

#### FAMD/FAPG/ENV/08 /FY21

Date: 09 06 2020

To

The Chief Conservator of Forests (Central)
Eastern Regional Office
Ministry of Environment & Forests
Government of India
A/3, Chandrashekharpur,
Bhubaneshwar - 751023, Odisha.

Sub:

Half Yearly Compliance Report (October 2019 to March 2020) for Environmental Clearance to M/s Tata Steel Ltd. for 55,000 TPA High Carbon Ferro-Chrome Plant, at Gopalpur, Tehsil-Chhatrapur, District-Ganjam, Odisha.

Dear Sir,

We are enclosing the Half Yearly Compliance Report for the period October 2019 to March 2020 for the conditions stipulated in Environmental Clearance to the above referred project vide MoEF's letter No. J-11011/55/2011-IA.II (I) dated 14<sup>th</sup> August 2012 and amended EC dated 08<sup>th</sup> August 2014 & letter No. 11-63/2012-IA.III dated 18<sup>th</sup> March 2013 respectively for your kind consideration. The copy of the compliance report is also being sent in the soft format to e-mail id for your kind perusal.

We wish to mention that all the necessary actions are being taken in compliance to the specific and general conditions of Environmental Clearance granted to the project.

We trust that the information furnished is in line with your requirement.

Thanking You,
Yours faithfully,
For TATA STEEL Ltd.,

B Srizives.

Factory Manager

Ferro Chrome Plant, Gopalpur

Tata Steel Limited

Encl. a/a

Copy to:

- 1. Member Secretary, State Pollution Control Board, Odisha, Bhubaneswar.
- 2. Member Secretary, Central Pollution Control Board, Kolkata;
- 3. Regional Officer, State Pollution Control Board, Berhampur.

#### TATA STEEL LIMITED



### HALF YEARLY COMPLIANCE REPORT

(Period from October 2019 to March 2020)

For

55,000 TPA High Carbon Ferro-Chrome Plant,

Of

## M/s Tata Steel Limited

At-Gopalpur, Tehsil-Chhatrapur, District-Ganjam, Odisha

#### TATA STEEL LIMITED

SI. No.	Specific Conditions	Compliance/Status
1	The proponent shall obtain necessary CRZ clearance under the provision of CRZ Notification, 2010	We have been granted CRZ Clearance under the provision of CRZ Notification, 2011 on 18.03.2013 vide letter no. F No. 11-63/2012-IA.III from MoEF & CC (IA Division).
2	No Charcoal shall be used as fuel. Pet Coal should be used as fuel instead of charcoal from unknown sources.	No Charcoal is used as fuel for plant operations.
3	Continuous monitoring facilities for all the stacks and sufficient air pollution control equipment viz. fume extraction system with bag filters, ID fan and stack of adequate height to submerged arc furnace shall be provided to control emission below 50 mg/Nm <sup>3</sup>	<ul> <li>Continuous monitoring of SOx, NOx and SPM for process stack has been installed.</li> <li>Fume Extraction System with bag filters and ID fan has been installed to control emission.</li> <li>Adequate stack height is maintained in submerged arc furnace.</li> <li>Dust extraction system also installed.</li> </ul>
4	The National Ambient Air Quality Standards issued by the Ministry vide G.S.R. No. 826(E) dated 16 <sup>th</sup> November 2009 shall be followed.	NAAQ Standards have been referred for air quality monitoring and is being complied.
5	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.	Water sprinkling on roads/operating areas is being carried out on a regular basis to control the fugitive emissions.
6	The total water requirement shall not exceed 5.5 MLD. 'Zero" effluent discharge shall be strictly followed and no wastewater should be discharged outside the premises.	The water requirement for 55,000 TPA of Ferro Chrome Plant is 2 MLD approx. The ETP and STP have been installed and no wastewater is discharged outside the premises.
7	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.	The water reservoir of 6.5 lakhs KL capacity is also used to store the rain water during the monsoon. Rain water post treatment is used to meet the water requirement.
8	Regular monitoring of influent and effluent surface, sub-surface and ground water shall be ensured and treated waste water shall meet the norms prescribed by the State Pollution Control Board or described under the Environment (Protection) 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' Regional Office at Bhubaneswar, SPCB and CPCB.	<ul> <li>Surface water quality monitoring is being carried out regularly around the project site by third party registered and NABL accredited labs.</li> <li>Upstream and downstream surface water is being carried out every month. Ground &amp; Surface Water monitoring results is attached in Annexure-1.</li> </ul>

9	All the Ferro chrome 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.	Ferro Chrome Slag testing for Toxic Chemical Leachability Potential (TCLP) has been done from IMMT. No hazardous substances found. The same can be used for landfill in low lying areas inside our plant premise.
10	Risk and Disaster Management Plan along with the mitigation measures should be prepared and a copy submitted to the Ministry's Regional Office at Bhubaneswar, SPCB and CPCB within 3 months of issue of environment clearance letter.	Risk and Disaster Management Plan along with the mitigation measures have been submitted to the MoEF vide letter no. OP-Env/C-04/52/2012 dated 12.11.2012 along with a copy to Eastern Regional Office, MoEF and Odisha State Pollution Control Board, Bhubaneswar. Additionally, an onsite emergency plan approved by Directorate of Factories & Boilers is also in place.
11	All the commitments made to the public during the Public Hearing / Public Consultation meeting held on 20th September 2011 should be satisfactorily implemented and a separate budget for implementing the same should be allocated and information submitted to the Ministry's Regional Office at Bhubaneswar.	Commitments made to the public during Public hearing is being regularly implemented and monitored by Tata Steel Rural Development Society (TSRDS) within the allocated budget.
12	As proposed green belt should be developed in at least 33% of the project area. Selection of plant species shall be as per the CPCB guidelines in consultation with the DFO.	33% green belt has been planned for development over a period of 5 years and is being taken up in phase wise manner. We are pending with only 7000 saplings to complete the target and the average survival rate is greater than 95%.
13	At least 5% of the total cost of the project should be earmarked towards the Enterprise Social Commitment based on Public Hearing issues and item-wise details along with time bound action plan should be prepared and submitted to the Ministry's Office at Bhubaneswar. Implementation of such program shall be ensured accordingly in a time bound manner.	<ul> <li>Separate budget has been earmarked for the CSR activities, community as well as peripheral development activities such as Health, drinking water, Education, Environment etc. and is being done by our Tata Steel Rural Development Society wing.</li> <li>Around Rupees 33865000 have been spent towards the above-mentioned activities in 2020-21. (Refer Annexure-2)</li> </ul>
14	The Company shall provide housing for construction labor within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, 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.	Necessary infrastructure & facilities for the construction labors have been provided within the site.

three months their policy towards Standard operating process procedure to being into focus any infringement/deviation/violation of environmental or forest norms/conditions, (ii) Hierarchical system or administrative order of the Company to deal with environmental issues and ensuring compliance to environmental clearance conditions and (iii) System of reporting of noncompliance/violation environmental norms to the Board of Directors of the company and/or stakeholders or shareholders.

The Company shall submit within three months their policy towards corporate Environment Responsibility which should inter-alia address (i) Standard operating process / OSPCB.

The Corporate Environment Policy is in place and has been submitted to the MoEF&CC vide letter no. OP-Env/C-04/52/2012 dated 12.11.2012 with a copy to Regional Office, OSPCB.

SI. No.	General Conditions	Compliance/Status
1	The project authorities must strictly adhere to the stipulations made by the Orissa State Pollution Control Board and the State Government.	Stipulations as made by the State & Central Govt. are being adhered to from time to time.
2	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment and Forests.	Amendment to Environmental Clearance was granted by MoEF&CC vide File no. J-11011/55/2011-IA II(I) on 08.08.2014.
3	The gaseous emissions from various process units shall confirm to the load/mass based standards notified by the 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.	The Process units have the gaseous emissions under control and below the prescribed limits.
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 PM10, SO2 and NOX are anticipated in consultation with the SPCB. Data on ambient air quality and stack emission shall be regularly submitted to this Ministry including its Regional Office at Bhubaneswar and the SPCB/CPCB once in six months.	Four ambient Air Quality & fugitive Emission monitoring stations installed. The ground level concentration of PM <sub>10</sub> , SO <sub>2</sub> and NOX etc. are as per the anticipation of SPCB. The Air Quality, Fugitive emission and Stack monitoring result is attached in <b>Annexure-3</b> .
5	Industrial wastewater shall be properly collected, treated so as to conform to the standards prescribed under GSR 422(E) dated 19 <sup>th</sup> May, 1993 and 31 <sup>st</sup> December 1993 or as amended from time to time. The treated wastewater shall be utilized for plantation purpose.	Industrial wastewater generated has been treated in Effluent Treatment Plant conforming to the standards and treated wastewater is recycled and re-used for green belt development, water sprinkling on roads, metal cooling activity etc.
6	The overall noise levels in and around the plant area shall be kept well within the standards (85dBA) by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels should conform to the standards prescribed under EPA Rules, 1989 viz. 75 dBA (daytime) and 70 dBA (nighttime).	Ambient Noise monitoring is continuously monitored. Plant area is maintained within the standards. Noise Quality monitoring results is attached in <b>Annexure-4</b> .

