digitally signed electronically generated certificate and therefore needs no ink-signed signature.
- (ii) This certificate is issued as per section 4, 5 & 6 of IT Act 2000 and its subsequent amendments in 2008.
- (iii) For verification, visit <https://pareshram-labour.odisha.gov.in>
- (iv) Tampering of this certificate will attract penal action.

Annexure 8- Green Belt



GREENBELT DEVELOPMENT PLAN

Ferro Alloys Plant, Jajpur
FY 25-26

1.0 OBJECTIVE

Greenbelt is the development of green cover around on empty land inside the project area or within the project influence area. The main objectives of green belt development area to minimize the pollution load generated from different developmental activities. A green belt is generally proposed for existing or new industrial activity to minimize the effect of different construction and operational activities on surrounding

Greenbelt is a set of rows of tree planted such a way that they form an effective barrier between the plant and the surroundings. The main purpose of green belt development is to contribute to the following factors.

- ✚ To attenuate noise levels generated from the plant;
- ✚ To improve the aesthetics of the plant area;
- ✚ To trap the vehicular emissions and fugitive dust emissions;
- ✚ To maintain ecological homeostasis;
- ✚ To prevent soil erosion and to protect the natural vegetation;
- ✚ To utilize the treated effluents;

Provision of wide green belt around the plant has been foreseen to reduce any adverse impacts on the surrounding population due to emissions from the proposed expansion activity. Plantation of grass, flowers, bushes and trees is/will be taken-up to reduce generation of dust from bare earth and to enhance the aesthetic/scenic value.

2.0 GREENBELT DEVELOPMENT

The existing green belt was development by previous owner in 5.9 Acres within the plant premises. The total greenbelt area to be covered should be 19.8 Acres, which is 33% of the total area. At present, TSL is keen to preserve and maintain the existing greenbelt along with plans to further develop 13.9 Acres area as greenbelt to comply the 33% greenbelt area statute.

Also, TSL has also carried out greenbelt development outside the plant premises in around 3.0 Acres area. In addition to this, dense mangrove vegetation (natural) covers the western to Northwestern boundary of the Plant site.

GREENBELT DEVELOPMENT PLAN

Most importantly, TSL will develop greenbelt in around 13.9 Ares within the projects site in compliance to the 33% greenbelt within the project site.

The company has social obligation to recreate the environmental status by developing greenbelt/plantation to suppress the fugitive emissions and provide aesthetic beauty. Trees act as effective biological filters or sinks for particulate and gaseous emissions, generated by vehicular movements and various industrial activities.

Following characteristics will be taken into consideration while selecting plant species for greenbelt development and tree plantation:-

- I. Fast growing and tall trees
- II. Trees with 75-85% survival rate
- III. Trees having thick canopy cover
- IV. Evergreen and perennial trees
- V. Plantation in appropriate alternate rows around site to prevent lateral pollution dispersion.
- VI. Trees maintaining regional ecological balance and conforming to soil and hydrological condition.
- VII. Indigenous tree species are preferred

3.0 GREENBELT PLANTATION AT PLANT SITE

Due care will be taken to ensure that a green belt is developed around the plant area. Areas having low density vegetation will be systematically and scientifically afforested. Apart from the green belt and aesthetic plantations for fugitive emission and noise control, all other massive plantation efforts will be executed with the assistance and co-operation of the local community. The plantations of any of the above or their combinations will be decided in consultation with the local community and Local Forest Department.

In addition to this, TSL is committed to protect the Mangrove Vegetation. The following measures will be taken to conserve the natural grown Mangrove plant in the vicinity of the plant like.

GREENBELT DEVELOPMENT PLAN

- Organizing training on conservation/plantation of mangrove species to local villagers / SHGs etc.
- Establish linkage of mangrove restoration project under income generation activity like prawn cultivation, nursery development.

3.1 GUIDELINES & TECHNIQUES FOR GREENBELT DEVELOPMENT

Extensive survey in the project area will be undertaken to observe the structure and composition of vegetation. Hence, a combination of plant will be selected depending upon the topographical suitability and species selected as per SPCB Guideline. Based on the survey and environmental conditions, suitable native plants species will be proposed for green belt development plan.

- I. First layer consisting of shrubs and grasses.
- II. Second layer consisting of smaller trees.
- III. Third layer consisting of taller and larger trees.

3. 2 DEVELOPMENT OF GREENBELT

The plantation matrix to be adopted for the green belt development will include pit of 30 cm x 30 cm x 30 cm size with a spacing of 2 m x 2 m for shrubs. And the pit size of 45 cm x 45 cm x 45 cm with a spacing of 2.5 m x 2.5 m for trees. In addition, earth filling and manure may also be required for the proper nutritional balanced and nourishment of the sapling. It is also recommended that the plantation has taken of randomly and the landscaping aspects could be taken into consideration.

Multi-layout plantation comprising of taller trees (9 m to 11 m), medium height trees (5 m to 8m) and shrubs (5m height) are propose for the greenbelt. In addition creepers will be planted along the boundary wall to enhance its insulation capacity.

The greenbelt around industry wall will be developed in keeping view of the following objectives:-

1. Design and development of greenbelt should be in adherence to industry-specific requirements and as per guidelines CPCB

GREENBELT DEVELOPMENT PLAN

2. Planting of trees in each row will be in staggered pattern.
3. The short trees will be planted in the first row and the tall trees in the outer rows around the purview of the project site.
4. Since the trunks of the trees are generally devoid of foliage, it will be useful to have shrubs in front of trees so as to give coverage to the portion.
5. Sufficient spacing will be maintain between the trees to facilitate effective height of the greenbelt.
6. Plants of native origin, fast growing type canopy and large leaf index shall be preferred.

3.3 SELECTION OF PLANT SPECIES FOR GREENBELT DEVELOPMENT

The selection of plant species for the development depends on various factors such as climate, elevation and soil. The plants would exhibit the following desirable characteristic in order to be selected for plantation.

1. The species should be fast-growing and providing optimum penetrability.
2. The species should be wind-firm and deep rooted.
3. The species should form a dense canopy.
4. As far as possible the species should be indigenous and locally available.
5. Species tolerance to air pollution like SO₂ and NO_x should be preferred.
6. The species should be permeable to help create air turbulence and mixing within the belt.
7. There should be no large gaps for the air to spill through.
8. Trees with high foliage density, leaves with larger leaf area and hairy on both the surface.
9. Ability to withstand conditions like inundation and drought.
10. Soil improving plants (Nitrogen fixing rapidly decomposable leaf litter).
11. Attractive appearance with good flowering and fruit bearing.
12. Sustainable green cover with minimal maintenance.

GREENBELT DEVELOPMENT PLAN

Table No 1: Trees Species selected for the greenbelt as per CPCB

S.No	Scientific Name	Common Name
Plantation in area along plant Boundary		
1	<i>Peltophorumferrugineum</i>	Radhachuda
2	<i>Delonixregia</i>	Krushnachuda
3	<i>Pongamiapinnata</i>	Karanja
4	<i>Terminaliachebula</i>	Harida
5	<i>Terminaliabelirica</i>	Bahada
6	<i>Dalbergiaissoo</i>	Sisu
7	<i>Aeglemarmelos</i>	Bela
8	<i>Cascabelathevetia</i>	Kaniara
9	<i>Anthocephaluscadamba</i>	Kadamba
10	<i>Acacia auriculiformis</i>	Akasia
11	<i>Acacia mangium</i>	Mengium
12	<i>Alstoniascholaris</i>	Chatian
13	<i>Simaroubaglauca</i>	Simarua
14	<i>Phyllanthusemblica</i>	Anala
15	<i>Cedrusdeodara</i>	Debadaru
16	<i>Ailanthus exelsa</i>	Maha Nimba
17	<i>Anacardiumoccidentale</i>	Kaju
Plantation in the vacant areas		
1	<i>Aeglemarmelos</i>	Bela
2	<i>Acacia Auriculiformis</i>	Akasia
3	<i>Cedrusdeodara</i>	Debadaru
4	<i>Acacia mangium</i>	Mengium
5	<i>Dalbergiasissoo</i>	Sisu
6	<i>Ailanthus exelsa</i>	Maha Nimba
7	<i>Sagauan</i>	Tectona Grandis
Plantation around office buildings, stores, garage etc.		
1	<i>Cascabelathevetia</i>	Kaniara
2	<i>Anthocephaluscadamba</i>	Kadamba
3	<i>Peltophorumferrugineum</i>	Radhachuda
4	<i>Delonixregia</i>	Krushnachuda
5	<i>Phyllanthusemblic</i>	Anala
6	<i>Anacardiumoccidentale</i>	Kaju
7	<i>Saraca asoca</i>	Ashoka

GREENBELT DEVELOPMENT PLAN

8	<i>Syzygium cumini</i>	Jamun
Avenue Plantation		
1	<i>Anthocphaluscadamba</i>	Kadamba
2	<i>Azadirachaindica</i>	Neem
3	<i>Dalbergialatifolia</i>	Sisham
4	<i>Syzygium Cumini</i>	Jamun
5	<i>Tamarindusindica</i>	Imli

3.4 POST PLANTATION CARE

Immediately after planting the seedlings, watering the plants has to be done. The treated wastewater discharge will be used for watering the plants during non-monsoon period. Further watering will depend on the rainfall. In the dry seasons watering will be regularly done especially during February to June. Watering of younger saplings will be more frequent. Manuring will be done using organic manure (animal dung, agricultural waste, kitchen waste etc). Younger saplings will be surrounded with tree guards. Diseased and dead plants will be uprooted and destroyed and replaced by fresh saplings. Growth/health and survival rate saplings will be regularly monitored and remedial actions will be undertaken as required.

4.0 PLANTATION PROGRAMME

Sl.No	Location	Area under Greenbelt/Plantation (In Acres)				
		Existing		Proposed		Time Frame of Proposed Plantation
		Area	No of Plants	Area	No of plants	
A. Inside Plant Premises						
1.	Admin building, Furnace area, Briquette plant, RM Plot etc.	10.2	25,500	9.6	24,000	Within 2 years
TOTAL		5.9	14,800	13.9	34,800	

Therefore, with a density of 2500 trees/acre, about 24000 trees will be planted in the proposed 9.6 Acres of area within the plant premises. Developed Lawn of approx. 3500Sqft.

GREENBELT DEVELOPMENT PLAN

4. 1 EXISTING GREENBELT PHOTOGRAPHS



GREENBELT DEVELOPMENT PLAN



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Report No. - CEMC/TSL/040524/WW1

Issued Date-04.05.2024

WASTE WATER TEST REPORT

Name & Address of the Client : M/s. TATA Steel Ltd., (Ferro Alloys Plant),
Kalinga Nagar, Jajpur
Date of Sampling : 03.04.2024
Date of Sample Received : 03.04.2024
Date of Analysis : 03.04.2024 to 08.04.2024
Sample Description : Waste water
Sample Quantity : 1.0 Ltr
Location : ETP Outlet
Reference No. : CEMC-04052024WW1

ANALYSIS RESULT

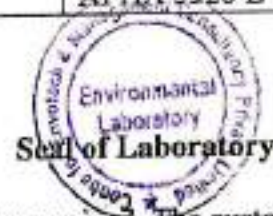
Sl. No.	Parameter	Unit	Effluent Discharge Standard	Testing Method	Result
1.	pH Value @ 25°C	-	6.0-9.0	APHA 4500 H ⁺ B	7.59
2.	Total Suspended Solids	mg/l	<100	APHA 2540 D	18.4
3.	B.O.D for 3 days @ 27°C	mg/l	<30	IS 3025 (P-44)	16
4.	COD	mg/l	<250	APHA 5220 B	40
5.	Hexavalent Chromium as Cr ⁺⁶	mg/l	0.1	APHA 3500Cr B	<0.05
6.	Total Chromium as Cr	mg/l	--	APHA 3120 B	<0.005
7.	Iron as Fe	mg/l	3.0	APHA 3120 B	2.4
8.	Oil and Grease	mg/l	10	APHA 5520 B	1.6

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Report No. - CEMC/TSL/040524/WW1

WASTE WATER TEST REPORT

Issued Date-04.05.2024

Name & Address of the Client

: M/s. TATA Steel Ltd., (Ferro Alloys Plant),
Kalinga Nagar, Jaipur

Date of Sampling

: 25.04.2024

Date of Sample Received

: 25.04.2024

Date of Analysis

: 25.04.2024 to 01.05.2024

Sample Description

: Waste water

Sample Quantity

: 1.0 Ltr

Location

: ETP Outlet

Reference No.

: CEMC-04052024WW1

ANALYSIS RESULT

Sl. No.	Parameter	Unit	Effluent Discharge Standard	Testing Method	Result
1.	pH Value @ 25°C	-	6.0-9.0	APHA 4500 H ⁺ B	7.73
2.	Total Suspended Solids	mg/l	<100	APHA 2540 D	30.4
3.	B.O.D for 3 days @ 27°C	mg/l	<30	IS 3025 (P-44)	22
4.	COD	mg/l	<250	APHA 5220 B	50
5.	Hexavalent Chromium as Cr ⁺⁶	mg/l	0.1	APHA 3500Cr B	<0.05
6.	Total Chromium as Cr	mg/l	--	APHA 3120 B	<0.005
7.	Iron as Fe	mg/l	3.0	APHA 3120 B	2.6
8.	Oil and Grease	mg/l	10	APHA 5520 B	1.2

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Report No. - CEMC/TSL/050624/WW1

Issued Date-05.06.2024

WASTE WATER TEST REPORT

Name & Address of the Client : M/s. TATA Steel Ltd., (Ferro Alloys Plant),
Kalinga Nagar, Jajpur
Date of Sampling : 14.05.2024
Date of Sample Received : 15.05.2024
Date of Analysis : 15.05.2024 to 25.05.2024
Sample Description : Waste water
Sample Quantity : 1.0 Ltr
Location : ETP Outlet
Reference No. : CEMC-05062024WW1

ANALYSIS RESULT

Sl. No.	Parameter	Unit	Effluent Discharge Standard	Testing Method	Result
1.	pH Value @ 25°C	-	6.0-9.0	APHA 4500 H ⁺ B	7.94
2.	Total Suspended Solids	mg/l	<100	APHA 2540 D	24.6
3.	B.O.D for 3 days @ 27°C	mg/l	<30	IS 3025 (P-44)	14
4.	COD	mg/l	<250	APHA 5220 B	30
5.	Hexavalent Chromium as Cr ⁺⁶	mg/l	0.1	APHA 3500Cr B	<0.05
6.	Total Chromium as Cr	mg/l	--	APHA 3120 B	<0.005
7.	Iron as Fe	mg/l	3.0	APHA 3120 B	0.86
8.	Oil and Grease	mg/l	10	APHA 5520 B	<1

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Report no. - CEMC/TSL/050624/WW2

Issued Date-05.06.2024

WASTE WATER TEST REPORT

Name & Address of the Client

: M/s. TATA Steel Ltd., (Ferro Alloys Plant),
Kalinga Nagar, Jajpur

Date of Sampling

: 31.05.2024

Date of Sample Received

: 31.05.2024

Date of Analysis

: 31.05.2024 to 04.06.2024

Sample Description

: Waste water

Sample Quantity

: 1.0 Ltr

Location

: ETP Outlet

Reference No.