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7	Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.	Health Records of the workers are being maintained as per Factories Act. Pre-Employment Medical check-up prior to the issue of their gate pass to work inside the site and Periodic Medical Check-up for the workers is being done.
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.	A water reservoir of 6.5 lakhs liter capacity is in place to store the rain water post monsoon which will be used for plant operation post requisite treatment.
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.	<ul> <li>Environmental Protection measures as indicated in the EIA and EMP report has been implemented.</li> <li>Socio-economic developmental activities in Health, Education, Sports, agriculture, and infrastructure development are being carried out in the surrounding and periphery villages. 5 no. of Mobile Medical Units catering to the surrounding villages are in operation.</li> </ul>
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.	Separate budget has been earmarked towards capital and operating environment expenditure.  Environment Annual Budget – Approx. Rs. 42,68,000/-
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.	<ul> <li>Environment Clearance copy has been submitted to the concerned Govt. /Private Bodies in Aug 2012.</li> <li>Environment Clearance letter has been uploaded on the Tata Steel website, www.tatasteel.com</li> </ul>

The project proponent shall upload • Last six-monthly compliance reports have the status of compliance of the been uploaded to the company's website stipulated environmental clearance www.tatasteel.com. conditions, including results of • Electronic multi-line display board was monitored data on their website and installed on 5th June 2014 which was shall update the same periodically. It displaying the results of the monitored shall simultaneously be sent the Regional Office of the MoEF at data i.e. ambient air quality, noise level, Bhubaneswar. The respective Zonal and water quality at the main entrance of. Office of CPCB and the SPCB. The However, it is malfunctioned. Replacement criteria pollutant levels namely; PM10, process is in progress. SO<sub>2</sub>, NO<sub>X</sub> (ambient levels as well as • The compliance reports are being sent to stack emissions) or critical sectoral the Regional Office, MoEF and the parameters, indicated for the projects respective zonal office of CPCB and SPCB. 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 Last Six-Monthly Compliance report for the submit six monthly reports on the period April'2019 to October'2019 was status of the compliance of the submitted to MoEF/OSPCB Regional Office stipulated environmental conditions both in hard as well as soft copy in including results of monitored data November 2019. (both in hard copies as well as by email) 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. The environmental statement for The environmental statement has been each financial year ending 31st March submitted every year and the same has in Form-V as is mandated to be submitted by the project proponent been uploaded on company's to the concerned Pollution Control websitewww.tatasteel.com. 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 of compliance environmental conditions and shall also be sent to the respective Regional Office of the MoEF at Bhubaneswar by e-mail.

the public that the project has been accorded environmental clearance by a. Odia: SAMBAD, Page No. 9 the Ministry and copies of the clearance letter are available with the SPCB and may also be seen at and Environment the date of issue of the clearance Report. 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.

The Project Proponent shall inform Complied. Paper advertisement details are as follows;

- b. English: The New Indian Express, Page

Website of the Ministry of Advertisement details have been submitted Forests at to the MoEF Eastern Regional Office at http:/envfor.nic.in. This shall be Bhubaneswar on 19.08.12 and were also advertised within seven days from attached with the 1st Half Yearly 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.
- Project received final approval from Tata Steel Board in August 2010 and is being funded through internal accruals.
- · Ground leveling activities was started on 04.05.2013 and the same was being intimated to the board vide letter no PG-Env/C-01/03/2013 & PG-Env/C-01/04/2013, dated 10th May 2013. However, frequent strikes by the local people have deferred the plant operation.



MANAGEMENT CONSULTANCY PVT, LTD.

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Report no.-CEMC/TSL/021119/W1

Issued Date-02.11.2019

#### DRINKING WATER QUALITY TEST REPORT

Name & Address of the Client

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

Gopalpur

Date of Sampling

: 10.10.2019

Sampling by **Date of Sample Received**  : R.K Das : 11.10.2019

Sample Description Sample Location

: Drinking Water

**Date of Analysis** Reference No.

: Bore Well (Back Side of Safety Office)

: 11.10.2019 to 28.10.2019

: CEMC-02112019W1

#### **ANALYSIS RESULT**

Sl.	-	Unit of measurement	Standard as per IS: 10500, 2012		
No	Parameter		Acceptable Limit	Permissible Limit	Result
1	Colour	Hazen	5	15	05
2	Odour		AL	AL	AL
3	Taste		AL	AL	AL
4	Turbidity	NTU	I	5	2.3
5	pH Value @ 25°C		6.5-8.5	No Relaxation	7.94
6	Total Hardness (as CaCO <sub>3</sub> )	mg/l	200	600	220.5
7	Iron (as Fe)	mg/l	0.3	No Relaxation	0.27
8	Chloride (as Cl)	mg/l	250	1000	201.9
9	Residual, free Chlorine	mg/l	0.2	1.0	ND
10	Total Dissolved Solids	mg/l	500	2000	1276.6
11	Calcium (as Ca)	mg/l	75	200	68.14
12	Magnesium (as Mg)	mg/l	30	100	12,27
13	Copper (as Cu)	mg/l	0.05	1.5	< 0.03
14	Manganese (as Mn)	mg/l	0.1	0,3	< 0.05
15	Sulphate (as SO <sub>4</sub> )	mg/l	200	400	79.8
16	Nitrate (as NO <sub>3</sub> )	mg/l	45	No Relaxation	3.9
17	Fluoride (as F)	mg/l	1.0	1.5	0.23
18	Phenolic Compounds (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	0.001	0.002	<0.001
19	Mercury (as Hg)	mg/l	0.001	No Relaxation	< 0.001
20	Cadmium (as Cd)	mg/l	0.003	No Relaxation	< 0.003
21	Selenium (as Se)	mg/l	0.01	No Relaxation	< 0.001
22	Arsenic (as As)	mg/l	0.01	0.05	< 0.001
23	Cyanide (as CN)	mg/l	0.05	No Relaxation	ND
24	Lead (as Pb)	mg/l	0.01	No Relaxation	< 0.01
25	Zinc (as Zn)	mg/l	5	15	< 0.05
26	Chromium (as Cr)	mg/l	0.05	No Relaxation	< 0.05
27	Mineral Oil	mg/l	0.5	No Relaxation	< 0.05
28	Total Alkalinity (as CaCO <sub>3</sub> )	mg/l	200	600	526

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.

Regd. Office: 1st Floor, N-5/305, IRC village, Nayapalli, Bhubaneswar-751015, Odisha, India, Mobile: 9861032826 E-mail- cemc\_consultancy@yahoo.co.in, cemc122@gmail.com, website: www.cemc.in, Landline: 0674-2360344.



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29	Aluminium (as Al)	mg/l	0.03	0.2	< 0.01
30	Boron (as B)	mg/l	0.5	1.0	< 0.2
31	Total Coliform	MPN/100 ml	Absent in 100 mL Sample	Absent	Absent
32	Faecal Coliform	MPN/100 ml	Absent in 100 mL Sample	Absent	Absent

NB: ND- Not Detectable, AL- Agreeable, MPN-Most Probable Number Management

Authorized Signatory

Notes:

The results relate only to the sample tested.

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Report no.-CEMC/TSL/021119/W2

Issued Date-02.11.2019

SURFACE WATER QUALITY TEST REPORT

Name & Address of the Client

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

Gopalpur

Date of Sampling Sampling by

: 10.10.2019 : R.K Das

**Date of Sample Received** Sample Description

: 11.10.2019 : Surface Water

**Date of Analysis** Reference No.

: 11.10.2019 to 18.10.2019

: CEMC-02112019W2

#### ANALYSIS RESULT

Sl. No.	Test Parameters	Unit	Max. Tolerance Limit as per IS 2296 : Class C	Reservoir
1	Colour, Max.	Hazen	300	8
2	pH Value @ 25°C	~+	6.5 to 8.5	8.38
3	Iron as Fe, Max.	mg/I	0.5	0.25
4	Chloride as Cl, Max.	mg/l	600	20.3
5	Dissolved Solids, Max.	mg/l	1500	184.6
6	Dissolved Oxygen, Min.	mg/l	4	6.6
7	BOD for 3 days@ 27°C, Max.	mg/l	3	2.6
8	Oil & Grease, Max.	mg/l	0.1	ND
9	Copper as Cu, Max.	mg/l	1.5	< 0.03
10	Sulphate as SO <sub>4</sub> , Max.	mg/l	400	5.8
11	Nitrate as NO <sub>3</sub> , Max.	mg/l	50	4.5
12	Fluoride as F, Max.	mg/l	1.5	0.12
13	Anionic detergent	mg/l	1	ND
14	Cadmium as Cd, Max.	mg/l	0.01	< 0.003
15	Selenium as Se, Max.	mg/l	0.05	< 0.001
16	Arsenic as As, Max.	mg/l	0.2	< 0.001
17	Cyanide as CN, Max.	mg/l	0.05	ND
18	Phenolic compound as C <sub>6</sub> H <sub>5</sub> OH, Max.	mg/l	0.005	ND
19	Lead as Pb, Max.	mg/l	0.1	< 0.01
20	Zinc as Zn, Max.	mg/l	15	< 0.05
21	Hexavalent Chromium as Cr <sup>+6</sup> Max.		0.05	< 0.05
_22	Total Coliform, Max.	Mana MEN/100ml	5000	170
23	Faecal Coliform	mg/l WEW/Ooml	B. W.	14

NB: ND- Not Detectable, MPN-Most Probable Number

Authorized Signatory

Notes:

The results relate only to the sample tested.