: CEMC-05062024WW2

ANALYSIS RESULT

Sl. No.	Parameter	Unit	Effluent Discharge Standard	Testing Method	Result
1.	pH Value @ 25°C	-	6.0-9.0	APHA 4500 H ⁺ B	7.21
2.	Total Suspended Solids	mg/l	<100	APHA 2540 D	14.4
3.	B.O.D for 3 days @ 27°C	mg/l	<30	IS 3025 (P-44)	8
4.	COD	mg/l	<250	APHA 5220 B	20
5.	Hexavalent Chromium as Cr ⁶⁺	mg/l	0.1	APHA 3500Cr B	<0.05
6.	Total Chromium as Cr	mg/l	--	APHA 3120 B	<0.005
7.	Iron as Fe	mg/l	3.0	APHA 3120 B	0.64
8.	Oil and Grease	mg/l	10	APHA 5520 B	<1

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Report No. - CEMC/TSL/040724/WW1

Issued Date-04.07.2024

WASTE WATER TEST REPORT

Name & Address of the Client : M/s. TATA Steel Ltd., (Ferro Alloys Plant),
Kalinga Nagar, Jajpur
Date of Sampling : 08.06.2024
Date of Sample Received : 08.06.2024
Date of Analysis : 08.06.2024 to 13.06.2024
Sample Description : Waste water
Sample Quantity : 1.0 Ltr
Location : ETP Outlet
Reference No. : CEMC-04072024WW1

ANALYSIS RESULT

Sl. No.	Parameter	Unit	Effluent Discharge Standard	Testing Method	Result
1.	pH Value @ 25°C	-	6.0-9.0	APHA 4500 H ⁺ B	7.21
2.	Total Suspended Solids	mg/l	<100	APHA 2540 D	16.4
3.	B.O.D for 3 days @ 27°C	mg/l	<30	IS 3025 (P-44)	18
4.	COD	mg/l	<250	APHA 5220 B	40
5.	Hexavalent Chromium as Cr ⁺⁶	mg/l	0.1	APHA 3500Cr B	<0.05
6.	Total Chromium as Cr	mg/l	--	APHA 3120 B	<0.005
7.	Iron as Fe	mg/l	3.0	APHA 3120 B	0.79
8.	Oil and Grease	mg/l	10	APHA 5520 B	<1

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Report no. - CEMC/TSL/040724/WW2

Issued Date-04.07.2024

WASTE WATER TEST REPORT

Name & Address of the Client : M/s. TATA Steel Ltd., (Ferro Alloys Plant),
Kalinga Nagar, Jajpur
Date of Sampling : 26.06.2024
Date of Sample Received : 26.06.2024
Date of Analysis : 26.06.2024 to 02.07.2024
Sample Description : Waste water
Sample Quantity : 1.0 Ltr
Location : ETP Outlet
Reference No. : CEMC-04072024WW2

ANALYSIS RESULT

Sl. No.	Parameter	Unit	Effluent Discharge Standard	Testing Method	Result
1.	pH Value @ 25°C	-	6.0-9.0	APHA 4500 H ⁺ B	7.43
2.	Total Suspended Solids	mg/l	<100	APHA 2540 D	14.2
3.	B.O.D for 3 days @ 27°C	mg/l	<30	IS 3025 (P-44)	12
4.	COD	mg/l	<250	APHA 5220 B	30
5.	Hexavalent Chromium as Cr ⁺⁶	mg/l	0.1	APHA 3500Cr B	<0.05
6.	Total Chromium as Cr	mg/l	--	APHA 3120 B	<0.005
7.	Iron as Fe	mg/l	3.0	APHA 3120 B	0.84
8.	Oil and Grease	mg/l	10	APHA 5520 B	<1

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Report No. - CEMC/TSL/050824/WW1

Issued Date-05.08.2024

WASTE WATER TEST REPORT

Name & Address of the Client : M/s. TATA Steel Ltd., (Ferro Alloys Plant),
Kalinga Nagar, Jajpur
Date of Sampling : 12.07.2024
Date of Sample Received : 13.07.2024
Date of Analysis : 13.07.2024 to 18.07.2024
Sample Description : Waste water
Sample Quantity : 1.0 Ltr
Location : ETP Outlet
Reference No. : CEMC-05082024WW1

ANALYSIS RESULT

Sl. No.	Parameter	Unit	Effluent Discharge Standard	Testing Method	Result
1.	pH Value @ 25°C	-	6.0-9.0	APHA 4500 H ⁺ B	7.81
2.	Total Suspended Solids	mg/l	<100	APHA 2540 D	38.4
3.	B.O.D for 3 days @ 27°C	mg/l	<30	IS 3025 (P-44)	28
4.	COD	mg/l	<250	APHA 5220 B	100
5.	Hexavalent Chromium as Cr ⁺⁶	mg/l	0.1	APHA 3500Cr B	<0.05
6.	Total Chromium as Cr	mg/l	--	APHA 3120 B	<0.005
7.	Iron as Fe	mg/l	3.0	APHA 3120 B	3.1
8.	Oil and Grease	mg/l	10	APHA 5520 B	1.8

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Report No. - CEMC/TSL/050824/WW1

Issued Date-05.08.2024

WASTE WATER TEST REPORT

Name & Address of the Client : M/s. TATA Steel Ltd., (Ferro Alloys Plant),
Kalinga Nagar, Jajpur
Date of Sampling : 23.07.2024
Date of Sample Received : 23.07.2024
Date of Analysis : 23.07.2024 to 29.07.2024
Sample Description : Waste water
Sample Quantity : 1.0 Ltr
Location : ETP Outlet
Reference No. : CEMC-05082024WW1

ANALYSIS RESULT

Sl. No.	Parameter	Unit	Effluent Discharge Standard	Testing Method	Result
1.	pH Value @ 25°C	-	6.0-9.0	APHA 4500 H ⁺ B	7.54
2.	Total Suspended Solids	mg/l	<100	APHA 2540 D	24.6
3.	B.O.D for 3 days @ 27°C	mg/l	<30	IS 3025 (P-44)	24
4.	COD	mg/l	<250	APHA 5220 B	120
5.	Hexavalent Chromium as Cr ⁺⁶	mg/l	0.1	APHA 3500Cr B	<0.05
6.	Total Chromium as Cr	mg/l	--	APHA 3120 B	<0.005
7.	Iron as Fe	mg/l	3.0	APHA 3120 B	3.4
8.	Oil and Grease	mg/l	10	APHA 5520 B	2.0

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Report No. - CEMC/TSL/030924/WW1

Issued Date-03.09.2024

WASTE WATER TEST REPORT

Name & Address of the Client : M/s. TATA Steel Ltd., (Ferro Alloys Plant),
Kalinga Nagar, Jajpur
Date of Sampling : 22.08.2024
Date of Sample Received : 23.08.2024
Date of Analysis : 23.08.2024 to 29.08.2024
Sample Description : Waste water
Sample Quantity : 1.0 Ltr
Location : ETP Outlet
Reference No. : CEMC-03092024WW1

ANALYSIS RESULT

Sl. No.	Parameter	Unit	Effluent Discharge Standard	Testing Method	Result
1.	pH Value @ 25°C	-	6.0-9.0	APHA 4500 H ⁺ B	8.04
2.	Total Suspended Solids	mg/l	<100	APHA 2540 D	<5
3.	B.O.D for 3 days @ 27°C	mg/l	<30	IS 3025 (P-44)	8.2
4.	COD	mg/l	<250	APHA 5220 B	20
5.	Hexavalent Chromium as Cr ⁺⁶	mg/l	0.1	APHA 3500Cr B	<0.05
6.	Total Chromium as Cr	mg/l	--	APHA 3120 B	<0.005
7.	Iron as Fe	mg/l	3.0	APHA 3120 B	2.4
8.	Oil and Grease	mg/l	10	APHA 5520 B	<1

End of Report

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Report No. - CEMC/TSL/030924/WW2

Issued Date-03.09.2024

WASTE WATER TEST REPORT

Name & Address of the Client : M/s. TATA Steel Ltd., (Ferro Alloys Plant),
Kalinga Nagar, Jajpur
Date of Sampling : 28.08.2024
Date of Sample Received : 29.08.2024
Date of Analysis : 29.08.2024 to 02.09.2024
Sample Description : Waste water
Sample Quantity : 1.0 Ltr
Location : ETP Outlet
Reference No. : CEMC-03092024WW2

ANALYSIS RESULT

Sl. No.	Parameter	Unit	Effluent Discharge Standard	Testing Method	Result
1.	pH Value @ 25°C	-	6.0-9.0	APHA 4500 H ⁺ B	7.95
2.	Total Suspended Solids	mg/l	<100	APHA 2540 D	<5
3.	B.O.D for 3 days @ 27°C	mg/l	<30	IS 3025 (P-44)	7.6
4.	COD	mg/l	<250	APHA 5220 B	20
5.	Hexavalent Chromium as Cr ⁺⁶	mg/l	0.1	APHA 3500Cr B	<0.05
6.	Total Chromium as Cr	mg/l	--	APHA 3120 B	<0.005
7.	Iron as Fe	mg/l	3.0	APHA 3120 B	2.9
8.	Oil and Grease	mg/l	10	APHA 5520 B	<1

End of Report

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Report No. - CEMC/TSL/031024/WW1

Issued Date-03.10.2024

WASTE WATER TEST REPORT

Name & Address of the Client : M/s. TATA Steel Ltd., (Ferro Alloys Plant),
Kalinga Nagar, Jajpur
Date of Sampling : 09.09.2024
Date of Sample Received : 10.09.2024
Date of Analysis : 10.09.2024 to 17.09.2024
Sample Description : Waste water
Sample Quantity : 1.0 Ltr
Location : ETP Outlet
Reference No. : CEMC-031024WW1

ANALYSIS RESULT

Sl. No.	Parameter	Unit	Effluent Discharge Standard	Testing Method	Result
1.	pH Value @ 25°C	-	6.0-9.0	APHA 4500 H ⁺ B	8.15
2.	Total Suspended Solids	mg/l	<100	APHA 2540 D	<5
3.	B.O.D for 3 days @ 27°C	mg/l	<30	IS 3025 (P-44)	8.6
4.	COD	mg/l	<250	APHA 5220 B	20
5.	Hexavalent Chromium as Cr ⁺⁶	mg/l	0.1	APHA 3500Cr B	<0.05
6.	Total Chromium as Cr	mg/l	--	APHA 3120 B	<0.005
7.	Iron as Fe	mg/l	3.0	APHA 3120 B	2.7
8.	Oil and Grease	mg/l	10	APHA 5520 B	<1

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Report No. - CEMC/TSL/031024/WW2

Issued Date-03.10.2024

WASTE WATER TEST REPORT

Name & Address of the Client : M/s. TATA Steel Ltd., (Ferro Alloys Plant),
Kalinga Nagar, Jajpur
Date of Sampling : 28.09.2024
Date of Sample Received : 28.09.2024
Date of Analysis : 28.09.2024 to 02.10.2024
Sample Description : Waste water
Sample Quantity : 1.0 Ltr
Location : ETP Outlet
Reference No. : CEMC-03102024WW2

ANALYSIS RESULT

Sl. No.	Parameter	Unit	Effluent Discharge Standard	Testing Method	Result
1.	pH Value @ 25°C	-	6.0-9.0	APHA 4500 H ⁺ B	8.09
2.	Total Suspended Solids	mg/l	<100	APHA 2540 D	<5
3.	B.O.D for 3 days @ 27°C	mg/l	<30	IS 3025 (P-44)	2.8
4.	COD	mg/l	<250	APHA 5220 B	10
5.	Hexavalent Chromium as Cr ⁺⁶	mg/l	0.1	APHA 3500Cr B	<0.05
6.	Total Chromium as Cr	mg/l	--	APHA 3120 B	<0.005
7.	Iron as Fe	mg/l	3.0	APHA 3120 B	2.4
8.	Oil and Grease	mg/l	10	APHA 5520 B	<1

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Report No. - CEMC/TSL/041124/WW1

Issued Date-04.11.2024

WASTE WATER TEST REPORT

Name & Address of the Client : M/s. TATA Steel Ltd., (Ferro Alloys Plant),
Kalinga Nagar, Jajpur
Date of Sampling : 19.10.2024
Date of Sample Received : 20.10.2024
Date of Analysis : 20.10.2024 to 30.10.2024
Sample Description : Waste water
Sample Quantity : 1.0 Ltr
Location : ETP Inlet
Reference No. : CEMC-04112024WW1

ANALYSIS RESULT

Sl. No.	Parameter	Unit	Testing Method	Result
1.	pH Value @ 25°C	-	APHA 4500 H ⁺ B	7.19
2.	Total Suspended Solids	mg/l	APHA 2540 D	48.6
3.	B.O.D for 3 days @ 27°C	mg/l	IS 3025 (P-44)	24
4.	COD	mg/l	APHA 5220 B	60
5.	Hexavalent Chromium as Cr ⁺⁶	mg/l	APHA 3500Cr B	0.08
6.	Total Chromium as Cr	mg/l	APHA 3120 B	0.15
7.	Iron as Fe	mg/l	APHA 3120 B	1.88
8.	Oil and Grease	mg/l	APHA 5520 B	3.1

End of Report

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Report No. - CEMC/TSL/041124/WW1

Issued Date-04.11.2024

WASTE WATER TEST REPORT

Name & Address of the Client

: M/s. TATA Steel Ltd., (Ferro Alloys Plant),
Kalinga Nagar, Jajpur

Date of Sampling

: 19.10.2024

Date of Sample Received

: 20.10.2024

Date of Analysis

: 20.10.2024 to 30.10.2024

Sample Description

: Waste water

Sample Quantity

: 1.0 Ltr

Location

: ETP Outlet

Reference No.