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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/021119/W3

Issued Date-02.11.2019

#### SURFACE WATER QUALITY TEST REPORT

Name & Address of the Client

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

Gopalpur : 10,10,2019

**Date of Sampling** Sampling by

: R.K Das : 11.10.2019

Date of Sample Received **Sample Description** 

: Surface Water

**Date of Analysis** Reference No.

: 11.10.2019 to 18.10.2019

: CEMC-02112019W3

#### ANALYSIS RESULT

Sl. No.	Test Parameters	Unit	Max. Tolerance Limit as per IS 2296 : Class C	Khori Nala Up Stream
1	Colour, Max.	Hazen	300	10
2	pH Value @ 25°C		6.5 to 8.5	7.73
3	Iron as Fe, Max.	mg/l	50	0.32
4	Chloride as Cl, Max.	mg/l	600	21.9
5	Dissolved Solids, Max.	mg/l	1500	232.4
6	Dissolved Oxygen, Min.	mg/l	4	6.0
7	BOD for 3 days@ 27°C, Max.	mg/l	3	2.8
8	Oil & Grease, Max.	mg/l	0.1	ND
9	Copper as Cu, Max.	mg/l	1.5	< 0.03
10	Sulphate as SO <sub>4</sub> , Max.	mg/l	400	7.2
11	Nitrate as NO <sub>3</sub> , Max.	mg/l	50	4.9
12	Fluoride as F, Max.	mg/l	1.5	0.11
13	Anionic detergent	mg/l	1	ND
14	Cadmium as Cd, Max.	mg/l	0.01	< 0.003
15	Selenium as Se, Max.	mg/l	0.05	< 0.001
16	Arsenic as As, Max.	mg/l	0.2	< 0.001
17	Cyanide as CN, Max.	mg/l	0.05	ND
18	Phenolic compound as C <sub>6</sub> H <sub>5</sub> OH, Max.	mg/l	0.005	ND:
19	Lead as Pb, Max.	mg/l	0.1	< 0.01
20	Zinc as Zn, Max.	mg/l	15	< 0.05
21	Hexavalent Chromium as Cr <sup>+6</sup> , Max.	mg/l	0.05	< 0.05
22	Total Coliform, Max.	MPN/l00ml	5000	540
23	Faecal Coliform	MPN/100ml		34

NB: ND- Not Detectable, MPN-Most Probable Number

Notes:

The results relate only to the sample tested.

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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/021119/W4

Issued Date-02.11.2019

#### SURFACE WATER QUALITY TEST REPORT

Name & Address of the Client

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

Gopalpur

**Date of Sampling** Sampling by

: 10.10.2019 : R.K Das

**Date of Sample Received** Sample Description

: 11.10.2019

**Date of Analysis** Reference No.

: Surface Water : 11.10.2019 to 18.10.2019

: CEMC-02112019W4

#### ANALYSIS RESULT

Sl. No.	Test Parameters	Unit	Max. Tolerance Limit as per IS 2296 : Class C	Khori Nala Down Stream
1	Colour, Max.	Hazen	300	10
2	pH Value @ 25°C		6.5 to 8.5	7.56
3	Iron as Fe, Max.	mg/l	50	0.34
4	Chloride as Cl, Max.	mg/l	600	22.6
5	Dissolved Solids, Max.	mg/l	1500	244.6
6	Dissolved Oxygen, Min.	mg/l	4	5.8
7	BOD for 3 days@ 27°C, Max.	mg/l	3	2.8
8	Oil & Grease, Max.	mg/l	0.1	ND
9	Copper as Cu, Max.	mg/l	1.5	< 0.03
10	Sulphate as SO <sub>4</sub> , Max.	mg/l	400	7.9
11	Nitrate as NO <sub>3</sub> , Max.	mg/l	50	5.1
12	Fluoride as F, Max.	mg/l	1.5	0.11
13	Anionic detergent	mg/l	1	ND
14	Cadmium as Cd, Max.	mg/l	0.01	< 0.003
15	Selenium as Se, Max.	mg/l	0.05	< 0.001
16	Arsenic as As, Max.	mg/l	0.2	< 0.001
17	Cyanide as CN, Max.	mg/l	0.05	ND
18	Phenolic compound as C <sub>6</sub> H <sub>5</sub> OH, Max.	mg/l	0.005	ND
19	Lead as Pb, Max.	mg/l	0.1	< 0.01
20	Zinc as Zn, Max.	mg/l	15	< 0.05
21	Hexavalent Chromium as Cr <sup>+6</sup> , Max.	mg/l	0.05	< 0.05
22	Total Coliform, Max.	MPN/190ml	5000	480
23	Faecal Coliform	MPN 100ml	••	32

NB: ND- Not Detectable, MPN-Most Probable Number

Authorized Signatory Notes:

Environmenta Seal of Laboratory

The results relate only to the sample tested.

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Report no.-CEMC/TSL/021219/W1

Issued Date-02.12.2019

#### DRINKING WATER QUALITY TEST REPORT

Name & Address of the Client

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

Gopalpur

**Date of Sampling** 

: 08.11.2019

Sampling by

: R.K Das

Date of Sample Received

: 09.11.2019

**Sample Description** Sample Location

: Drinking Water

**Date of Analysis** Reference No.

: Bore Well (Back Side of Safety Office)

: 09.11.2019 to 16.11.2019

: CEMC-02122019W1

#### ANALYSIS RESULT

Sl.	Parameter	Unit of measurement	Standard as per IS: 10500, 2012		
No			Acceptable Limit	Permissible Limit	Result
1	Colour	Hazen	5	15	05
2	Odour		AL	AL	AL
3	Taste	-	AL	AL	AL
4	Turbidity	NTU	1	5	2.8
5	pH Value @ 25°C		6.5-8.5	No Relaxation	8.37
6	Total Hardness (as CaCO <sub>3</sub> )	mg/l	200	600	212
7	Iron (as Fe)	mg/l	0.3	No Relaxation	0.25
8	Chloride (as Cl)	mg/l	250	1000	194.3
9	Residual, free Chlorine	mg/I	0.2	1.0	ND
10	Total Dissolved Solids	mg/l	500	2000	1251.4
11	Calcium (as Ca)	mg/l	75	200	65.73
12	Magnesium (as Mg)	mg/l	30	100	11.66
13	Copper (as Cu)	mg/l	0.05	1.5	< 0.03
14	Manganese (as Mn)	mg/l	0.1	0.3	< 0.05
15	Sulphate (as SO <sub>4</sub> )	mg/l	200	400	74.4
16	Nitrate (as NO <sub>3</sub> )	mg/l	45	No Relaxation	3.7
17	Fluoride (as F)	mig/l	1.0	1.5	0.21
18	Phenolic Compounds (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	0.001	0.002	<0.001
19	Mercury (as Hg)	mg/l	0.001	No Relaxation	< 0.001
20	Cadmium (as Cd)	mg/l	0.003	No Relaxation	< 0.003
21	Selenium (as Se)	mg/l	0.01	No Relaxation	< 0.001
22	Arsenic (as As)	mg/l	0.01	0.05	< 0.001
23	Cyanide (as CN)	mg/l	0.05	No Relaxation	ND
24	Lead (as Pb)	mg/l	0.01	No Relaxation	< 0.01
25	Zinc (as Zn)	mg/l	5	15	< 0.05
26	Chromium (as Cr)	mg/l	0.05	No Relaxation	< 0.05
27	Mineral Oil	mg/l	0.5	No Relaxation	< 0.05
28	Total Alkalinity (as CaCO <sub>3</sub> )	mg/l	200	600	518

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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29	Aluminium (as Al)		0.02	0.0	~ ~ ~ .
		mg/l	0.03	0.2	< 0.01
30	Boron (as B)	mg/l	0.5	1.0	< 0.2
31	Total Coliform	MPN/100 ml	Absent in 100 mL Sample	Absent	Absent
32	Faecal Coliform	MPN/100 ml	Absent in 100 mL Sample	Absent	Absent

NB: ND- Not Detectable, AL- Agreeable, MPN-Most Probable Number

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Report no.-CEMC/TSL/021219/W2

**Issued Date-02.12.2019** 

#### SURFACE WATER QUALITY TEST REPORT

Name & Address of the Client

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

Gopalpur

**Date of Sampling** Sampling by

: 08.11.2019 : R.K Das : 09.11.2019

**Date of Sample Received** Sample Description

: Surface Water

Date of Analysis Reference No.

: 09.11.2019 to 16.11.2019 : CEMC-02122019W2

#### ANALYSIS RESULT

SI. No.	Test Parameters	Unit	Max. Tolerance Limit as per IS 2296 : Class C	Reservoir
1	Colour, Max.	Hazen	300	13
_ 2	pH Value @ 25°C		6.5 to 8.5	7.81
3	Iron as Fe, Max.	mg/l	0.5	0.23
4	Chloride as Cl, Max.	mg/l	600	19.9
5	Dissolved Solids, Max.	mg/l	1500	172.3
6	Dissolved Oxygen, Min.	mg/l	4	6.4
7	BOD for 3 days@ 27°C, Max.	mg/l	3	2.8
8	Oil & Grease, Max.	mg/l	0.1	ND
9	Copper as Cu, Max.	mg/l	1.5	< 0.03
10	Sulphate as SO <sub>4</sub> , Max.	mg/l	400	5.6
11	Nitrate as NO <sub>3</sub> , Max.	mg/l	50	5.3
12	Fluoride as F, Max.	mg/I	1,5	0.11
13	Anionic detergent	mg/l	1	ND
14	Cadmium as Cd, Max.	mg/l	0.01	< 0.003
15	Selenium as Se, Max.	mg/l	0.05	< 0.001
16	Arsenic as As, Max.	mg/l	0.2	< 0.001
17	Cyanide as CN, Max.	mg/l	0.05	ND
18	Phenolic compound as C <sub>6</sub> H <sub>5</sub> OH, Max.	mg/l	0.005	ND
19	Lead as Pb, Max.	mg/l	0.1	< 0.01
20	Zinc as Zn, Max.	mg/l	15	< 0.05
21	Hexavalent Chromium as Cr <sup>+6</sup> , Max.	mg/l	0.05	< 0.05
22	Total Coliform, Max.	MPN/100ml	5000	220
23	Faecal Coliform	ement MP NAOOml		17

NB: ND- Not Detectable, MPN-Most Probable Number

Authorized Signatory

Notes:

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Report no.-CEMC/TSL/021219/W3

Issued Date-02.12.2019

#### SURFACE WATER QUALITY TEST REPORT

Name & Address of the Client

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

Gopalpur

**Date of Sampling** Sampling by

: 08.11.2019 : R.K Das

**Date of Sample Received** Sample Description

: 09.11.2019 : Surface Water

Date of Analysis Reference No.