: CEMC-04112024WW1

ANALYSIS RESULT

Sl. No.	Parameter	Unit	Effluent Discharge Standard	Testing Method	Result
1.	pH Value @ 25°C	-	6.0-9.0	APHA 4500 H ⁺ B	8.03
2.	Total Suspended Solids	mg/l	<100	APHA 2540 D	<5
3.	B.O.D for 3 days @ 27°C	mg/l	<30	IS 3025 (P-44)	8
4.	COD	mg/l	<250	APHA 5220 B	20
5.	Hexavalent Chromium as Cr ⁺⁶	mg/l	0.1	APHA 3500Cr B	<0.05
6.	Total Chromium as Cr	mg/l	--	APHA 3120 B	<0.005
7.	Iron as Fe	mg/l	3.0	APHA 3120 B	0.08
8.	Oil and Grease	mg/l	10	APHA 5520 B	<1

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Report no.-CEMC/TSL/040524/N

Issued Date-04.05.2024

NOISE LEVEL MONITORING REPORT

Issued to	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Sample Description	Ambient Noise Quality
Sample Drawn Period/ Time	Monthly/ 0700 to 0700 next day
Sample Drawn by	Mr. Rabindranath Das
Weather Conditions	Clear
Reference No.	CEMC-04052024N
Instrument Used	Noise Meter
Date of Sampling	04.04.2024

Sl. No.	Location	dB(A) Day time	dB(A) Night time
1	ADM Building	72.4	66.0
2	Infront FC Cast House	72.6	61.4
3	MRP Building	73.5	69.8
4	Briquette	73.4	69.2
5	CPP	70.8	63.9
6	Rabana	65.9	46.6
7	Bangala	62.4	44.8
8	Jackhapura	58.6	43.2
9	Kumudi Sahi	57.8	43.6
10	Main Gate	71.4	64.8
11	Finish Yard	71.2	66.4
12	Stock Yard	70.8	64.6
13	Work Shop	71.6	63.0
14	GCP Area (3,4) 1 & 2	70.6	64.4
15	Furnace Area	71.8	66.2
16	Central Stone	70.2	65.4
17	Day Bin (1,2,3,4)	73.6	70.0
18	MRSS/ETP	72.5	68.4

NOISE LEVEL STANDARD

Area Code	Category of Area/Zone	Permissible Limit in dB (A)	
		Day Time	Night Time
A	Industrial Area	75	70
B	Commercial Area	65	55
C	Residential Area	55	45
D	Silence Zone	50	40

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Report no.-CEMC/TSL/050824/N

Issued Date-05.08.2024

NOISE LEVEL MONITORING REPORT

Issued to	M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jajpur
Sample Description	Ambient Noise Quality
Sample Drawn Period/ Time	Monthly/ 0700 to 0700 next day
Sample Drawn by	Mr. Rabindranath Das
Weather Conditions	Clear
Reference No.	CEMC-05082024N
Instrument Used	Noise Meter
Date of Sampling	23.07.2024

Sl. No.	Location	dB(A) Day time	dB(A) Night time
1	ADM Building	72.6	66.2
2	Infront FC Cast House	73.2	61.8
3	MRP Building	73.8	70.2
4	Briquette	73.6	70.4
5	CPP	71.2	64.2
6	Rabana	66.4	46.8
7	Bangala	62.8	45.2
8	Jackhapura	58.2	43.4
9	Kumudi Sahi	57.6	43.8
10	Main Gate	71.2	64.4
11	Finish Yard	71.6	66.2
12	Stock Yard	70.4	64.8
13	Work Shop	72.2	63.4
14	GCP Area (3,4) 1 & 2	70.4	64.0
15	Furnace Area	72.2	66.4
16	Central Stone	70.8	65.6
17	Day Bin (1,2,3,4)	73.2	69.4
18	MRSS/ETP	72.8	68.2

NOISE LEVEL STANDARD

Area Code	Category of Area/Zone	Permissible Limit in dB (A)	
		Day Time	Night Time
A	Industrial Area	75	70
B	Commercial Area	65	55
C	Residential Area	55	45
D	Silence Zone	50	40

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[Form No. 31- A]
Health Record
Pre-Employment/Periodical
[Prescribed Under Rule 62 - J]



Emp. Code : 460601

Date : 26/09/24 Page 1 of 2

- 1) Name of the Factory : TSL
- 2) Name of Employee : HRUDANANDA SAHOO
- 3) Employee distinguishing No:
- 4) Age of the Employee : 36 Yrs.
 . Identification Mark : BLACK MOLE ON FOREHEAD
 . Nature of Job : JR. ASSOCIATE-III
- 5) Date of Employment : 16.06.2013
- 6) Length of Service in Years : 11 YEARS

7) General Survey

- . Health : GOOD
- . Height : 160 cm
- . Weight : 58 Kg
- . BMI : 22 Kg/m²
- 8) Blood Group : "AB"
 . Rh Typing : POSITIVE
- 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
- 10) Hearing : NORMAL
 . Audiometry : NORMAL
 Right Ear : NORMAL dB
 Left Ear : NORMAL dB

11) Respiratory system and chest measurement

- . Inspiration : 95 cm
- . Expiration : 91 cm
- . Respirate rate/min : 16 /min
- . P.F.T : NORMAL
- . FVC : NORMAL %
- . FEV/FVC : NORMAL %
- . X-Ray : NORMAL
- Remark if any : GOOD

12) Cardiovascular system

- . Pulse rate : 76 /min
- . B.P. : 132/82 mmHg
- . Heart Sound : NORMAL
- . E.C.G. : NORMAL
- Remarks if any : GOOD

13) Abdomen

- Tenderness : NO
- Liver : NORMAL
- Spleen : NORMAL

14) Nervous system : NORMAL

- . History of fits : NO
- . Epilepsy : NO

Remarks on Mental Health : GOOD

15) Locomotor system : NORMAL

16) Skin condition : NORMAL

17) Hernia : ABSENT

18) Hydrocele : ABSENT

19) Present complain : NO if any

20) Summary of finding

- | | | | |
|-----------------------------------|---|--|-----|
| i) Heart disease | : | | NAD |
| ii) Hypertension | : | | |
| iii) Diabetes mellitus | : | | |
| iv) Epilepsy | : | | |
| v) T.B. | : | | |
| vi) Others | : | | |
| vii) Occupational Disease, if any | | | : |

21) Recommendation if any
for any further investigation : No

J. Hrudananda Sastry
Signature of the Employee

Signature of the Medical officer

DIAA-100
Regn. No.
AFIL Regn.

Form no.25

(RULE 96)

CERTIFICATE OF FITNESS FOR DANGEROUS OPERATION

I Certify That I have personally examined

Sri/Smt. Hrudananda Sahoo

S/O..D/O. Nareesh Sahoo

.....residing at Day'pur Who

Is desirous of being employed as As Associate-II in NSL

Of OPP Deptt . And that as nearly as can

be ascertained from my examination is FIT/UNFIT for employment at the above noted factory.

2.He is fit to be employed and may be employed for some other none hazardous operation such

as Any Job

3.He/She may be produced for further examination after a period of One year

4.He/She is advised following further examination .

5.He/She is advised following further treatment.

6.Comments / Medical Advice if any Fit to Job

The serial number of previous certificate is

Hrudananda Sahoo

Signature of person examined

28/09/17
Signature of certifying Surgeon

Dr. A. S. P. SINGH, M.B.B.S., D.P.M.
Regd. No. 10653/01/17
AFM Regd. II 03493 (CH)

ID: 21

26-09-2024 10:41:32 AM

HRUDANANDA SAHOO

Male 36Years

Race : Unknown

HR

: 57 bpm

P

: 76 ms

PR

: 124 ms

QRS

: 94 ms

QT/QTc

: 397/387 ms

P/QRS/T

: -22/37/49 °

RV5SV1

: 2.118/1.017 mV

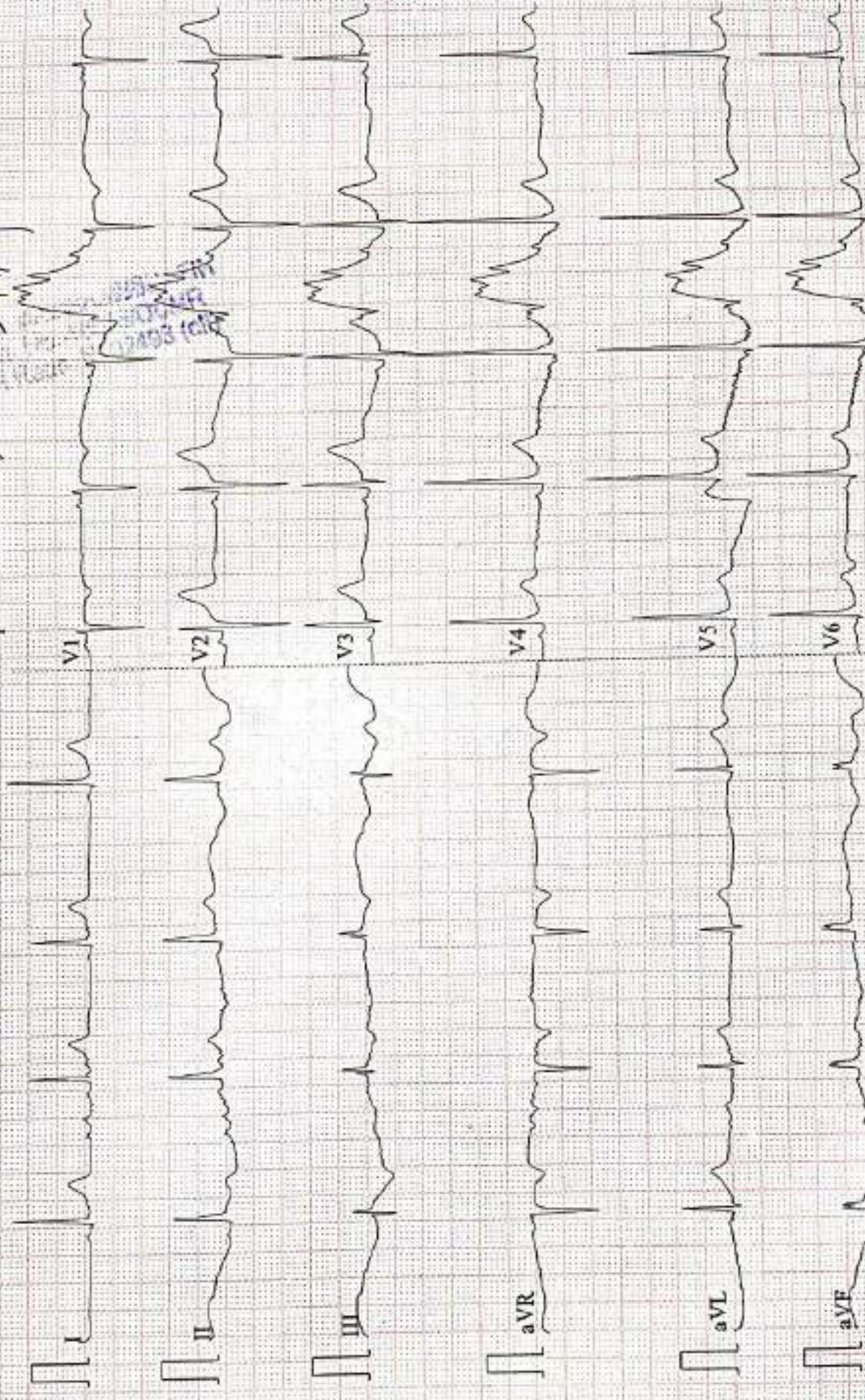
Diagnosis Information:

Sinus Bradycardia with Sinus Arrhythmia

Second-degree Atrioventricular Block (Mobitz type II)

Biphasic T Wave(III)

Report Confirmed by:

Dr. [Signature]
28/09/24

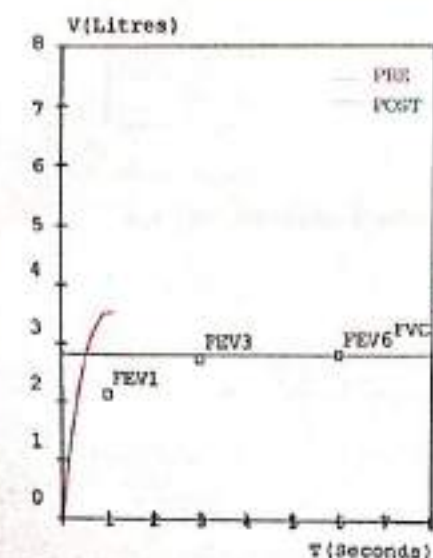
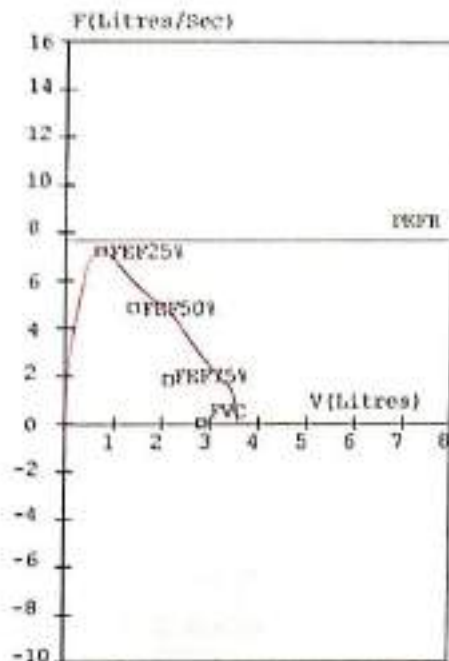
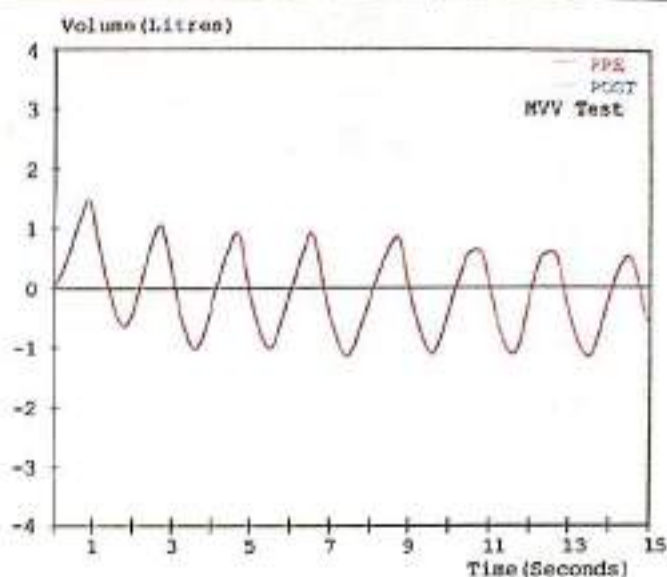
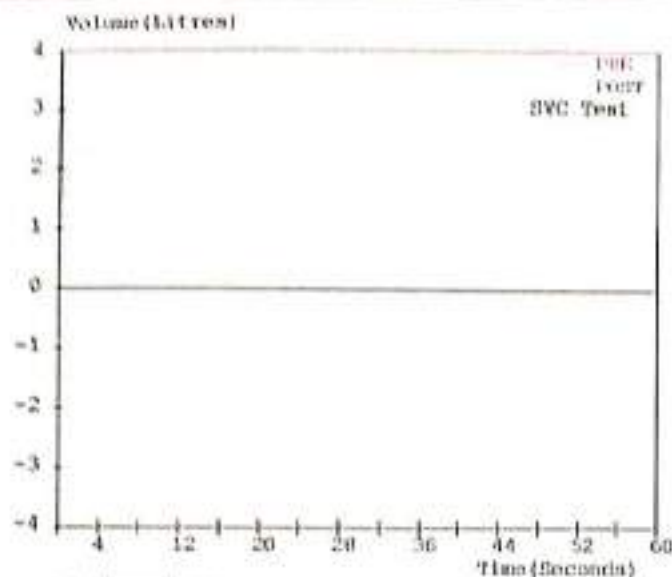
0.67-35Hz AC50 25mm/s 10mm/mV 2*5.0s ♥57 V2.2 SEMIP V1.81