: 09.11.2019 to 16.11.2019

: CEMC-02122019W3

#### ANALYSIS RESULT

Sl. No.	Test Parameters	Unit	Max. Tolerance Limit as per IS 2296 : Class C	Khori Nala Up Stream			
1	Colour, Max.	Hazen	300	23			
2	pH Value @ 25°C		6.5 to 8.5	7.83			
3	Iron as Fe, Max.	mg/l	50	0.29			
4	Chloride as Cl, Max.	mg/l	600	22.9			
5	Dissolved Solids, Max.	mg/l	1500	249.7			
6	Dissolved Oxygen, Min.	mg/l	4	5.6			
7	BOD for 3 days@ 27°C, Max.	mg/l	3	2.8			
8	Oil & Grease, Max.	mg/l	0.1	ND			
9	Copper as Cu, Max.	mg/l	1.5	< 0.03			
10	Sulphate as SO <sub>4</sub> , Max.	mg/l	400	6.7			
11	Nitrate as NO <sub>3</sub> , Max.	mg/l	50	6.6			
12	Fluoride as F, Max.	mg/l	1.5	0.1			
13	Anionic detergent	mg/l	1	ND			
14	Cadmium as Cd, Max.	mg/l	0.01	< 0.003			
15	Selenium as Se, Max.	mg/l	0.05	< 0.001			
16	Arsenic as As, Max.	mg/l	0.2	< 0.001			
17	Cyanide as CN, Max.	mg/l	0.05	ND			
_ 18	Phenolic compound as C <sub>6</sub> H <sub>5</sub> OH, Max.	mg/l	0.005	ND			
19	Lead as Pb, Max.	mg/l	0.1	< 0.01			
20	Zinc as Zn, Max.	mg/l	15	< 0.05			
21	Hexavalent Chromium as Cr <sup>+6</sup> , Max.	mg/l	0.05	< 0.05			
22	Total Coliform, Max.	MPN/100ml	5000	350			
23	Faecal Coliform	MPN/100ml		24			
NB: N	NB: ND- Not Detectable, MPN-Most Probable Number						

Authorized Signatory Notes:

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Report no.-CEMC/TSL/021219/W4

Issued Date-02,12,2019

#### SURFACE WATER QUALITY TEST REPORT

Name & Address of the Client

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

Gopalpur

Date of Sampling

: 08.11.2019 : R.K Das

Sampling by Date of Sample Received Sample Description

: 09.11.2019 : Surface Water

Date of Analysis

: 09.11.2019 to 16.11.2019

Reference No.

: CEMC-02122019W4

#### ANALYSIS RESULT

Sl. No.	Test Parameters	Unit	Max. Tolerance Limit as per IS 2296 : Class C	Khori Nala Down Stream
1	Colour, Max.	Hazen	300	27
2	pH Value @ 25°C		6.5 to 8.5	7.78
3	Iron as Fe, Max.	mg/l	50	0.31
4	Chloride as Cl, Max.	mg/l	600	24.6
5	Dissolved Solids, Max.	mg/l	1500	255.8
6	Dissolved Oxygen, Min.	mg/l	4	5.6
7	BOD for 3 days@ 27°C, Max.	mg/l	3	2.8
8	Oil & Grease, Max.	mg/l	0.1	ND
9	Copper as Cu, Max.	mg/l	1.5	< 0.03
10	Sulphate as SO <sub>4</sub> , Max.	mg/l	400	6.9
11	Nitrate as NO <sub>3</sub> , Max.	mg/l	50	6.8
12	Fluoride as F, Max.	mg/l	1.5	0.11
13	Anionic detergent	mg/l	1	ND
14	Cadmium as Cd, Max.	mg/l	0.01	< 0.003
15	Selenium as Se, Max.	mg/l	0.05	< 0.001
16	Arsenic as As, Max.	mg/l	0.2	< 0.001
_ 17	Cyanide as CN, Max.	mg/l	0.05	ND
18	Phenolic compound as C <sub>6</sub> H <sub>5</sub> OH, Max.	mg/I	0.005	ND
19	Lead as Pb, Max.	mg/l	0.1	< 0.01
20	Zinc as Zn, Max.	mg/l	15	< 0.05
21	Hexavalent Chromium as Cr <sup>+6</sup> , Max.	mg/l	0.05	< 0.05
22	Total Coliform, Max.	MPN/100ml	5000	350
23	Faecal Coliform	MPN/100ml		24

NB: ND- Not Detectable, MPN-Most Probable Number

Authorized Signatory

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Report no.-CEMC/TSL/020120/W1

Issued Date-02.01,2020

#### DRINKING WATER QUALITY TEST REPORT

Name & Address of the Client

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

Gopalpur

Date of Sampling Sampling by

: 09.12.2019 : R.K Das : 10.12.2019

Date of Sample Received Sample Description Sample Location

: Drinking Water

Date of Analysis Reference No. : Bore Well (Back Side of Safety Office)

: 10.12.2019 to 17.12.2019 : CEMC-02012020W1

#### **ANALYSIS RESULT**

SI.	Parameter	Unit of Standard as per I		S: 10500, 2012	
No		measurement	Acceptable Limit	Permissible Limit	Result
1	Colour	Hazen	5	15	05
2	Odour		AL	AL	AL
3	Taste		AL	AL	AL
4	Turbidity	NTU	1	5	2.2
5	pH Value @ 25°C		6.5-8.5	No Relaxation	8.81
6	Total Hardness (as CaCO <sub>3</sub> )	mg/l	200	600	156
7	Iron (as Fe)	mg/l	0.3	No Relaxation	0.27
8	Chloride (as Cl)	mg/l	250	1000	262.6
9	Residual, free Chlorine	mg/l	0.2	1.0	ND
10	Total Dissolved Solids	mg/l	500	2000	1322.8
11	Calcium (as Ca)	mg/l	75	200	42.48
12	Magnesium (as Mg)	mg/l	30	100	12.15
13	Copper (as Cu)	mg/l	0.05	1.5	< 0.03
14	Manganese (as Mn)	mg/l	0.1	0.3	< 0.05
15	Sulphate (as SO <sub>4</sub> )	mg/l	200	400	82.3
16	Nitrate (as NO <sub>3</sub> )	mg/l	45	No Relaxation	5.4
17	Fluoride (as F)	mg/l	1.0	1.5	0.23
18	Phenolic Compounds (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	0.001	0.002	<0.001
19	Mercury (as Hg)	mg/l	0.001	No Relaxation	< 0.001
20	Cadmium (as Cd)	mg/l	0.003	No Relaxation	< 0.003
21	Selenium (as Se)	mg/l	0.01	No Relaxation	< 0.001
22	Arsenic (as As)	mg/l	0.01	0.05	< 0.001
23	Cyanide (as CN)	mg/l	0.05	No Relaxation	ND
24	Lead (as Pb)	mg/l	0.01	No Relaxation	< 0.01
25	Zinc (as Zn)	mg/l	5	15	< 0.05
26	Chromium (as Cr)	mg/l	0.05	No Relaxation	< 0.05
27	Mineral Oil	mg/l	0.5	No Relaxation	< 0.05
28	Total Alkalinity (as CaCO <sub>3</sub> )	mg/l	200	600	464

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	29	Aluminium (as Al)	mg/l	0.03	0.2	<0.01
	30	Boron (as B)	mg/l	0.5	1.0	< 0.2
	31	Total Coliform	MPN/100 ml	Absent in 100 mL Sample	Absent	Absent
	32	Faecal Coliform	MPN/100 ml	Absent in 100 mL Sample	Absent	Absent

NB: ND- Not Detectable, AL- Agreeable, MPN-Most Probable Number

Notes:

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Report no.-CEMC/TSL/020120/W2

Issued Date-02.01.2020

#### SURFACE WATER QUALITY TEST REPORT

Name & Address of the Client

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

Gopalpur

Date of Sampling Sampling by

: R.K Das : 10.12.2019

: 09.12.2019

Date of Sample Received Sample Description

: Surface Water

**Date of Analysis** Reference No.

: 10.12.2019 to 17.12.2019 : CEMC-02012020W2

#### ANALYSIS RESULT

Sl. No.	Test Parameters	Unit	Max. Tolerance Limit as per IS 2296 : Class C	Reservoir
1	Colour, Max.	Hazen	300	9
2	pH Value @ 25°C		6.5 to 8.5	7.92
3	Iron as Fe, Max.	mg/l	0.5	0.23
4	Chloride as Cl, Max.	mg/l	600	22.9
5	Dissolved Solids, Max.	mg/l	1500	178.8
6	Dissolved Oxygen, Min.	mg/l	4	6.6
7	BOD for 3 days@ 27°C, Max.	mg/l	3	2.2
8	Oil & Grease, Max.	mg/l	0.1	ND
9	Copper as Cu, Max.	mg/l	1.5	< 0.03
10	Sulphate as SO <sub>4</sub> , Max.	mg/l	400	5.9
11	Nitrate as NO <sub>3</sub> , Max.	mg/l	50	6.1
12	Fluoride as F, Max.	mg/l	1.5	0.12
13	Anionic detergent	mg/l	1	ND
14	Cadmium as Cd, Max.	mg/l	0.01	< 0.003
15	Selenium as Se, Max.	mg/l	0.05	< 0.001
16	Arsenic as As, Max.	mg/l	0.2	< 0.001
17	Cyanide as CN, Max.	mg/l	0.05	ND
18	Phenolic compound as C <sub>6</sub> H <sub>5</sub> OH, Max.	mg/l	0.005	ND
19	Lead as Pb, Max.	mg/l	0.1	< 0.01
20	Zinc as Zn, Max.	mg/l	15	< 0.05
21	Hexavalent Chromium as Cr <sup>+6</sup> , Max.	mg/l	0.05	< 0.05
22	Total Coliform, Max.	MPN/100ml	5000	110
23	Faecal Coliform	WIF 1400ml		9.8