DHWAN DIAGNOSTICS

JHARSUGUDA SARBAHAL

Patient: HRUDANANDA SAHOO
Refd. By:
Pred. Equip: RECORDERS
Date: 26-Sep-2024 12:53 PM

Age: 36 Years Gender: Male
Height: 160 Cms Smoker: No
Weight: 58 Kgs Eth. Corr: 100
ID: 78710 Temp: 37°C



Spirometry Results

Parameter	Unit	Prod	M.Pre	%Pred	M.Post	%Pred	Imp
FVC	(L)	02.02	03.59	127	-----	---	---
FEV1	(L)	02.13	03.54	166	-----	---	---
FEV1/FVC	(%)	75.53	98.61	131	-----	---	---
FEF25-75	(L/s)	02.91	04.91	169	-----	---	---
PEFR	(L/s)	07.65	07.25	095	-----	---	---
FIVC	(L)	-----	-----	---	-----	---	---
FEV.5	(L)	-----	02.72	---	-----	---	---
FEV3	(L)	02.74	03.59	131	-----	---	---
PIFR	(L/s)	-----	-----	---	-----	---	---
FEF75-85	(L/s)	-----	02.56	---	-----	---	---
FEF.2-1.2	(L/s)	05.17	06.37	123	-----	---	---
FEF 25%	(L/s)	07.24	07.07	090	-----	---	---
FEF 50%	(L/s)	04.84	05.20	107	-----	---	---
FEF 75%	(L/s)	01.00	03.13	174	-----	---	---
FEV.5/FVC	(%)	-----	75.77	---	-----	---	---
FEV3/FVC	(%)	97.16	100.00	103	-----	---	---
PET	(Sec)	-----	01.31	---	-----	---	---
ExptTime	(Sec)	-----	00.10	---	-----	---	---
Lung Age (Yrs)		060	020	033	-----	---	---
FEV6	(L)	02.02	-----	---	-----	---	---
PIF 25%	(L/s)	-----	01.33	---	-----	---	---
PIF 50%	(L/s)	-----	01.33	---	-----	---	---
PIF 75%	(L/s)	-----	01.33	---	-----	---	---
SVC	(L)	-----	-----	---	-----	---	---
ERV	(L)	01.04	-----	---	-----	---	---
IRV	(L)	-----	-----	---	-----	---	---
VE	(L/min)	-----	-----	---	-----	---	---
RI	(l/min)	-----	-----	---	-----	---	---
Ti	(sec)	-----	-----	---	-----	---	---
Te	(sec)	-----	-----	---	-----	---	---
VT	(L)	-----	-----	---	-----	---	---
VT/Ti		-----	-----	---	-----	---	---
Ti/Ttot		-----	-----	---	-----	---	---
IC	(L)	-----	-----	---	-----	---	---
MVV	(L/min)	100	059	055	-----	---	---
MRE	(l/min)	-----	32.05	---	-----	---	---
MVT	(L)	-----	01.85	---	-----	---	---

Pre Medication Report Indicates

Spirometry within normal limits as (FEV1/FVC)%Pred >95 and FVC%Pred >80.

Dr. A. S. SAHOO, MBBS, AFH
Regn. No. 18855/NOCHMR
AFH Regn. No. 02493/(ii)

28/09/24



DHWAN MEDICAL CENTRE

JHARSUGUDA.

Patient ID : 6228

Name : HRUDANANDA SAHOO

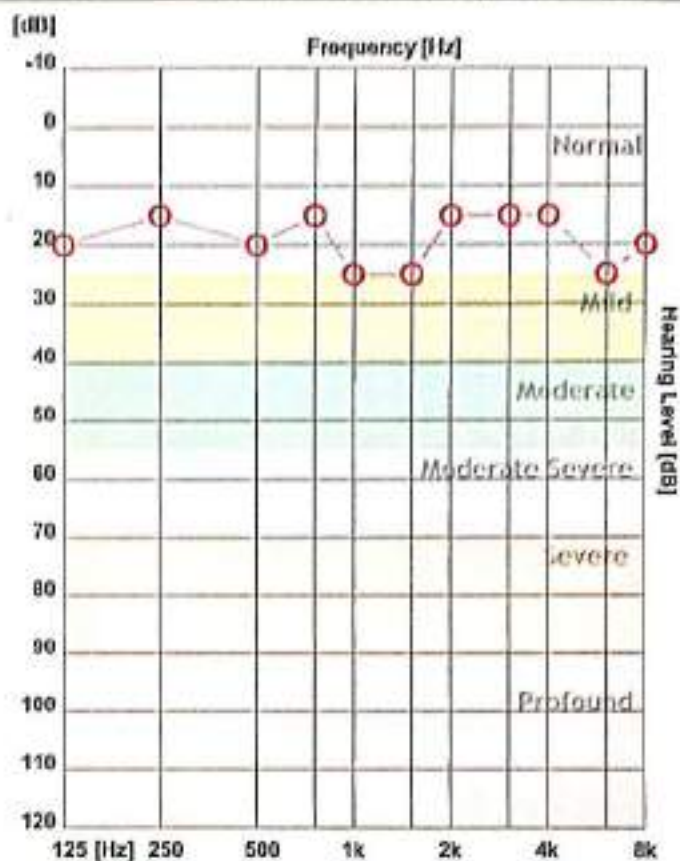
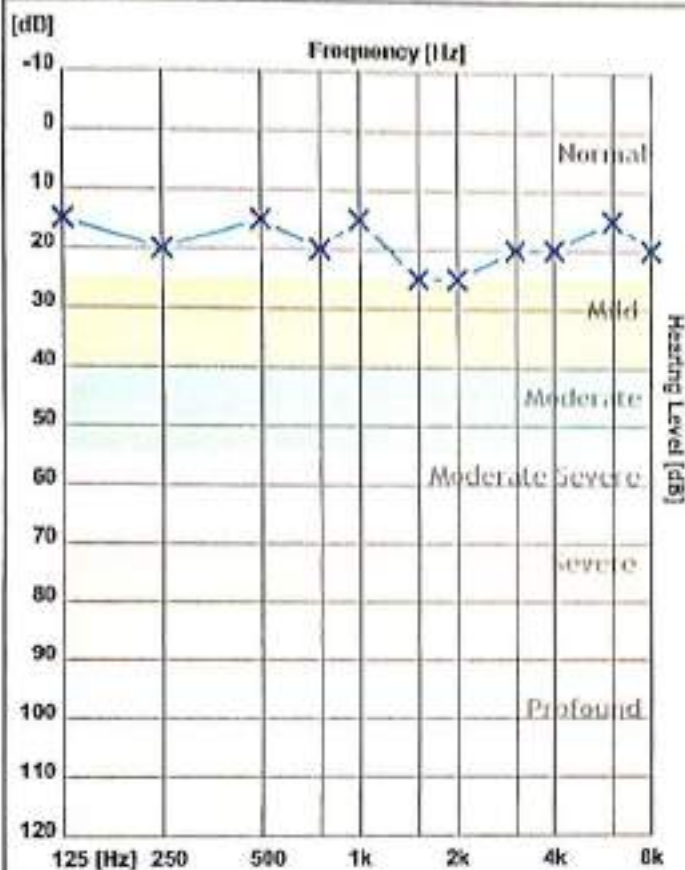
CR Number : 20240926110332

Registration Date : 26-Sep-2024

Age : 36

Gender : Male

Operator : DHWAN MEDICAL CENTRE



	125 Hz	250 Hz	500 Hz	750 Hz	1000 Hz	1500 Hz	2000 Hz	3000 Hz	4000 Hz	6000 Hz	8000 Hz
X - Air Left	15	20	15	20	15	25	25	20	20	15	20
O - Air Right	20	15	20	15	25	25	15	15	15	25	20
> - Bone Left											
< - Bone Right											

	Average	High	Mid	Low
AIR Left	19.09 dB	18.75 dB	21.67 dB	17.59 dB
AIR Right	19.09 dB	18.75 dB	21.67 dB	17.59 dB

Clinical Notes :

BILATERAL HEARING IS WITHIN NORMAL LIMITS

D. A. S. [Signature]
Regn. No. 185380/2023
AFH Regn. N. 0249/2024
28/09/24



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Web: dhwandiagnosticsohs.net



3041

Name : HRUDANANDA SAHOO

Age : 36 Yrs.

Sex : Male

Ref. By Dr. : SELF

Regd. No. : DMD/5555/18/391

Report Date : 26/09/24

Serial No. :

Report Printing Time : 3:38PM

Test Particulars	Results	Units	Reference-Range
------------------	---------	-------	-----------------

BIO-CHEMISTRY

Random Blood Sugar (RBS)	: 116.0	mg/dl	70 - 150
ELECTROLYTES			
Sodium (Na)	: 137.0	mmol/l	135 - 145
Potassium	: 3.9	mmol/l	3.55 - 5.5
LIPID PROFILE			
Cholesterol	: 176.0	mg/dl	150 - 220
Triglyceride	: 95.0	mg/dl	50 - 150
High Density Lipoprotein (HDL)	: 44.0	mg/dl	35 - 60
Low Density Lipoprotein (LDL)	: 113.0	mg/dl	80 - 150
Very Low Density Lipoprotein (VLDL)	: 19.0	mg/dl	10 - 30
LIVER FUNCTION TEST (LFT)			
Total Bilirubin	: 0.62	mg/dl	0.2 - 1.2
Direct Bilirubin	: 0.18	mg/dl	0.1 - 0.4
A.S.T.(S.G.O.T.)	: 31.0	u/l	5 - 40
A.L.T.(S.G.P.T.)	: 25.0	u/l	7 - 56
Alkaline Phosphatase	: 91.0	u/l	<150
Total Protein	: 7.2	g/dl	6.6 - 8.3
Albumin	: 3.6	g/dl	3.5 - 5.0
RENAL FUNCTION TEST (RFT)			
Urea	: 27.0	mg/dl	10 - 40
Creatinine	: 0.84	mg/dl	M: 0.6 - 1.2/F: 0.5 - 1.1
Uric Acid	: 4.6	mg/dl	M: 3.4 - 7.0/F: 2.5 - 6.0

Dr. A. S. ...
 28/09/24

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Name : HRUDANANDA SAHOO

Age : 36 Yrs.

Sex : Male

Ref. By Dr. : SELF

Regd. No. : DMD/5555/18/391

Report Date : 26/09/24

Serial No. :

Report Printing Time : 3:38PM

Test Particulars

Results

Units

Reference-Range

*** End of Report ***

DR. Surja P.S.N
Choudhry, MBBS, MD, DM

K. C. Nandamouleswari
DR. K. Chandramouleswari M.D
(Pathology)

P. C. Nandamouleswari
Lab Incharge

DR. K. Chandramouleswari
DR. K. Chandramouleswari
DR. K. Chandramouleswari

DR. K. Chandramouleswari
DR. K. Chandramouleswari
DR. K. Chandramouleswari

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Mobile 7008055955/ 9827590571

9348580289 / 8118019921

Landline : 06645 359350

Web : dhwandiagnosticsohs.net

Name : HRUDANANDA SAHOO

legd.No. : DMD/5555/18/3914

Age : 36 Yrs.

Date : 26/09/24

Sex : Male

Serial No. :

Ref. By Dr. : SELF

Report Printing Time : 3:37PM

URINE REPORT



Test Particulars	Results
MACROSCOPIC-EX-	
Volume	: 10ML
Colour/appearance	: Pale yellow
Sediment	: Absent
Sp. Gravity	: 1.015
CHEMICAL-EX-	
PH%	: 6.0
Reaction	: Acidic
Albumin	: Absent
Sugar	: Absent
MICROSCOPIC-EX-	
Pus Cells	: 1-2/HPF
Epithelial Cells	: 2-3/HPF
R.B.C.	: Nil/HPF
Casts	: Nil
Crystals	: Nil
Bacterial	: Nil
Spermatozoa	: Nil
Yeast Cells	: Nil

*** End of Report ***

DR. Surjya P.S.N
Choudhry, MBBS, MD, DM

K. C. Chandramouleswari
DR. K. Chandramouleswari M.D.
(Pathology)

Lab Incharge

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Landline : 06645 359350

Web : dhwandiagnosticsohs.net

Name : HRUDANANDA SAHOO

Age : 36 Yrs,

Sex : Male

Ref. By Dr. : SELF

Reg.No. : DMD/5555/18/13556

Report Date : 26/09/2024

Serial No. : 460501



REPORT :-

REPORT : CHEST X-RAY PA VIEW

HISTORY :-

PERIODICAL INDUSTRIAL HEALTH CHECK-UP

FINDINGS :-

LINES/TUBES : NONE

LUNGS : The lungs are well defined & clear. There is no evidence of pneumoconiosis /pneumonics/pulmonary oedema

Pleura : There is no pleural effusion/pneumothorax

Heart & mediastinum : The cardiomeastinal-

Silhouette is normal

The visualised skeleton is normal

IMPRESSION :-

Clean lungs without evidence of pneumonia or pneumoconiosis or others lungs abnormality.

DR. B. B. PRADHAN, M.D.
(RADIOLOGY)

B.B. Pradhan
26.09.24

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9348580289 / 8118019921

Landline :06645 359350

Web : dhwandiagnosticsohs.net

Name : HRUDANANDA SAHOO

Age : 36

Sex : Male

Ref. By Dr. : SELF

Reg.No. : DMD/5555/18/13558

Report Date : 26/09/2024

Serial No. : 480601

Report Printing Time : 4:33:51PM

EYE TEST REPORT



VISUAL EXAMINATION :-

1. VISUAL ACUITY (DISTANCE VISION)

RIGHT EYE

LEFT EYE

A. With Glass

B. Without Glass

6/6

6/6

2. NEAR VISION :-

A. With Glass

B. Without Glass

N/6

N/6

3. COLOUR VISION :

NORMAL

C. M. Mohapatra

Dr M. Mohapatra, M.S

(Ophthalmology)

Regn. No. 16255/2007

Signature

M. S. Mohapatra
M.S (Ophthalmology)
Regn. No. 16255/2007

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OCCUPATIONAL HEALTH SERVICES

FAP JAIPUR, PME 2024 25
TATA STEEL LIMITED

WELLNESS FOLLOW UP CARD

Regd. No.:

EMP No.: 460604

Name : HRUDANANDA SAHOO

Age: 36

Sex: MALE

Designation: JR ASSOCIATE III

Deptt.: CPP

Height: 160

weight: 58

Blood Group & Rh"AB"POSITIVE



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E mail: dhwandiagnostics2020@gmail.com

Near DH Hospital, NH 57, Khordha, Odisha 750055
E mail: dhawnmedicalcenter2020@gmail.com

Contact No.: 0674 3566528, 9827590571, 7008055955, 9348580289
Website: www.dhwan.lphysicianhub.net



1) Name of the Factory : TSL (UR LIFE)	12) Cardiovascular system
2) Name of Employee : BISWAJIT NAYAK	. Pulse rate : 70 /min
3) Employee distinguishing No: TSP/602957/0824	. B.P. : 110/80 mmHg
4) Age of the Employee : 27 Yrs.	. Heart Sound : NORMAL
. Identification Mark : BLACK MOLE ON NECK	. E.C.G. : NORMAL
. Nature of Job : DRIVER	Remarks if any : GOOD
5) Date of Employment : 01.10.2022	13) Abdomen
6) Length of Service in Years : 02 YEARS	. Tenderness : NO
7) General Survey	. Liver : NORMAL
. Health : GOOD	. Spleen : NORMAL
. Height : 170 cm	14) Nervous system : NORMAL
. Weight : 63 Kg	. History of fits : NO
. BMI : 23 Kg/m ²	. Epilepsy : NO
8) Blood Group : "A"	Remarks on Mental Health : GOOD
. Rh Typing : POSITIVE	15) Locomotor system : NORMAL
9) Eye vision : NORMAL	16) Skin condition : NORMAL
. Use of glass : NO	17) Hernia : ABSENT
. Distance Vision : RE: 6/6 LE: 6/6	18) Hydrocele : ABSENT
. Near Vision : RE: N/6 LE: N/6	19) Present complain : NO
. Colour Vision : NORMAL	If any
10) Hearing : NORMAL	
. Audiometry : NORMAL	
. Right Ear : NORMAL dB	
. Left Ear : NORMAL dB	
11) Respiratory system and chest measurement	
. Inspiration : 90 cm	
. Expiration : 86 cm	
. Respirate rate/min : 16 /min	
. P.F.T : NORMAL	
. FVC : NORMAL %	
. FEV1/FVC : NORMAL %	
. X-Ray : NORMAL	
Remark if any : GOOD	

20) Summary of finding

- i) Heart disease :
- ii) Hypertension :
- iii) Diabetes mellitus :
- iv) Epilepsy :
- v) T.B. :
- vi) Others :
- vii) Occupational Disease, if any :

21) Recommendation if any
for any further investigation :

- Biswajit Nayak

Signature of the Employee



Signature of the Medical officer
Dr. A. S. MISHRA, MBBS, AFIH
Regn. No.-16555/OCMR
AFIH Regn. N. 02493 (cl)

Form no.25

(RULE 96)

CERTIFICATE OF FITNESS FOR DANGEROUS OPERATION

I Certify That I have personally examined

Sri/Smt. Biswajit Nayak

S/O. D/O. Raj Chandra Nayak

residing at Jajpur Who

Is desirous of being employed as Driver in ULCL

Of EHS Deptt. And that as nearly as can

be ascertained from my examination is FIT/UNFIT for employment at the above noted factory.

2. He is fit to be employed and may be employed for some other none hazardous operation such

as any job

3. He/She may be produced for further examination after a period of 1 year

4. He/She is advised following further examination .

5. He/She is advised following further treatment.

6. Comments / Medical Advice if any

The serial number of previous certificate is

Biswajit Nayak

Signature of person examined

A. S. Mishra

Signature of certifying Surgeon
Jr. A. S. MISHRA MBBS, AFIH
Regn. No.-18555/OCMR
AFIH Regn. N. 02493 (c/f)

ID: 8
BISWAJIT NAYAK
Male 27 years
Race : Unknown

29-09-2024 10:16:57 AM

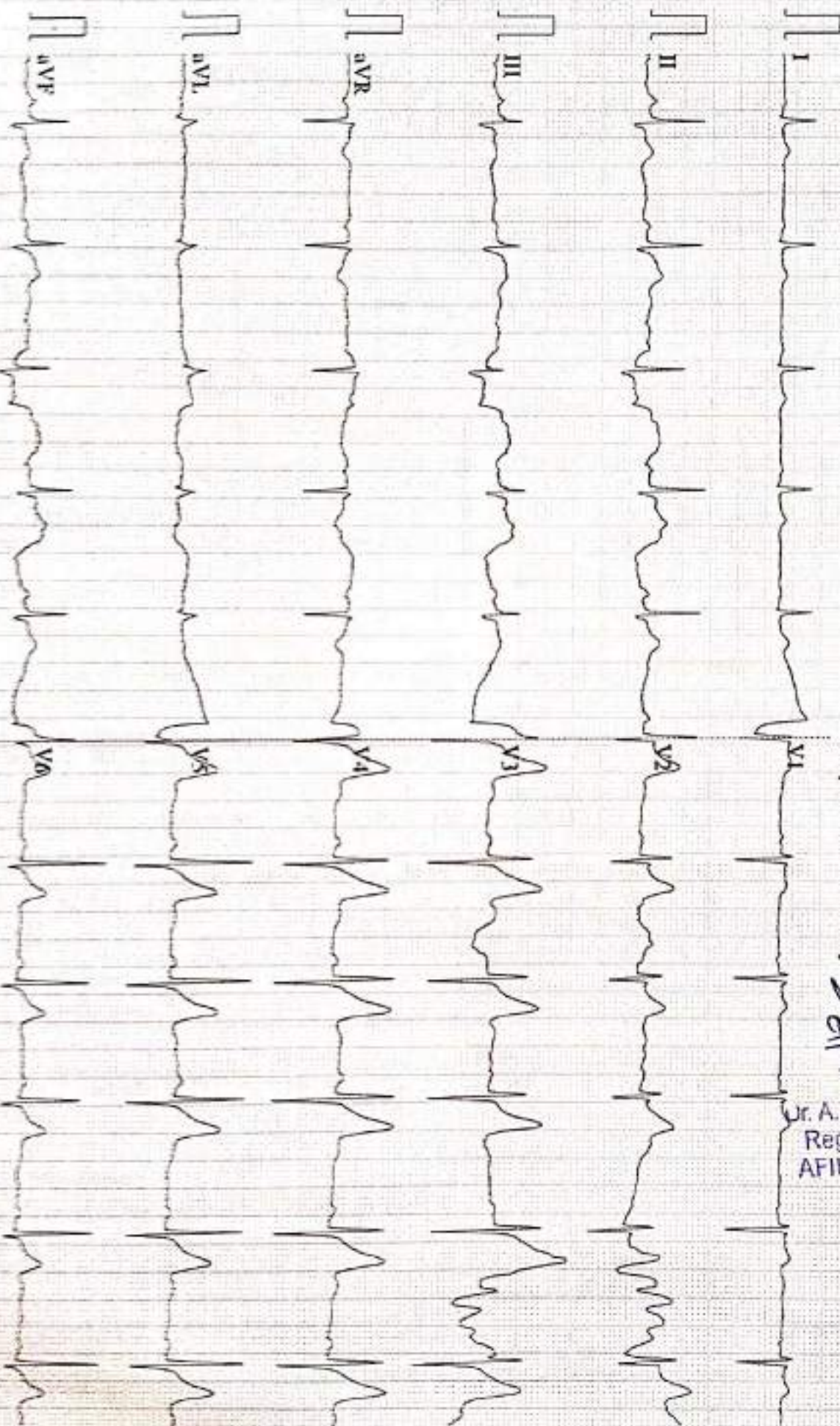
HR : 66 bpm
P : 90 ms
PR : 155 ms
QRS : 93 ms
QT/QTc : 359/377 ms
PQRS/T : 75/47/62 °
RV5/SV1 : 1.375/0.851 mV

Diagnosis Information:
Sinus Rhythm
Normal ECG

Report Confirmed by:



Dr. A. S. MISHRA, MBBS, AFI
Regn. No. 16555/OCMT
AFIH Regn. N. 02493 (cl)



0.67-35Hz AC/50 25mm/s 10mm/mV 2*5.0s V66 V2.2 SHARP V1.81



DHWAN MEDICAL CENTRE

JHARSUGUDA.

Patient ID : 6698

Name : BISWAJIT NAYAK

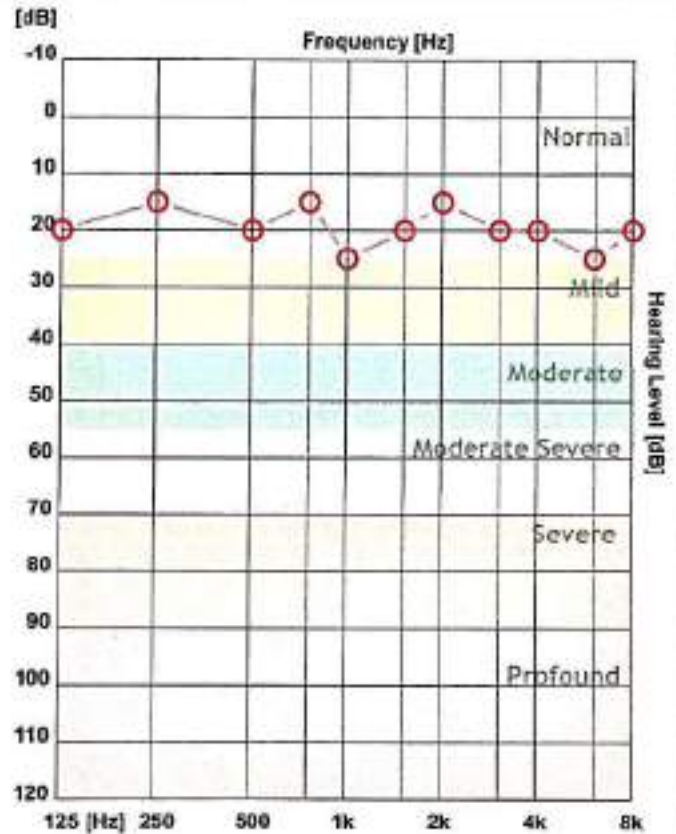
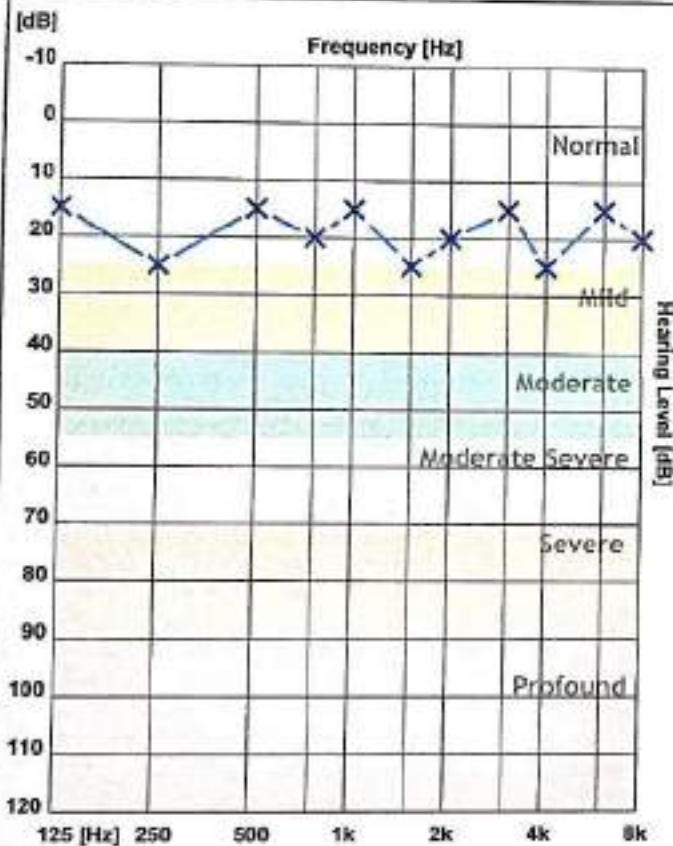
CR Number : 20240929094827

Registration Date : 29-Sep-2024

Age : 27

Gender : Male

Operator : DHWAN MEDICAL CENTRE



	125 Hz	250 Hz	500 Hz	750 Hz	1000 Hz	1500 Hz	2000 Hz	3000 Hz	4000 Hz	6000 Hz	8000 Hz
X - Air Left	15	25	15	20	15	25	20	15	25	15	20
O - Air Right	20	15	20	15	25	20	15	20	20	25	20
> - Bone Left											
< - Bone Right											

	Average	High	Mid	Low
AIR Left	19.09 dB	18.75 dB	20.00 dB	18.75 dB
AIR Right	19.55 dB	21.25 dB	20.00 dB	17.50 dB

Clinical Notes :