NB: ND- Not Detectable, MPN-Most Probable Number

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Notes:

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Report no.-CEMC/TSL/020120/W3

Issued Date-02.01.2020

SURFACE WATER QUALITY TEST REPORT

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

Gopalpur

Date of Sampling : 09.12.2019 Sampling by : R.K Das Date of Sample Received : 10.12.2019 Sample Description : Surface Water

Date of Analysis : 10.12.2019 to 17.12.2019 Reference No. : CEMC-02012020W3

#### ANALYSIS RESULT

Sl. No.	Test Parameters	Unit	Max. Tolerance Limit as per IS 2296 : Class C	Khori Nala Up Stream
1	Colour, Max.	Hazen	300	16
2_	pH Value @ 25°C		6.5 to 8.5	7.62
3_	Iron as Fe, Max.	mg/l	50	0.25
4	Chloride as Cl, Max.	mg/l	600	33.6
5	Dissolved Solids, Max.	mg/l	1500	331.2
6	Dissolved Oxygen, Min.	mg/l	4	5.4
7	BOD for 3 days@ 27°C, Max.	mg/l	3	2.6
8	Oil & Grease, Max.	mg/l	0.1	ND
9	Copper as Cu, Max.	mg/I	1.5	< 0.03
10	Sulphate as SO <sub>4</sub> , Max.	mg/l	400	7.2
11	Nitrate as NO <sub>3</sub> , Max.	mg/l	50	7.8
12	Fluoride as F, Max.	mg/l	1.5	0.11
13	Anionic detergent	mg/l	1	ND
14	Cadmium as Cd, Max.	mg/l	0.01	< 0.003
15	Selenium as Se, Max.	mg/l	0.05	< 0.001
16	Arsenic as As, Max.	mg/l	0.2	< 0.001
17	Cyanide as CN, Max.	mg/l	0.05	ND
18	Phenolic compound as C <sub>6</sub> H <sub>5</sub> OH, Max.	mg/l	0.005	ND
19	Lead as Pb, Max.	mg/l	0.1	<0.01
20	Zinc as Zn, Max.	mg/l	15	<0.05
21	Hexavalent Chromium as Cr <sup>+6</sup> , Max.	mg/l	0.05	<0.05
22	Total Coliform, Max.	MPN/100ml	5000	220
23	Faecal Coliform D. Not Detectable MPN Most Probable Number	MPN/IO0ml		17

NB: ND- Not Detectable, MPN-Most Probable Number

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Report no.-CEMC/TSL/020120/W4

Issued Date-02.01.2020

#### SURFACE WATER QUALITY TEST REPORT

Name & Address of the Client

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

Gopalpur : 09.12.2019

**Date of Sampling** Sampling by **Date of Sample Received** 

: R.K Das : 10.12.2019

Sample Description

: Surface Water

Date of Analysis Reference No.

: 10.12.2019 to 17.12.2019

: CEMC-02012020W4

#### ANALYSIS RESULT

SI. No.	Test Parameters	Unit	Max. Tolerance Limit as per IS 2296 : Class C	Khori Nala Down Stream
1	Colour, Max.	Hazen	300	18
2	pH Value @ 25°C		6.5 to 8.5	7.73
3	Iron as Fe, Max.	mg/l	50	0.26
4	Chloride as Cl, Max.	mg/l	600	34.1
5	Dissolved Solids, Max.	mg/l	1500	342.3
6	Dissolved Oxygen, Min.	mg/l	4	5.4
7	BOD for 3 days@ 27°C, Max.	mg/l	3	2.8
8	Oil & Grease, Max.	mg/l	0.1	ND
9	Copper as Cu, Max.	mg/l	1.5	< 0.03
10	Sulphate as SO <sub>4</sub> , Max.	mg/l	400	7.4
11	Nitrate as NO <sub>3</sub> , Max.	mg/l	50	7.9
12	Fluoride as F, Max.	mg/l	1.5	0.11
13	Anionic detergent	mg/l	1	ND
14	Cadmium as Cd, Max.	mg/l	0.01	< 0.003
15	Selenium as Se, Max.	mg/l	0.05	< 0.001
16	Arsenic as As, Max.	mg/l	0.2	< 0.001
17	Cyanide as CN, Max.	mg/l	0.05	ND
18	Phenolic compound as C <sub>6</sub> H <sub>5</sub> OH, Max.	mg/l	0.005	ND
19	Lead as Pb, Max.	mg/l	0.1	< 0.01
20	Zinc as Zn, Max.	mg/l	15	< 0.05
21	Hexavalent Chromium as Cr+6 Max.	mg/l	0.05	< 0.05
22	Total Coliform, Max.	MPN/I00ml	5000	220
23	Faecal Coliform	MPN/100ml	May and	17

NB: ND- Not Detectable, MPN-Most Probable Number

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Report no.-CEMC/TSL/030220/W2

Issued Date-03.02.2020

#### SURFACE WATER QUALITY TEST REPORT

Name & Address of the Client

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

Gopalpur : 09.01.2020

**Date of Sampling** Sampling by Date of Sample Received Sample Description

: R.K Das : 10.01.2020

: Surface Water **Date of Analysis** Reference No.

: 10.01.2020 to 17.01.2020 : CEMC-03022020W2

#### ANALYSIS RESULT

Sl. No.	Test Parameters	Unit	Max. Tolerance Limit as per IS 2296: Class C	Reservoir
1	Colour, Max.	Hazen	300	6
2	pH Value @ 25°C		6.5 to 8.5	8.34
3	Iron as Fe, Max.	mg/l	0.5	0.21
4	Chloride as Cl, Max.	mg/l	600	18.3
5	Dissolved Solids, Max.	mg/l	1500	156.7
6	Dissolved Oxygen, Min.	mg/l	4	6.6
7	BOD for 3 days@ 27°C, Max.	mg/l	3	2.0
8	Oil & Grease, Max.	mg/l	0.1	ND
9	Copper as Cu, Max.	mg/l	1.5	< 0.03
10	Sulphate as SO <sub>4</sub> , Max.	mg/l	400	5.3
11	Nitrate as NO <sub>3</sub> , Max.	mg/l	50	6.9
12	Fluoride as F, Max.	mg/l	1.5	0.11
13	Anionic detergent	mg/l	1	ND
14	Cadmium as Cd, Max.	mg/l	0.01	< 0.003
15	Selenium as Se, Max.	mg/l	0.05	< 0.001
16	Arsenic as As, Max.	mg/l	0.2	< 0.001
17	Cyanide as CN, Max.	mg/l	0.05	ND
18	Phenolic compound as C <sub>6</sub> H <sub>5</sub> OH, Max.	mg/l	0.005	ND
19	Lead as Pb, Max.	mg/l	0.1	< 0.01
20	Zinc as Zn, Max.	mg/l	15	< 0.05
21	Hexavalent Chromium as Cr <sup>+6</sup> , Max.	mg/l	0.05	< 0.05
22	Total Coliform, Max.	MPN/100ml	5000	70
23	Faecal Coliform	MPN/100ml		2.0

NB: ND- Not Detectable, MPN-Most Probable Number

Authorized Signatory

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Report no.-CEMC/TSL/030220/W3

Issued Date-03.02.2020

#### SURFACE WATER QUALITY TEST REPORT

Name & Address of the Client

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

Gopalpur : 09.01.2020

**Date of Sampling** Sampling by Date of Sample Received

: R.K Das : 10.01.2020 : Surface Water

Sample Description Date of Analysis Reference No.

: 10.01.2020 to 17.01.2020 : CEMC-03022020W3

#### ANALYSIS RESULT

Sl. No.	Test Parameters	Unit	Max. Tolerance Limit as per IS 2296 : Class C	Khori Nala Up Stream
1	Colour, Max.	Hazen	300	7
2	pH Value @ 25°C		6.5 to 8.5	7.59
3	Iron as Fe, Max.	mg/l	50	0.14
4	Chloride as Cl, Max.	mg/l	600	25.6
5	Dissolved Solids, Max.	mg/l	1500	274.3
6	Dissolved Oxygen, Min.	mg/l	4	5.6
7	BOD for 3 days@ 27°C, Max.	mg/l	3	2.2
8	Oil & Grease, Max.	mg/l	0.1	ND
9	Copper as Cu, Max.	mg/l	1.5	< 0.03
10	Sulphate as SO <sub>4</sub> , Max.	mg/l	400	5.9
11	Nitrate as NO <sub>3</sub> , Max.	mg/l	50	5.3
12	Fluoride as F, Max.	mg/l	1.5	0.11
13	Anionic detergent	mg/l	1	ND
14	Cadmium as Cd, Max.	mg/l	0.01	<0.003
15	Selenium as Se, Max.	mg/l	0.05	< 0.001
16	Arsenic as As, Max.	mg/l	0.2	< 0.001
17	Cyanide as CN, Max.	mg/l	0.05	ND
18	Phenolic compound as C <sub>6</sub> H <sub>5</sub> OH, Max.	mg/l	0.005	ND
19	Lead as Pb, Max.	mg/l	0.1	< 0.01
20	Zinc as Zn, Max.	mg/l	15	< 0.05
21	Hexavalent Chromium as Cr <sup>+6</sup> , Max.	mg/l	0.05	< 0.05
22	Total Coliform, Max.	MPN/100ml	5000	350
23	Faecal Coliform	wampain Doml		22

NB: ND- Not Detectable, MPN-Most Probable Number

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Report no.-CEMC/TSL/030220/W4

Issued Date-03.02.2020

#### SURFACE WATER QUALITY TEST REPORT

Name & Address of the Client

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

Gopalpur

Date of Sampling Sampling by

: 09.01.2020 : R.K Das

Date of Sample Received Sample Description

: 10.01.2020

Date of Analysis Reference No.