BILATERAL HEARING IS WITHIN NORMAL LIMITS

Dr. A. S. MISHRA, MBBS, AFIH

Regn. No.-16555/OCMR

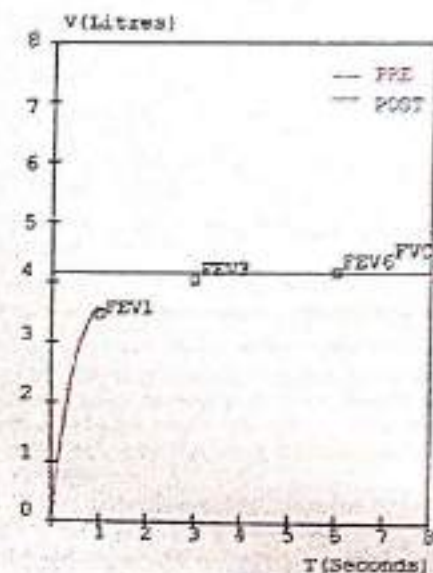
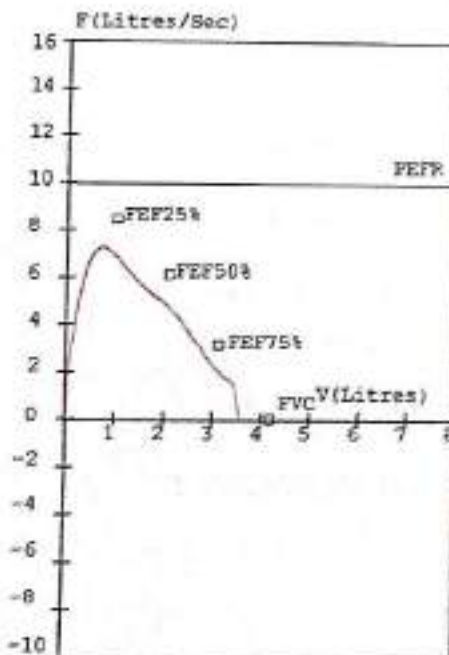
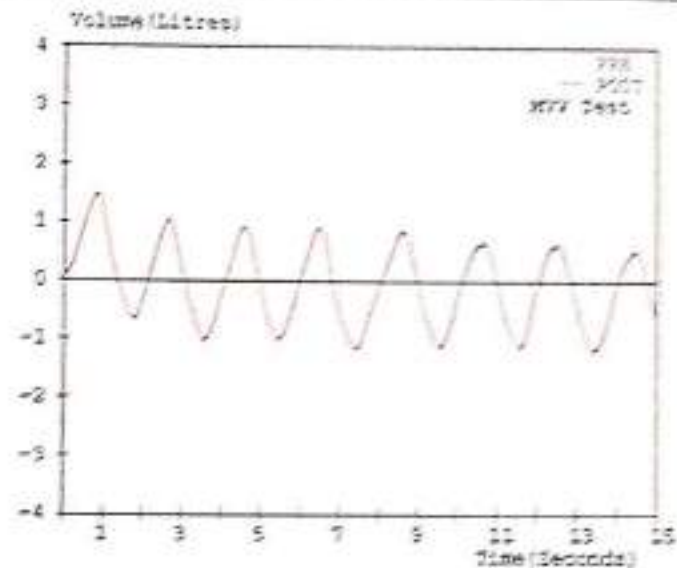
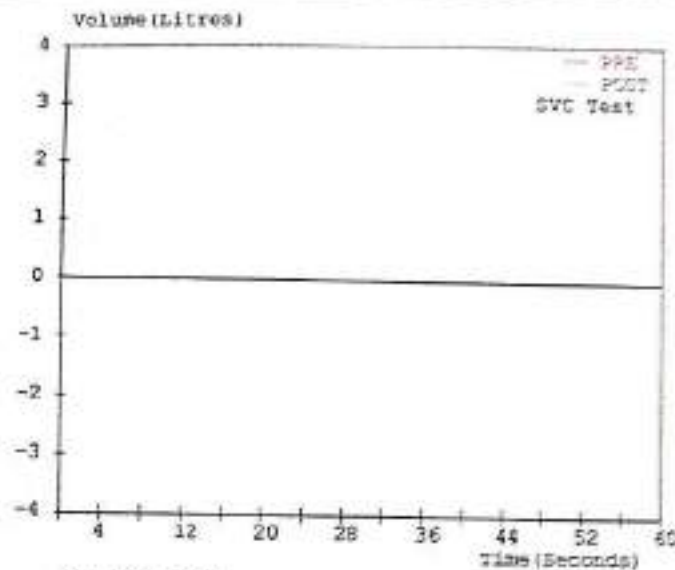
DHWAN DIAGNOSTICS

JHARSUGUDA SARBAHAL

Patient: BISWAJIT NAYAK
Refd. By:
Pred.Eqns: RECORDERS
Date : 29-SEP-2024 11.45 AM

Age : 27Years
Height : 170Cms
Weight : 63Kgs
ID: 78710

Gender: male
Smoker : No
Eth. Corr: 100
Temp : 37°C



Spirometry Results						
Parameter	Pred	M.Pre	1Pred	M.Post	1Pred	1Mg
FVC (L)	04.18	03.53	04.18	---	---	---
FEV1 (L)	03.48	03.48	03.48	---	---	---
FEV1/FVC (%)	83.20	83.20	83.20	---	---	---
FEV25-75 (L/s)	04.46	04.46	04.46	---	---	---
FEFR (L/s)	09.98	07.10	07.10	---	---	---
FVC (L)	---	---	---	---	---	---
FEV1.5 (L)	---	---	---	---	---	---
FEV3 (L)	04.06	03.06	03.06	---	---	---
PIFR (L/s)	---	---	---	---	---	---
FEF75-85 (L/s)	---	02.06	---	---	---	---
FEF1.2-1.2 (L/s)	07.96	06.07	06.07	---	---	---
FEF 25% (L/s)	08.46	07.10	07.10	---	---	---
FEF 50% (L/s)	06.14	05.10	05.10	---	---	---
FEF 75% (L/s)	03.15	03.10	03.10	---	---	---
FEV1.5/FVC (%)	---	09.71	---	---	---	---
FEV3/FVC (%)	97.13	100.00	100.00	---	---	---
FET (Sec)	---	00.00	---	---	---	---
ExptTime (Sec)	---	00.00	---	---	---	---
Lung Age (Yrs)	034	100	097	---	---	---
FEV6 (L)	04.18	---	---	---	---	---
FEF 25% (L/s)	---	01.30	---	---	---	---
FEF 50% (L/s)	---	01.30	---	---	---	---
FEF 75% (L/s)	---	01.30	---	---	---	---
SVC (L)	---	---	---	---	---	---
SPV (L)	01.58	---	---	---	---	---
IRV (L)	---	---	---	---	---	---
VE (L/min)	---	---	---	---	---	---
PE (L/min)	---	---	---	---	---	---
Ti (sec)	---	---	---	---	---	---
Te (sec)	---	---	---	---	---	---
VT (L)	---	---	---	---	---	---
VT/Te	---	---	---	---	---	---
Ti/Te	---	---	---	---	---	---
IC (L)	---	---	---	---	---	---
MVV (L/min)	153	009	019	---	---	---
MPE (L/min)	---	00.00	---	---	---	---
MVT (L)	---	01.58	---	---	---	---

Pre Medication Report Indicates

Spirometry within normal limits as (FEV1/FVC)1Pred >95 and FVC1Pred >80.

Dr. A. S. MISHRA MBBS, AFH
Regn. No.-16555/OCMR
AFH Regn. N. 02493 (CH)



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9348580289 / 8118019921

Landline : 06645 359350

Web : dhwandiagnosticsohs.net

Name : BISWAJIT NAYAK

Age : 27

Sex : Male

Ref. By Dr. : SELF

Reg.No. : DMD/5555/18/14033

Report Date : 29/09/2024

Serial No. : TSP/602957/0824

Report Printing Time : 8:33:03AM

EYE TEST REPORT



VISUAL EXAMINATION :-

1. VISUAL ACUITY (DISTANCE VISION)

RIGHT EYE

LEFT EYE

A. With Glass

B. Without Glass

6/6

6/6

2. NEAR VISION :-

A. With Glass

B. Without Glass

N/6

N/6

3. COLOUR VISION :

NORMAL

Dr M.Mohapatra, M.S
(Ophthalmology)

Regn.No. 16255/2007

Signature

Dr. M. Mohapatra
M.S (Ophthalmology)
Regn. No.-15255/2007

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Name : BISWAJIT NAYAK

Age : 27 Yrs.

Sex : Male

Ref. By Dr. : SELF

Regd. No. : DMD/5555/18/478

Report Date : 29/09/24

Serial No. :

Report Printing Time : 12:39PM

Test Particulars

Results

Units

Reference-Range

HAEMATOLOGY

Haemoglobin(Hb)	: 13.4	gm/dl	(M) 12 - 18 (F) 12-15
Total Leucocyte Count(TLC)	: 6700	/cmm	4000 - 11000
BLOOD GROUP	: "A"		
Rh (D) Type	: Positive		
Total Erythrocyte Count (TRBC)	: 4.8	million/cm	3.5 - 5.5
Platelet Count	: 2.7	m.	
P.C.V	: 39.0	lakhs	1.5 - 4.0
M.C.V	: 81.0	%	M: 40 - 54, F: 36 - 45
M.C.H	: 27.0	fl	76 - 96
M.C.H.C.	: 33	pgms	22 - 32
MPV	: 10.4	g/dl	30 - 35
DIFFERENTIAL COUNT		fl	9.4-12.3
Neutrophils	: 62	%	40 - 70
Eosinophils	: 03	%	00 - 06
Basophils	: 00	%	00 - 01
Lymphocytes	: 30	%	20 - 40
Monocytes	: 05	%	02 - 10

*** End of Report ***

DR. Surjya P.S.N
Choudhry, MBBS, MD, DM

K. C. Mouleswari
DR. K Chandramouleswari M.D
(Pathology)

Dr. A. S. MISHRA, MBBS, AFH
Regn. No.-16555/OCMR
AFH Regn. No. 02199 (C)

Lab Incharge
29/09/24

Jharsuguda Center : Near Cape Town, Sarbahal, Jharsuguda, Odisha - 760201
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Pin - 759111
Thekolol Center : In Front of JSW, Bhusan, Sambalpur, Pin- 761212
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9348580289 / 8118019921

Landline :06645 359350

WhatsApp: 9348580289



Name : BISWAJIT NAYAK

Age : 27 Yrs.

Sex : Male

Ref. By Dr. : SELF

Regd. No. : DMD/5555/18/475

Report Date : 29/09/24

Serial No. :

Report Printing Time : 12:39PM

Test Particulars

Results

Units

Reference-Range

BIO-CHEMISTRY

Random Blood Sugar (RBS)	: 91.0	mg/dl	70 - 150
ELECTROLYTES			
Sodium (Na)	: 137.0	mmol/l	135 - 145
Potassium	: 3.6	mmol/l	3.55 - 5.5
LIPID PROFILE			
Cholesterol	: 181.0	mg/dl	150 - 220
Triglyceride	: 95.0	mg/dl	50 - 150
High Density Lipoprotein (HDL)	: 45.25	mg/dl	35 - 60
Low Density Lipoprotein (LDL)	: 116.75	mg/dl	80 - 150
Very Low Density Lipoprotein (VLDL)	: 19.0	mg/dl	10 - 30
LIVER FUNCTION TEST (LFT)			
Total Bilirubin	: 0.75	mg/dl	0.2 - 1.2
Direct Bilirubin	: 0.17	mg/dl	0.1 - 0.4
A.S.T.(S.G.O.T.)	: 26.0	u/l	5 - 40
A.L.T.(S.G.P.T.)	: 34.0	u/l	7 - 56
Alkaline Phosphatase	: 91.0	u/l	<150
Total Protein	: 7.4	g/dl	6.6 - 8.3
Albumin	: 3.6	g/dl	3.5 - 5.0
RENAL FUNCTION TEST (RFT)			
Urea	: 24.0	mg/dl	10 - 40
Creatinine	: 0.86	mg/dl	M: 0.6 - 1.2/F: 0.5 - 1.1
Uric Acid	: 4.7	mg/dl	M: 3.4 - 7.0/F: 2.5 - 6.0

Dr. A. S. MISHRA, MBBS, AFIH

Regn. No. -16555/OC

AFIH Regn. N. 02493

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Thelkela Center : In Front of JSW, Bhusean, Sambalpur, Pin- 768212

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Name : BISWAJIT NAYAK

Age : 27 Yrs.

Sex : Male

Ref. By Dr. : SELF

Regd. No. : DMD/5555/18/475

Report Date : 29/09/24

Serial No. :

Report Printing Time : 12:39PM


Test Particulars

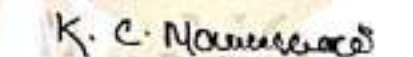
Results

Units


Reference-Range

*** End of Report ***


DR. Surjya P.S.N
Choudhry, MBBS, MD, DM


DR. K. Chandramouleswari M.D
(Pathology)


In Charge
29/9/24


Dr. A. S. MISHRA, MBBS, AFIP
Regn. No. - 16555/OCMR
AFIP Regn. N. 02493 (cli)

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Name : BISWAJIT NAYAK

Age : 27 Yrs.

Sex : Male

Ref. By Dr. : SELF

legd.No. : DMD/5555/18/4797

Date : 29/09/24

Serial No. :

Report Printing Time : 12:39PM

URINE REPORT



Test Particulars	Results
MACROSCOPIC-EX-	
Volume	: 20ML
Colour/appearance	: Pale yellow
Sediment	: Absent
Sp. Gravity	: 1.010
CHEMICAL-EX-	
PH%	: 6.0
Reaction	: Acidic
Albumin	: Absent
Sugar	: Absent
MICROSCOPIC-EX-	
Pus Cells	: 0-1/HPF
Epithelial Cells	: 1-2/HPF
R.B.C.	: Nil/HPF
Casts	: Nil
Crystals	: Nil
Bacterial	: Nil
Spermatozoa	: Nil
Yeast Cells	: Nil

*** End of Report ***

DR. Surja P.S.N
Choudhry, MBBS, MD, DM

K. C. Chandramouleswari
DR. K. Chandramouleswari M.D.
(Pathology)

Lab Incharge

Dr. A. S. MISHRA, MBBS, AFIH
Regn. No. - 16555/OCMR
AFIH Regn. N. 02493

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9348580289 / 8118019921

Landline :06645 359350

Web : dhwandiagnosticsohs.net

Name : BISWAJIT NAYAK

Age : 27 Yrs.

Sex : Male

Ref. By Dr. : SELF

Reg.No. : DMD/5555/18/14033

Report Date : 29/09/2024

Serial No. : TSP/602957/0824

REPORT :-

REPORT : CHEST X-RAY PA VIEW

HISTORY :-

PERIODICAL INDUSTRIAL HEALTH CHECK-UP

FINDINGS :-

LINES/TUBES : NONE

LUNGS : The lungs are well defined & clear. There is no evidence of pneumoconiosis /pneumonics/pulmonary oedema

Pleura : There is no pleural effusion/pneumothorax

Heart & mediastinum : The cardiomeastinal-

Silhouette is normal

The visualised skeleton is normal

IMPRESSION :-

Clean lungs without evidence of pneumonia or pneumoconiosis or others lungs abnormality.



DR. B. B. PRADHAN, M.D.
(RADIOLOGY)

[Signature]
29-09-24

Jharsuguda Center : Near Cape Town, Sarbahal, Jharsuguda, Odisha - 768201

Mobile : 08118019921, E-mail : info@dhwandiagnosticsohs.net

Khordha Center : Near Govt. Hospital, Nh57, Khordha, Odisha - 752055

Contact : 06755-796387 Mobile : 99527590571, E-mail: dhwanmedicalcenter2020@gmail.com

Angul Center : Inside JSPL, Angul, Chendipada Road, SH - 63, At Po- Jindal Nagar, Pin - 759111

Thakolol Center : In Front of JSWL Bhusan, Sambalpur, Pin- 768212

Corporate Off.: Adarsh Vihar, Aryapalli, Patia, Bhubaneswar - 751024

Contact : 0674-7968845, E-mail: procure@dhwandiagnosticsohs.net

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For any Complaint Call us at 7008055955 / 9348580289

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24 JUN 2024 BISWAJIT NAYAK 127 YRS CHEST
CHAMAN MEDICAL CENTER DHAMAN DIAGNOSTIC JSG KHORDHA

OCCUPATIONAL HEALTH SERVICES

FAP JAIPUR, PME 2024 25

TATA STEEL LIMITED

WELLNESS FOLLOW UP CARD

Regd. No.:

EMP No.: TSP/602957/0824

Name : BISWAJIT NAYAK

Age: 27

Sex: MALE

Designation: DRIVER

Deptt.: EHS

Height: 170

weight: 63

Blood Group & Rh : A POSITIVE



DHWAN DIAGNOSTIC

(A DMG Group)

Diagnostics with Quality & Accuracy

In Front of Cape Town, Sarbahal, Jharsuguda, Odisha 768201

E mail: dhwandiagnostics2020@gmail.com

Near DH Hospital, NH 57, Khordha, Odisha 750055

E mail: dhawnmedicalcenter2020@gmail.com

Contact No.: 0674 3566528, 9827590571, 7008055955, 9348580289

Website: www.dhwan.lphysicianhub.net



Ref.No.: TSL/FAMD/EAPJ/P425/1405

Date: 28/09/2024

To
The Member Secretary
State Pollution Control Board
A/118, Paribesh Bhawan
Nilakantha Nagar, Bhubaneswar-751012

Sub:- Submission of Environmental Statement for the Financial Year 2023-2024

Ref:- Under Rule-14 of The Environment (Protection) Rules 1986

Dear Sir,


With Reference to Rule-14 of The Environment (Protection) Rules 1986, we are enclosing herewith the Environmental Statement report for the Financial Year 2023-2024 attached.

This is for your kind information.

Thanking You

Yours Truly

For Tata Steel Limited


Alok Kumar Panda
Plant Head & Factory Manager
Ferro Alloys Plant, Jajpur

Alok Kumar Panda
Head Ferro Alloys Plant, Jajpur
TATA STEEL LTD.
KNIC, P.O.-Manatira, Via-Danagadi
Jajpur-755026, Odisha

Cc: Regional Officer, State Pollution Control Board, Kalinganagar, Jajpur

TATA STEEL LIMITED

Registered Office Bombay House 24 Homi Mody Street Fort Mumbai 400 001 India
Tel 91 22 6665 8282 Fax 91 22 6665 7724 Website www.tatasteel.com
Corporate Identity Number L27100MH1907PLC000290





CONSENT ORDER
M/S TATA STEEL LIMITED (FERRO ALLOYS PLANT)

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BY REGD. POST WITH AD

STATE POLLUTION CONTROL BOARD, ODISHA

[DEPARTMENT OF FOREST, ENVIRONMENT & CLIMATE CHANGE, GOVERNMENT OF ODISHA]

A/118, Nilakantha Nagar, Unit-VIII, Bhubaneswar-751012

Phone-2561909, Fax: 2562822, 2560955 E-mail: paribesh1@ospcboard.org, Website: www.ospcboard.org

CONSENT ORDER

No. 4669 /

IND-I-CON-5455

Dt. 30-03-2024 /

CONSENT ORDER NO. 2578.

Sub : Consent for discharge of sewage and trade effluent under Section 25/26 of Water (PCP) Act, 1974 and emission under Section 21 of Air (PCP) Act, 1981 for operation of the plant.

Ref : Your online application ID No. 5331741, dated 18-01-2024.

Consent to operate is hereby granted under section 25/26 of Water (Prevention & Control of Pollution) Act, 1974 and under section 21 of Air (Prevention & Control of Pollution) Act, 1981 and rules framed thereunder to:

Name of the Industry: M/s Tata Steel Limited (Ferro Alloys Plant)

Name of the Occupier & Designation : Shri Alok Kumar Panda, Plant Head

Address: Kalinganagar Industrial Complex, Duburi, Dist: Jaipur-755026, Odisha

This consent order is valid for the period upto 31.03.2025.

Details of Products Manufactured:

Sl. No	Product	Quantity
1.	Charge Chrome / Silico Manganese / Ferro Manganese (4x16.5 MVA) Furnace No-I, II, III & IV	1,00,000 TPA

This consent order is valid for the specified outlets, discharge quantity and quality of effluents (ii) quantity of emission and its quality, specified chimney / stack (iii) quantity of solid waste and its disposal as specified below.

This consent is granted subject to the General and Special Conditions stipulated below:



A. Discharge permitted through the following outlet subject to the standard

Outlet No.	Description of outlet	Point of discharge	Quantity of discharge KLD or KL/hr	Prescribed Standard							
				pH	BOD (mg/l)	COD (mg/l)	TSS (mg/l)	NH ₄ -N (mg/l)	N-total (mg/l)	Fecal Coliform (MPN/ml)	O & G (mg/l)
01.	Domestic Effluent	Septic tank followed by soak pit	--	6.5-9.0	<30	<250	<100	5	10	<1000	--
02.	Cooling & other wastewater including COB Plant	Recycling	--	--	--	--	--	--	--	--	--

B. Emission permitted through the following stack subject to the prescribed standard

Chimney Stack No.	Description of Stack (Stack attached to)	Stack height (m) Above GL	Quantity of emission (Nm ³ /hr)	Prescribed Standard		
				PM (mg/Nm ³)	SO ₂	NO _x
01	GCP of Furnace – I	40	1,35,000	100	--	--
02	GCP of Furnace – II	40	1,35,000	100	--	--
03	GCP of Furnace – III & IV	40	2,70,000	100	--	--

C. Disposal of solid waste permitted in the following manner

Sl. No.	Type of Solid waste	Quantity generated	Quantity to be reused on site	Quantity to be reused off site	Quantity disposed off	Description of disposal site.
01.	Slag	8236 Tonne/ Month	--	--	--	Used as filling material inside premises / Laterite quarries located at Manaharpur
02.	Fine Dust	10 TPD	--	--	--	Used in Briquette Plant



D. GENERAL CONDITIONS FOR ALL UNITS

1. The consent is given by the Board in consideration of the particulars given in the application. Any change or alternation or deviation made in actual practice from the particulars furnished in the application will also be the ground for liable to review/variation/revocation of the consent order under section 27 of the Water (Prevention & Control of Pollution) Act, 1974 and section 21 of Air (Prevention & Control of Pollution) Act, 1981 and to make such variations as deemed fit for the purpose of the Acts.
 2. The occupier would immediately submit revised application for consent to operate to this Board in the event of any change in the quantity and quality of raw material / products / manufacturing process or quantity / quality of the effluent rate of emission / air pollution control equipment / system etc.
 3. The applicant shall not change or alter either the quality or quantity or the rate of discharge or temperature or the route of discharge without the previous written permission of the Board.
 4. The application shall comply with and carry out the directives/orders issued by the Board in this consent order without any negligence on his/her part. In case of non-compliance of any order/directives issued at any time and/or violation of the terms and conditions of this consent order, the applicant shall be liable for legal action as per the provisions of the Law.
 5. The applicant shall make an application for grant of fresh consent at least 90 days before the date of expiry of this consent order.
 6. The issuance of this consent does not convey any property right in either real or personal property or any exclusive privileges nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Central, State laws or regulation.
 7. This consent does not authorize or approve the construction of any physical structure or facilities or the undertaking of any work in any natural water course.
 8. The applicant shall display this consent granted to him in a prominent place for perusal of the public and inspecting officers of this Board.
 9. An inspection book shall be opened and made available to Board's Officers during the visit to the factory.
 10. The applicant shall furnish to the visiting officer of the Board any information regarding the construction, installation or operation of the plant or of effluent treatment system / air pollution control system / stack monitoring system any other particulars as may be pertinent to preventing and controlling pollution of Water / Air.
 11. The applicant shall display suitable caution board at the place where the effluent is entering into any water-body or any other place to be indicated by the Board, indicating therein that the area into which the effluents are being discharged is not fit for the domestic use/bathing.
 12. Storm water shall not be allowed to mix with the trade and/or domestic effluent on the upstream of the terminal manholes where the flow measuring devices will be installed.
 13. The applicant shall maintain good house-keeping both within the factory and the premises. All pipes, valves, sewers and drains shall be leak-proof. Floor washing shall be admitted into the effluent collection system only and shall not be allowed to find their way in storm drains or open areas.
 14. The applicant shall at all times maintain in good working order and operate as efficiently as possible all treatment or control facilities or systems install or used by him to achieve with the term(s) and conditions of the consent.
 15. Care should be taken to keep the anaerobic lagoons, if any, biologically active and not utilized as mere stagnation ponds. The anaerobic lagoons should be fed with the required nutrients for effective digestion. Lagoons should be constructed impervious.
 16. The utilization of treated effluent on factory's own land, if any, should be completed and there should be no possibility of the effluent gaining access into any drainage channel or other water courses either directly or by overflow.
 17. The effluent disposal on land, if any, should be done without creating any nuisance to the surroundings or inundation of the lands at any time.
 18. If at any time the disposal of treated effluent on land becomes incomplete or unsatisfactory or create any problem or becomes a matter of dispute, the occupier must adopt alternate satisfactory treatment and disposal measures.
 19. The sludge from treatment units shall be dried in sludge drying beds and the drained liquid shall be taken to equalization tank.
 20. The effluent treatment units and disposal measures shall become operative at the time of commencement of production.
-



CONSENT ORDER
MS TATA STEEL LIMITED (FERRO ALLOYS PLANT)

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21. The applicant shall provide port holes for sampling the emissions and access platform for carrying out stack sampling and provide electrical outlet points and other arrangements for chimneys/stacks and other sources of emissions so as to collect samples of emission by the Board or the applicant at any time in accordance with the provision of the Acts or Rules made therein.
 22. The applicant shall provide all facilities and render required assistance to the Board staff for collection of samples / stack monitoring / inspection.
 23. The applicant shall not change or alter either the quality or quantity or rate of emission or install, replace or alter the air pollution control equipment or change the raw material or manufacturing process resulting in any change in quality and/or quantity of emissions, without the previous written permission of the Board.
 24. No control equipments or chimney shall be altered or replaced or as the case may be erected or re-erected except with the previous approval of the Board.
 25. The liquid effluent arising out of the operation of the air pollution control equipment shall be treated in the manner so as to meet the standards prescribed by the Board in accordance with the provisions of Water (Prevention and Control of Pollution) Act, 1974 (as amended).
 26. In case of episodal discharge/emissions the occupier shall take immediate action to bring down the emission within the limits prescribed by the Board and stop the operation of the plant if required. Report of such accidental discharge /emission shall be brought to the notice of the Board within 24 hours of occurrence.
 27. The applicant shall keep the premises and air pollution control equipments clean and make all hoods, pipes, valves, stacks/chimneys leak proof. The air pollution control equipments, location, inspection chambers, sampling port holes shall be made easily accessible at all times.
 28. Any upset condition in any of the plant/plants of the factory which is likely to result in increased effluent discharge/emission of air pollutants and / or result in violation of the standards mentioned shall be reported to the Headquarters and Regional Office of the Board by E-mail within 2 hours of its occurrence.
 29. The occupier has to ensure that minimum three varieties of trees are planted at the density of not less than 1000 trees per acre. The trees may be planted along boundaries of the premises. This plantation is stipulated over and above the bulk plantation of trees in that area.
 30. The solid waste such as sweeping, wastage packages, empty containers residues, sludge including that from air pollution control equipments collected within the premises of the shall be disposed off scientifically to the satisfaction of the Board.
 31. All solid wastes arising in the premises shall be properly classified and disposed off to the satisfaction of the Board by :
 - i) Land fill in case of inert material, care being taken to ensure that the material does not give rise to leachate which may percolate into ground water or carried away with storm run-off.
 - ii) Controlled incineration, wherever possible in case of combustible organic material.
 - iii) Composting, in case of bio-degradable material.
 32. Any toxic material shall be detoxicated if possible, otherwise be sealed in steel drums and buried in protected areas after obtaining approval of this Board in writing. The detoxication or sealing and burying shall be carried out in the presence of Board's authorized persons only. Letter of authorization shall be obtained for handling and disposal of hazardous wastes.
 33. If due to any technological improvement or otherwise this Board is of opinion that all or any of the conditions referred to above requires variation (including the change of any control equipment either in whole or in part) this Board shall after giving the applicant an opportunity of being heard, vary all or any of such condition and thereupon the applicant shall be bound to comply with the conditions so varied.
 34. The applicant, his/heirs/legal representatives or assignees shall have no claim whatsoever to the condition or renewal of this consent after the expiry period of this consent.
 35. The Board reserves the right to review, impose additional conditions or condition, revoke change or alter the terms and conditions of this consent.
 36. Notwithstanding anything contained in this conditional letter of consent, the Board hereby reserves to it the right and power under section 27(2) of the Water (Prevention & Control of Pollution) Act, 1974 to review any and/or all the conditions imposed herein above and to make such variations as deemed fit for the purpose of the Act by the Board.
 37. The conditions imposed as above shall continue to be in force until revoked under section 27(2) of the Water (Prevention & Control of Pollution) Act, 1974 and section 21 A of Air (Prevention & Control of Pollution) Act, 1981.
 38. The occupier shall comply to the conditions stipulated in CTE order issued by Odisha State Pollution Control Board and conditions stipulated in Environmental Clearances issued by MoEF&CC, Govt. of India.
-