: Surface Water : 10.01.2020 to 17.01.2020

: CEMC-03022020W4

#### ANALYSIS RESULT

Sl. No.	Test Parameters	Unit	Max. Tolerance Limit as per IS 2296 : Class C	Khori Nala Down Stream
- 1	Colour, Max.	Hazen	300	8
2	pH Value @ 25°C		6.5 to 8.5	7.53
3	Iron as Fe, Max.	mg/l	50	0.15
4	Chloride as Cl, Max.	mg/l	600	25.9
5	Dissolved Solids, Max.	mg/l	1500	279.6
6	Dissolved Oxygen, Min.	mg/l	4	5.6
7	BOD for 3 days@ 27°C, Max.	mg/l	3	2.2
8	Oil & Grease, Max.	mg/l	0.1	ND
9	Copper as Cu, Max.	mg/l	1.5	< 0.03
10	Sulphate as SO <sub>4</sub> , Max.	mg/l	400	6.1
11	Nitrate as NO <sub>3</sub> , Max.	mg/l	50	5.4
12	Fluoride as F, Max.	mg/l	1.5	0.11
13	Anionic detergent	mg/l	1	ND
14	Cadmium as Cd, Max.	mg/l	0.01	< 0.003
15	Selenium as Se, Max.	mg/l	0.05	< 0.001
16	Arsenic as As, Max.	mg/l	0.2	< 0.001
17	Cyanide as CN, Max.	mg/l	0.05	ND
18	Phenolic compound as C <sub>6</sub> H <sub>5</sub> OH, Max.	mg/l	0.005	ND
19	Lead as Pb, Max.	mg/l	0.1	< 0.01
20	Zinc as Zn, Max.	mg/l	15	< 0.05
21	Hexavalent Chromium as Cr+6, Max.	mg/l	0.05	< 0.05
22	Total Coliform, Max.	MPN/100ml	5000	350
23	Faecal Coliform	MPN/100ml		22

NB: ND- Not Detectable, MPN-Most Probable Number

Authorized Signatory Notes:

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Report no.-CEMC/TSL/020320/W1

Issued Date-02.03.2020

#### SURFACE WATER QUALITY TEST REPORT

Name & Address of the Client

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

Gopalpur

**Date of Sampling** : 15.02.2020 Sampling by : R.K Das **Date of Sample Received** : 17.02.2020 Sample Description : Surface Water

**Date of Analysis** : 17.02.2020 to 24.02.2020 Reference No. : CEMC-02032020W1

#### ANALYSIS RESULT

Sl. No.	Test Parameters	Unit	Max. Tolerance Limit as per IS 2296 : Class C	Reservoir
1	Colour, Max.	Hazen	300	5
2	pH Value @ 25℃		6.5 to 8.5	8.39
3	Iron as Fe, Max.	mg/l	0.5	0.22
4	Chloride as Cl, Max.	mg/l	600	17.6
5	Dissolved Solids, Max.	mg/l	1500	141.4
6	Dissolved Oxygen, Min.	mg/l	4	6.8
7	BOD for 3 days@ 27°C, Max.	mg/l	3	2.0
8	Oil & Grease, Max.	mg/l	0.1	ND
9	Copper as Cu, Max.	mg/l	1.5	< 0.03
10	Sulphate as SO <sub>4</sub> , Max.	mg/l	400	5.5
11	Nitrate as NO <sub>3</sub> , Max.	mg/l	50	6.2
12	Fluoride as F, Max.	mg/l	1.5	0.12
13	Anionic detergent	mg/l	1	ND
14	Cadmium as Cd, Max.	mg/l	0.01	< 0.003
15	Selenium as Se, Max.	mg/l	0.05	< 0.001
16	Arsenic as As, Max.	mg/l	0.2	< 0.001
17	Cyanide as CN, Max.	mg/l	0.05	ND
18	Phenolic compound as C <sub>6</sub> H <sub>5</sub> OH, Max.	mg/l	0.005	ND
19	Lead as Pb, Max.	mg/l	0.1	< 0.01
20	Zinc as Zn, Max.	mg/l	15	< 0.05
21	Hexavalent Chromium as Cr <sup>+6</sup> , Max.	mg/l	0.05	< 0.05
22	Total Coliform, Max.	MPN/100ml	5000	30
23	Faecal Coliform	3 MPN/100ml		2.0

NB: ND- Not Detectable, MPN-Most Probable Number

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Report no.-CEMC/TSL/020320/W2

Issued Date-02.03.2020

#### SURFACE WATER QUALITY TEST REPORT

Name & Address of the Client

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

Gopalpur

**Date of Sampling** Sampling by **Date of Sample Received** Sample Description Date of Analysis

Reference No.

: 15.02.2020 : R.K Das : 17.02.2020

> : Surface Water : 17.02.2020 to 24.02.2020

: CEMC-02032020W2

#### ANALYSIS RESULT

Sl. No.	Test Parameters	Unit	Max. Tolerance Limit as per IS 2296: Class C	Khori Nala Up Stream
1	Colour, Max.	Hazen	300	6
2	pH Value @ 25°C		6.5 to 8.5	7.78
3	Iron as Fe, Max.	mg/l	50	0.14
4	Chloride as Cl, Max.	mg/l	600	22.9
5	Dissolved Solids, Max.	mg/l	1500	232.4
6	Dissolved Oxygen, Min.	mg/l	4	5.6
7	BOD for 3 days@ 27°C, Max.	mg/l	3	2.2
8	Oil & Grease, Max.	mg/l	0.1	ND
9	Copper as Cu, Max.	mg/l	1.5	< 0.03
10	Sulphate as SO <sub>4</sub> , Max.	mg/l	400	5.6
11	Nitrate as NO <sub>3</sub> , Max.	mg/l	50	5.1
12	Fluoride as F, Max.	mg/l	1.5	0.12
13	Anionic detergent	mg/l	1	ND
14	Cadmium as Cd, Max.	mg/l	0.01	< 0.003
15	Selenium as Se, Max.	mg/l	0.05	< 0.001
16	Arsenic as As, Max.	mg/l	0.2	< 0.001
17	Cyanide as CN, Max.	mg/l	0.05	ND
18	Phenolic compound as C <sub>6</sub> H <sub>5</sub> OH, Max.	mg/l	0.005	ND
19	Lead as Pb, Max.	mg/l	0.1	< 0.01
20	Zinc as Zn, Max.	mg/l	15	< 0.05
21	Hexavalent Chromium as Cr <sup>+6</sup> , Max.	mg/l	0.05	< 0.05
22	Total Coliform, Max.	anwir JQOml	5000	210
23	Faecal Coliform	MPN 100ml		14

NB: ND- Not Detectable, MPN-Most Probable Number

Authorized Spheor Notes:

The results relate only to the sample tested.

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Report no.-CEMC/TSL/020320/W3

Issued Date-02.03.2020

#### SURFACE WATER QUALITY TEST REPORT

Name & Address of the Client

Reference No.

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

Gopalpur : 15.02.2020

**Date of Sampling** Sampling by **Date of Sample Received** Sample Description **Date of Analysis** 

: R.K Das : 17.02.2020 : Surface Water

: 17.02.2020 to 24.02.2020 : CEMC-02032020W3

#### ANALYSIS RESULT

SI. No.	Test Parameters	Unit	Max. Tolerance Limit as per IS 2296 : Class C	Khori Nala Down Stream
1	Colour, Max.	Hazen	300	6
2	pH Value @ 25°C		6.5 to 8.5	7.81
3	Iron as Fe, Max.	mg/l	50	0.14
4	Chloride as Cl, Max.	mg/l	600	23.6
5	Dissolved Solids, Max.	mg/l	1500	241.3
6	Dissolved Oxygen, Min.	mg/l	4	5.8
7	BOD for 3 days@ 27°C, Max.	mg/l	3	2.0
8	Oil & Grease, Max.	mg/l	0.1	ND
9	Copper as Cu, Max.	mg/l	1.5	< 0.03
10	Sulphate as SO <sub>4</sub> , Max.	mg/l	400	5.8
11	Nitrate as NO <sub>3</sub> , Max.	mg/l	50	5.3
12	Fluoride as F, Max.	mg/l	1.5	0.11
13	Anionic detergent	mg/l	1	ND
14	Cadmium as Cd, Max.	mg/l	0.01	< 0.003
15	Selenium as Se, Max.	mg/l	0.05	< 0.001
16	Arsenic as As, Max.	mg/l	0.2	< 0.001
17	Cyanide as CN, Max.	mg/l	0.05	ND
18	Phenolic compound as C <sub>6</sub> H <sub>5</sub> OH, Max.	mg/l	0.005	ND
19	Lead as Pb, Max.	mg/l	0.1	< 0.01
20	Zinc as Zn, Max.	mg/l	15	< 0.05
21	Hexavalent Chromium as Cr <sup>+6</sup> Max.	mg/l	0.05	< 0.05
22	Total Coliform, Max.	MPN/100ml	5000	240
23	Faecal Coliform	1VIPN/100ml		17

NB: ND- Not Detectable, MPN-Most Probable Number

Authorized Signator Notes:

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#### Report no.-CEMC/TSL/020420/W1

Issued Date-02.04.2020

#### SURFACE WATER QUALITY TEST REPORT

Name & Address of the Client

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

Gopalpur

**Date of Sampling** Sampling by

: 06.03.2020 : R.K Das

**Date of Sample Received** Sample Description

: 07.03.2020

**Date of Analysis** 

: Surface Water

Reference No.