E. SPECIAL CONDITIONS:

1. The Gas Cleaning Plant installed at sub-merged arc furnaces and pollution control devices installed at briquetting plant shall be operated and maintained properly in order to comply with the emission standard of $100\text{mg}/\text{Nm}^3$ in respect of Particulate Matter.
 2. The hydraulically operated doors in all 4 furnaces shall be properly maintained and operated effectively to minimize fugitive emission.
 3. All raw materials, product and waste materials shall be transferred through covered vehicles without any spillage or leakages on the road.
 4. Dry Fog system shall be provided and effectively operated to minimize fugitive dust emission generated from raw material handling area.
 5. Water sprinklers provided at raw material handling area, stockpile area, other work zone area shall be properly operated and maintained in order to minimize fugitive dust emission.
 6. Secondary emission generated during hot metal tapping from furnaces shall be channelised through suctioned hoods and connected to the respective GCPs.
 7. The unit shall provide water sprinkling facility at the feeding point and other potential dust generating points of COB plant to control fugitive emission.
 8. All the black topped / concreted roads provided inside the factory premises shall be cleaned regularly and wetted through water sprinkling to minimize fugitive emission.
 9. The unit shall maintain proper housekeeping inside the plant premises specially in the raw material handling area, briquette plant.
 10. The height of the stack connected to DG sets of capacity more than 800 KVA shall conform to the following:
 - i) $14Q^{0.3}$, Q = Total SO_2 emission from the plant in kg/hr.
 - ii) Minimum 6m. above the building where generator set is installed.
 - iii) 30 m.
 11. The height of the stack connected to DG set of capacity less than and upto 800 KVA shall conform to the following:
 - i) $H = h + 0.2\sqrt{\text{KVA}}$
 - ii) h = Height of the building where it is installed in meter
 - iii) KVA = Capacity of DG set
 - iv) H = Height of the stack in meter above ground level.
 12. All DG sets installed before 1.7.2004 shall be scrapped. DG sets complying with either State-I or Stage-II emission norms shall reduce Particulate Matter Emission by 70% by installing RECD without affecting any other emission parameters as per the CPCB guidelines and Board's letter vide No.17927, dated 14.11.2023, in this regard.
 13. The industry shall develop a green belt along its boundary and vacant areas available inside the factory premises.
 14. The industry shall not operate its Furnace No.V (i.e., 33 MVA) and power plant without prior consent of the Board.
 15. The unit shall install pneumatic dust handling system connected to all the hoppers of bag filters and GCPs of the Ferro Alloys Plant.
-



16. The industry shall make work zone area of briquette plant, GCP area and bag filter area concreted.
17. Garland drains around solid waste dumping area followed by series of settling tanks shall be provided to arrest the solids in the surface run-off before discharge to outside. The overflow effluent from the settling tanks shall meet the prescribed standard Annexed in the consent order.
18. All internal drains of the factory premises should lead to the settling tanks before discharge to outside.
19. The effluent generated from cooling, metal recovery unit etc. shall be completely recycled and under no circumstances there shall be any discharge of such effluent to outside the factory premises.
20. The wastewater generated from various process of COB plant shall be treated in settling tanks and reused in a closed loop. There shall be no discharge of any effluent from the COB plant.
21. The domestic effluent shall be treated properly in septic tanks followed by soak pits constructed as per BIS specifications.
22. Solid waste generated from FAP shall be dumped inside the factory premises for which provision of adequate land shall be made. Dumping shall be done in such a manner to prevent ground water contamination and any public nuisance. It shall be used for road making and development of built-up area.
23. Tailings generated from COB plant shall be properly dewatered and shall be suitably stored in impervious lined floor with barricade to prevent surface water contamination.
24. Garland drain network of adequate capacity shall be provided inside and around the COB plant and the drains shall lead into the settling tanks so that there shall be no discharge from COB plant area.
25. The unit shall obtain authorization under Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016.
26. All internal drains and settling pits shall be de-silted before monsoon.
27. The following actions shall be taken for better environmental management in consultation with Regional Officer, SPCB, Kalinganagar.
 - i) Approach road from GCP-I area to product cooling and breaking yard shall be concreted.
 - ii) Damaged portion of the internal roads used for material transportation shall be concreted /blacktopped.
 - iii) More nos. of rain guns shall be installed along the raw material handling yard for effective dust suppression.
 - iv) Secondary emission from ground hopper and screen house/transfer points of briquette plant shall be channelized through suction hoods and connected to GCP/bag filter of briquette plant replacing the dry fog system.
 - v) Garland drain and toe wall shall be constructed around the raw material handling area.
 - vi) Spilled fines material accumulated near the bag house of GCP area of Furnace-III & IV shall be cleaned.
28. An action plan in this regard shall be submitted by 15.04.2024 at the Regional Office as well at Head Office of SPCB, Odisha
28. In case the consent fee is revised upward during this period, the industry shall



CONSENT ORDER
M/S TATA STEEL LIMITED (FERRO ALLOYS PLANT)

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- pay the differential fees to the Board (for the remaining years) to keep the consent order in force. If they fail to pay the amount within the period stipulated by the Board the consent order will be revoked without prior notice.
29. The Board reserves the right to revoke / refuse consent to operate at any time during period for which consent is granted in case any violation is observed and to modify/ stipulate additional conditions as deemed appropriate.
30. Housekeeping shall be further improved and maintained by a dedicated team.
31. The industry shall abide by the provision of E(P) Act, 1986 and Rules framed thereunder.
32. The industry shall construct a rain water harvesting structure for utilization of the rain water collected from the roof top of all buildings and catchment area of the industry for recharging of ground water within the premises as per the concept and practices prescribed by CPCB.

To

The Plant Head,
M/s Tata Steel Limited (Ferro Alloys Plant),
Kalinganagar Industrial Complex,
Duburi, Dist: Jajpur-755026


CHIEF ENV. ENGINEER (M)
STATE POLLUTION CONTROL BOARD, ODISHA

Memo No. _____/Dt. _____/

Copy forwarded to :

- i) Regional Officer, State Pollution Control Board, Kalinganagar
- ii) District Collector, Jajpur
- iii) DFO, Jajpur
- iv) CES, Central Laboratory, SPC Board, Bhubaneswar
- v) ACEE, HWM Cell, Head Office
- vi) Consent Register


ADDL. CHIEF ENV. ENGINEER
STATE POLLUTION CONTROL BOARD, ODISHA



GENERAL STANDARDS FOR DISCHARGE OF ENVIRONMENTAL POLLUTANTS PART – A : EFFLUENTS

Sl.No.	Parameters	Standards			
		Inland surface	Public sewers	Land for irrigation	Marine Costal Areas
		(a)	(b)	(c)	(d)
1.	Colour & odour	Colourless/ Odourless as far as practicable	--	See 6 of Annex-1	See 6 of Annex-1
2.	Suspended Solids (mg/l)	100	600	200	a. For process wastewater – 100 b. For cooling water effluent 10% above total suspended matter of influent.
3.	Particular size of SS	Shall pass 850	--	--	--
5.	pH value	5.5 to 9.0	5.5 to 9.0	5.5 to 9.0	5.5 to 9.0
6.	Temperature	Shall not exceed 5°C above the receiving water temperature	--	--	Shall not exceed 5°C above the receiving water temperature
7.	Oil & Grease mg/l max.	10	20	10	20
8.	Total residual chlorine	1.0	--	--	1.0
9.	Ammonical nitrogen (as N) mg/l max.	50	50	--	50
10.	Total Kjeldahl nitrogen (as NH ₃) mg/l max.	100	--	--	100
11.	Free ammonia (as NH ₃) mg/l max.	5.0	--	--	5.0
12.	Biochemical Oxygen Demand (5 days at 20°C) mg/l max.	30	350	100	100
13.	Chemical Oxygen Demand, mg/l max.	250	--	--	250
14.	Arsenic (as As) mg/l max.	0.2	0.2	0.2	0.2
15.	Mercury (as Hg) mg/l max.	0.01	0.01	--	0.001
16.	Lead (as Pb) mg/l max.	0.1	1.0	--	2.0



CONSENT ORDER
M/S TATA STEEL LIMITED (FERRO ALLOYS PLANT)

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Sl.No.	Parameters	Standards			
		Inland surface	Public sewers	Land for irrigation	Marine Costal Areas
		(a)	(b)	(c)	(d)
17.	Cadmium (as Cd) mg/l max.	2.0	1.0	--	2.0
18.	Hexavalent Chromium (as Cr + 6) mg/l max.	0.1	2.0	--	1.0
19.	Total Chromium (as Cr) mg/l max.	2.0	2.0	--	2.0
20.	Copper (as Cu) mg/l max.	3.0	3.0	--	3.0
21.	Zinc (as Zn) mg/l max.	5.0	15	--	15
22.	Selenium (as Se) mg/l max.	0.05	0.05	--	0.05
23.	Nickel (as Ni) mg/l max.	3.0	3.0	--	5.0
24.	Cyanide (as CN) mg/l max.	0.2	2.0	0.2	0.02
25.	Fluoride (as F) mg/l max.	2.0	15	--	15
26.	Dissolved Phosphates (as P) mg/l max.	5.0	--	--	--
27.	Sulphide (as S) mg/l max.	2.0	--	--	5.0
28.	Phenolic compounds as (C ₆ H ₅ OH) mg/l max.	1.0	5.0	--	5.0
29.	Radioactive materials				
	a. Alpha emitter micro curie/ml.	10 ⁷	10 ⁷	10 ⁸	10 ⁷
	b. Beta emitter micro curie/ml.	10 ⁸	10 ⁸	10 ⁷	10 ⁸
30.	Bio-assay test	90% survival of fish after 96 hours in 100% effluent	90% survival of fish after 96 hours in 100% effluent	90% survival of fish after 96 hours in 100% effluent	90% survival of fish after 96 hours in 100% effluent
31.	Manganese (as Mn)	2 mg/l	2 mg/l	--	2 mg/l
32.	Iron (Fe)	3 mg/l	3 mg/l	--	3 mg/l
33.	Vanadium (as V)	0.2 mg/l	0.2 mg/l	--	0.2 mg/l
34.	Nitrate Nitrogen	10 mg/l	--	--	20 mg/l



NATIONAL AMBIENT AIR QUALITY STANDARDS

Sl. No.	Pollutants	Time Weighed Average	Concentrate of Ambient Air		
			Industrial Residential, Rural and other Area	Ecologically Sensitive Area (notified by Central Government)	Methods of Measurement
(1)	(2)	(3)	(4)	(5)	(6)
1.	Sulphur Dioxide (SO ₂), µg/m ³	Annual *	50	20	- Improved west and Gaeke
		24 Hours **	80	80	- Ultraviolet fluorescence
2.	Nitrogen Dioxide (NO ₂), µg/m ³	Annual *	40	30	- Modified Jacob & Hochheiser (Na-Arsenite)
		24 Hours **	80	80	- Chemiluminescence
3.	Particulate Matter (size less than 10µm) or PM ₁₀ , µg/m ³	Annual *	60	60	- Gravimetric
		24 Hours **	100	100	- TOEM - Beta Attenuation
4.	Particulate Matter (size less than 2.5µm) or PM _{2.5} , µg/m ³	Annual *	40	40	- Gravimetric
		24 Hours **	60	60	- TOEM - Beta Attenuation
5.	Ozone (O ₃), µg/m ³	8 Hours **	100	100	- UV Photometric
		1 Hours **	180	180	- Chemiluminescence - Chemical Method
6.	Lead (Pb), µg/m ³	Annual *	0.50	0.50	- AAS/ICP method after sampling on EMP 2000 or equivalent filter paper
		24 Hours **	1.0	1.0	- ED-XRF using Teflon filter
7.	Carbon Monoxide (CO), mg/m ³	8 Hours **	02	02	- Non Dispersive Infra Red (NDIR)
		1 Hours **	04	04	Spectroscopy
8.	Ammonia (NH ₃), µg/m ³	Annual*	100	100	- Chemiluminescence
		24 Hours**	400	400	- Indophenol Blue Method
9.	Benzene (C ₆ H ₆), µg/m ³	Annual *	05	05	- Gas Chromatography based continuous analyzer - Adsorption and Desorption followed by GC analysis
10.	Benzo (a) Pyrene (BaP)- Particulate phase only, mg/m ³	Annual*	01	01	- Solvent extraction followed by HPLC/GC analysis
11.	Arsenic (As), mg/m ³	Annual*	06	06	- AAS/ICP method after sampling on EPM 2000 or equivalent filter paper
12.	Nickel (Ni), mg/m ³	Annual*	20	20	- AAS/ICP method after sampling on EPM 2000 or equivalent filter paper

* Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.

** 24 hourly or 08 hourly or 01 hourly monitored values, as applicable, shall be complied with 98% of the time in a year, 2% of the time, they may exceed the limits but not on two consecutive days of monitoring.

Annexure 15- Slag Used in Low Laying areas



TCLP Report

Report No. - CEMC/TSL/201223/SL1 Issued Date-20.12.2023

TCLP TEST REPORT

Name & Address of the Client : M/s. TATA Steel Ltd., (Ferro Alloys Plant), Kalinga Nagar, Jaipur

Date of Sampling : 09.12.2023

Sampling by : Mr. Rakesh Nath Das

Date of Sample Received : 10.12.2023

Sample Description : Slag Sample

Date of Analysis : 10.12.2023 to 20.12.2023

Reference No. : CEMC-20122023SL1

ANALYSIS RESULT

Sl. No	Parameter	Unit of measurement	Standard*	Testing Method	Result
1	Arsenic as As	mg/l	5.0	TCLP With Zero Binds Extraction Followed by Analysis in ICP-OES	<0.001
2	Cadmium as Cd	mg/l	1.0		<0.005
3	Chromium as Cr	mg/l	5.0		<0.005
4	Lead as Pb	mg/l	5.0		<0.005
5	Mercury as Hg	mg/l	0.2		<0.001
6	Selenium as Se	mg/l	1.0		<0.005
7	Nickel as Ni	mg/l	20.0		<0.005
8	Zinc as Zn	mg/l	20.0		0.066
9	Manganese as Mn	mg/l	250.0		9.37
10	Copper as Cu	mg/l	10.0		0.031

* Govt. of India, MoEF & CC Schedule II based on leachate concentration limits (TCLP) or Soluble Threshold Limit Concentration (NTL), Class A, 2015

[Signature]
 Authorised Signatory



- Note:-
- The results relate only to the sample tested.
 - This Test Report shall not be reproduced orally or in print without the written consent of the Laboratory.
 - The samples received shall be destroyed after two weeks from the date of issue of the Test Report unless specified otherwise.
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