: 07.03.2020 to 14.03.2020 : CEMC-02042020W1

#### ANALYSIS RESULT

SI. No.	Test Parameters	Unit	Max. Tolerance Limit as per IS 2296: Class C	Reservoir	
1	Colour, Max.	Hazen	300	10	
2	pH Value @ 25°C		6.5 to 8.5	8.06	
3	Iron as Fe, Max.	mg/l	- 0.5	0.21	
4	Chloride as Cl, Max.	mg/l	600	23.9	
5	Dissolved Solids, Max.	mg/l	1500	182.2	
6	Dissolved Oxygen, Min.	mg/l	4	7.2	
7	BOD for 3 days@ 27°C, Max.	mg/l	3	<2	
8	Oil & Grease, Max.	mg/l	0.1	ND	
9	Copper as Cu, Max.	mg/l	1.5	< 0.03	
10	Sulphate as SO <sub>4</sub> , Max.	mg/l	400	1.5	
11	Nitrate as NO <sub>3</sub> , Max.	mg/l	50	34.2	
12	Fluoride as F, Max.	mg/l	1.5	0.08	
13	Anionic detergent	mg/l	1	ND	
14	Cadmium as Cd, Max.	mg/l	0.01	< 0.003	
15	Selenium as Se, Max.	mg/l	0.05	< 0.001	
16	Arsenic as As, Max.	mg/l	0.2	< 0.001	
17	Cyanide as CN, Max.	mg/l	0.05	ND	
18	Phenolic compound as C <sub>6</sub> H <sub>5</sub> OH, Max.	mg/l	0.005	ND	
19	Lead as Pb, Max.	mg/l	0.1	< 0.01	
20	Zinc as Zn, Max.	mg/l	15	< 0.05	
21	Hexavalent Chromium as Cr <sup>+6</sup> , Max.	mg/l	0.05	< 0.05	
22	Total Coliform, Max.	MPN/100m1	5000	26	
23	Faecal Coliform	MPN/100ml		17	

NB: ND- Not Detectable, MPN-Most Probable Number

Authorized Signatory

Notes:

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#### Report no.-CEMC/TSL/020420/W2

Issued Date-02.04.2020

#### SURFACE WATER QUALITY TEST REPORT

Name & Address of the Client

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

Gopalpur : 06.03,2020

**Date of Sampling** Sampling by Date of Sample Received

: R.K Das : 07,03,2020

Sample Description Date of Analysis

: Surface Water

Reference No.

: 07.03.2020 to 14.03.2020 : CEMC-02042020W2

#### ANALYSIS RESULT

Sl. No.	Test Parameters	Unit	Max. Tolerance Limit as per IS 2296: Class C	Khori Nala Up Stream	
1	Colour, Max.	Hazen	300	5	
2	pH Value @ 25°C		6.5 to 8.5	7.71	
3	Iron as Fe, Max.	mg/l	50	0.14	
4	Chloride as Cl, Max.	mg/l	600	23.6	
5	Dissolved Solids, Max.	mg/l	1500	281.8	
6	Dissolved Oxygen, Min.	mg/l	4	5.8	
7	BOD for 3 days@ 27°C, Max.	mg/l	3	2.0	
8	Oil & Grease, Max.	mg/l	0.1	ND	
9	Copper as Cu, Max.	mg/l	1.5	< 0.03	
10	Sulphate as SO <sub>4</sub> , Max.	mg/l	400	5.9	
11	Nitrate as NO <sub>3</sub> , Max.	mg/l	50	5.5	
12	Fluoride as F, Max.	mg/l	1.5	0.12	
13	Anionic detergent	mg/l	1	ND	
14	Cadmium as Cd, Max.	mg/l	0.01	< 0.003	
15	Selenium as Se, Max.	mg/l	0.05	< 0.001	
16	Arsenic as As, Max.	mg/l	0.2	< 0.001	
17	Cyanide as CN, Max.	mg/l	0.05	ND	
18	Phenolic compound as C <sub>6</sub> H <sub>5</sub> OH, Max.	mg/l	0.005	ND	
19	Lead as Pb, Max.	mg/l	0.1	< 0.01	
20	Zinc as Zn, Max.	mg/l	15	< 0.05	
21	Hexavalent Chromium as Cr <sup>+6</sup> , Max.	mg/l	0.05	< 0.05	
22	Total Coliform, Max.	MPN/100ml	5000	170	
23	Faecal Coliform	MPN/l00ml	-	9	

NB: ND- Not Detectable, MPN-Most Probable Number

Notes:

The results relate only to the sample tested.

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#### Report no.-CEMC/TSL/020420/W3

Issued Date-02.04.2020

#### SURFACE WATER QUALITY TEST REPORT

Name & Address of the Client

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

Gopalpur

**Date of Sampling** Sampling by

: 06.03.2020 : R.K Das

**Date of Sample Received** Sample Description

: 07.03.2020

Date of Analysis Reference No.

: Surface Water : 07.03.2020 to 14.03.2020

: CEMC-02042020W3

#### **ANALYSIS RESULT**

Sl. No.	Test Parameters	Unit	Max. Tolerance Limit as per IS 2296: Class C	Khori Nala Down Stream
1	Colour, Max.	Hazen	300	5
2	pH Value @ 25°C		6.5 to 8.5	7.77
3	Iron as Fe, Max.	mg/l	50	0.14
4	Chloride as Cl, Max.	mg/l	600	23.9
5	Dissolved Solids, Max.	mg/l	1500	288.5
6	Dissolved Oxygen, Min.	mg/l	4	6.0
7	BOD for 3 days@ 27°C, Max.	mg/l	3	2.0
8	Oil & Grease, Max.	mg/l	0.1	ND
9	Copper as Cu, Max.	mg/l	1.5	< 0.03
10	Sulphate as SO <sub>4</sub> , Max.	mg/l	400	6.1
11	Nitrate as NO <sub>3</sub> , Max.	mg/l	50	5.7
12	Fluoride as F, Max.	mg/l	1.5	0.12
13	Anionic detergent	mg/l	1	ND
14	Cadmium as Cd, Max.	mg/l	0.01	< 0.003
15	Selenium as Se, Max.	mg/l	0.05	< 0.001
16	Arsenic as As, Max.	mg/l	0.2	< 0.001
17	Cyanide as CN, Max.	mg/l	0.05	ND
18	Phenolic compound as C <sub>6</sub> H <sub>5</sub> OH, Max.	mg/l	0.005	ND
19	Lead as Pb, Max.	mg/l	0.1	< 0.01
20	Zinc as Zn, Max.	mg/l	15	< 0.05
21	Hexavalent Chromium as Cr <sup>+6</sup> , Max.	mg/l	0.05	< 0.05
22	Total Coliform, Max.	MPN/100ml	5000	170
23	Faecal Coliform	MPN/100m1		9

NB: ND- Not Detectable, MPN-Most Probable Number

Authorize Notes:

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Sl. No.	Expenditure Head	Amount
1	Drinking water	0.00
2	Health	2355000.00
3	Education	1367000.00
4	Skill Development	422000.00
5	Agriculture	5828000.00
6	Empowerment	700000.00
7	Environment	53000.00
8	Sports	668000.00
9	Infrastructure	2126000.00
10	Special Commitments	14210000.00
11	Common Exp./Administration	6136000.00
	TOTAL	33865000.00



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Report no.-CEMC/TSL/021119/A1

Issued Date-02.11.2019

### AMBIENT AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd, (Ferro Alloys Plant), Gopalpur
Sample Description	Ambient Air Quality
Sample Drawn Period/ Time	Monthly/ 0900 to 0900 next day
Sample Drawn by	Mr. R.K Das
Sampling Location	LBSS Building
Average Flow Rate of SPM (m³/min)/ Gases (lpm)	1.1/1.0
Weather Conditions	Clear
Reference No.	CEMC-02112019A1
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

ANAL VSIS RESILT

					ANALY	SIS RESUL	<u> </u>					
Date	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NOx	CO	NH <sub>3</sub>	O <sub>3</sub>	Pb	Ni (3)	As	Benzene (µg/m³)	
	(μg/m³)				(mg/m <sup>3</sup> )	(µg/m³)	(µg/m <sup>2</sup> )	(µg/m³)	(ng/m³)	(ng/m/)	(µg/m )	(mg/m )
03.10.2019	66.3	36.7	9.9	13.8	0.5		***					
08.10.2019	48.6	29.5	8.7	12.1	0.3							
11.10.2019	51.8	32.4	9.1	12.9	0.4	-		n				
15.10.2019	58.4	33.2	9.4	13.2	0.4	<20	<10	< 0.1	<0.6	< 0.44	<5	<1
18.10.2019	62.5	34.9	9.7	13.4	0.5							
21.10.2019	65.9	36.3	9.8	13.7	0.5		-		ber			
25.10.2019	66.7	36.8	10.1	13.9	0.5							
29.10.2019	64.1	36.1	9.3	13.5	0.4							
Avg												
NAAQ* Standard	100	60	80	80	4	400	100	1.0	20	6	5	1
Methods of	5182	Gravimetric Method as	5182	IS: 5182	5182	Indophenol Blue Method	5182	IS: 5182	As per CPCB method	As per CPCB method	IS: 5182 (Part-	IS: 5182 (Part-
Analysis	(Part- 23)	per CPCB method	(Part- 2)	(Part- 6)	(Part- 10)	followed by CPCB	(Part- 9)	(Part- 22)	followed by AAS			12)

N.B- \*NAAQ- National Ambient Air Quality Standard as per 18th Nov, 2009 Golf Wolffootton

\*END OF REPORT\*

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Report no.-CEMC/TSL/021119/A2

Issued Date-02.11.2019

### AMBIENT AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd, (Ferro Alloys Plant), Gopalpur					
Sample Description	Ambient Air Quality					
Sample Drawn Period/ Time	Monthly/ 0600 to 0600 next day					
Sample Drawn by	Mr. R.K Das					
Sampling Location	MRSS Building					
Average Flow Rate of SPM (m³/min)/ Gases(lpm)	1.1/1.0					
Weather Conditions	Clear					
Reference No.	CEMC-02112019A2					
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment					

ANALYSIS RESULT

					ANALI	SIS KESUI	4.1					
Date	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NOx	CO	NH <sub>3</sub>	O <sub>3</sub>	Pb	Ni	As	Benzene	
0.0 .0	(μg/m <sup>3</sup> )				(mg/m <sup>3</sup> )	(µg/m³)	<b>(</b> µg/m³)	(µg/m³)	(ng/m <sup>3</sup> )	(ng/m <sup>3</sup> )	$(\mu g/m^3)$	(ng/m <sup>3</sup> )
03.10.2019		36.3	9.9	13.7	0.6			Heren				
08.10.2019	49.2	30.4	8.7	12.2	0.4							
11.10.2019	52.7	30.9	9.0	12.9	0.5				_			
15.10.2019	57.6	32.7	9.4	13.1	0.5	<20	<10	< 0.1	< 0.6	< 0.44	<5	<1
18.10.2019	61.4	35.6	9.7	13.4	0.5	_						
21.10.2019	64.5	36.2	9.9	13.7	0.5		www		Maratin .			
25.10.2019	66.3	37.5	10.1	13.8	0.6		pair and	-				
29.10.2019	63.8	35.8	9,8	13.5	0,5							
Avg												
NAAQ* Standard	100	60	80	80	4	400	100	1.0	20	6	5	1
Methods of Analysis	IS: 5182 (Part- 23)	Gravimetric Method as per CPCB method	IS: 5182 (Part- 2)	IS: 5182 (Part- 6)	IS: 5182 (Part- 10)	Indophenol Blue Method followed by CPCB	IS: 5182 (Part- 9)	771	followed	As per CPCB method followed by AAS	IS: 5182 (Part- 11)	IS: 5182 (Part- 12)

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

\*END OF REPORT\*

Authorized Notes:

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Regd. Office: 1st Floor, N-5/305, IRC village, Nayapalli, Bhubaneswar-751015, Odisha, India, Mobile: 9861032826 E-mail-cemc\_consultancy@yahoo.co.in, cemc122@gmail.com, website: www.cemc.in, Landline: 0674-2360344.



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Report no.-CEMC/TSL/021119/A3

Issued Date-02.11.2019

## AMBIENT AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd, (Ferro Alloys Plant), Gopalpur					
Sample Description	Ambient Air Quality					
Sample Drawn Period/ Time	Monthly/ 0600 to 0600 next day					
Sample Drawn by	Mr. R.K Das					
Sampling Location	Canteen					
Average Flow Rate of SPM (m³/min)/ Gases(lpm)	1.1/1.0					
Weather Conditions	Clear					
Reference No.	CEMC-02112019A3					
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment					

ANALYSIS RESULT

г		,			ANAL	(SIS RESU						
Dte	PM <sub>10</sub> (μg/m <sup>3</sup> )	PM <sub>2.5</sub> (μg/m <sup>3</sup> )	SO <sub>2</sub> (μg/m <sup>3</sup> )	NOx	CO (mg/m <sup>3</sup> )	NH <sub>3</sub> (μg/m <sup>3</sup> )	O <sub>3</sub>	Pb (μg/m³)	Ni (ng/m³)	As (ng/m³)	Benzene	7
03.10.2019		35.1	9.2	13.5	0.5	(AG/III)	(Beg/RI	(µg/III				(ng/m <sup>3</sup> )
08.10.2019	49.6	30.2	8.7	12.1	0.3			<del></del>				
11.10.2019	52.3	31.6	9.1	12.7	0.4				<del></del>	<del> </del>		<u> </u>
15.10.2019	59.2	33.4	9.0	13.2	0.5	<20	<10	<0.1	<0.6	<0.44		
18.10.2019	62.8	34.7	9.6	13.5	0.5		10	-0.1	~0.0		<5	<1
21.10.2019	64.9	35.9	9.8	13.7	0.5				mea		<u> </u>	
25.10.2019	63.5	35.0	9.3	13.3	0.4						mn	
29.10.2019	65.2	36.3	9.9	13.8	0.5	W178						
Avg											E44	
NAAQ* Standard	100	60	80	80	4	400	100	1.0	20	6	5	1
Methods of Analysis	(Part- 23)	Method as	5182 (Part- 2)	IS: 5182 (Part- 6)	IS: 5182 (Part- 10)	Indophenol Blue Method followed by CPCB	IS: 5182 (Part- 9)	(Part-			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/021119/A4

Issued Date-02.11.2019

### AMBIENT AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd, (Ferro Alloys Plant), Gopalpur
Sample Description	Ambient Air Quality
Sample Drawn Period/ Time	Monthly/ 0600 to 0600 next day
Sample Drawn by	Mr. R.K Das
Sampling Location	ETP Building
Average Flow Rate of SPM (m³/min)/ Gases(lpm)	1.1/1.0
Weather Conditions	Clear
Reference No.	CEMC-02112019A4
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

ANALYSIS RESULT

ANALI SIS RESULT												
Date	PM <sub>10</sub> (μg/m <sup>3</sup> )	PM <sub>2.5</sub> (μg/m <sup>3</sup> )	SO <sub>2</sub>	NOx	CO (mg/m³)	NH <sub>3</sub> (μg/m <sup>3</sup> )	O <sub>3</sub>	Pb (μg/m³)	Ni (ng/m³)	As (ng/m³)	Benzene (µg/m³)	
03.10.2019		35.1	9.3	13.6	0.6	(pig/iii)	(µg/III )	(prg/mi)	(ng/m )	(ng/m )	(µg/m/)	(ng/m³)
08.10.2019		29.6	8.8	12.4	0.4							
11.10.2019		30.9	9.1	12.9	0.4							
15.10.2019	60.2	33.4	9.5	13.2	0.5	<20	<10	<0.1	<0.6	<0.44	<5	<1
18.10.2019	64.8	35.2	9.7	13.8	0.5	-				ANT UNI		
21.10.2019	63.6	35.0	9.5	13.5	0.5		2012					
25.10.2019	66.1	36.3	9.9	13.9	0.6		6/10					
29.10.2019	65.4	35.8	9.8	13.7	0.5	and the					Q <sup>24</sup> /ME	
Avg						-	-					
NAAQ* Standard	100	60	80	80	4	400	100	1.0	20	6	5	1
Methods of Analysis	IS: 5182 (Part- 23)	Gravimetric Method as per CPCB method	IS: 5182 (Part- 2)	IS: 5182 (Part- 6)	IS: 5182 (Part- 10)	Indophenol Blue Method followed by CPCB	IS: 5182 (Part- 9)	IS: 5182 (Part- 22)	As per CPCB method followed by AAS	followed	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/021119/F1

Issued Date-02.11.2019

## FUGITIVE AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd, (Ferro Alloys Plant), Gopalpur
Sample Description	Fugitive Air Quality
Sample Drawn Period	Monthly Once
Sample Drawn by	Mr. R.K Das
Sampling Location	RMHS
Instrument Used	Respirable Dust Sample
Date of Sampling	31.10.2019
Date of Receiving	01.11.2019
Date of Testing	01.11.2019 to 02.11,2019
Reference No.	CEMC-02112019F1

#### **ANALYSIS RESULT**

SI. No.	Locations	Suspended Particulate Matter (SPM)
1	RMHS (Raw Material Handling Site)	1174.9
	d as per Environment (protection) endment) Rules-2012 by MoEF	2000
Unit		μg/m³
Testing 1	Method	Gravimetric

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Report no.-CEMC/TSL/021119/F2

Issued Date-02.11.2019

#### FUGITIVE AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd, (Ferro Alloys Plant), Gopalpur
Sample Description	Fugitive Air Quality
Sample Drawn Period	Monthly Once
Sample Drawn by	Mr. R.K Das
Sampling Location	FPHS
Instrument Used	Respirable Dust Sample
Date of Sampling	31.10.2019
Date of Receiving	01.11.2019
Date of Testing	01.11.2019 to 02.11.2019
Reference No.	CEMC-02112019F2

#### **ANALYSIS RESULT**

Sl. No.	Locations	Suspended Particulate Matter (SPM)
1	FPHS (Fine Product Handling Site)	1219.8
	d as per Environment (protection) endment) Rules-2012 by MoEF	2000
Unit		μg/m³
Testing.	Method	ment Cons Gravimetric

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### Report no.-CEMC/TSL/021119/F3

Issued Date-02.11.2019

## FUGITIVE AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd, (Ferro Alloys Plant), Gopalpur
Sample Description	Fugitive Air Quality
Sample Drawn Period	Monthly Once
Sample Drawn by	Mr. R.K Das
Sampling Location	I-Bin Building
Instrument Used	Respirable Dust Sample
Date of Sampling	31.10.2019
Date of Receiving	01.11.2019
Date of Testing	01.11.2019 to 02.11.2019
Reference No.	CEMC-02112019F3

#### ANALYSIS RESULT

Locations	Suspended Particulate Matter (SPM)			
ilding	1085.2			
	2000			
	μg/m³			
	Gravimetric			
	Locations  ilding invironment (protection)  Rules-2012 by MoEF			

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Report no.-CEMC/TSL/021219/A1

Issued Date-02.12.2019

## AMBIENT AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd, (Ferro Alloys Plant), Gopalpur						
Sample Description	Ambient Air Quality						
Sample Drawn Period/ Time	Monthly/ 0900 to 0900 next day						
Sample Drawn by	Mr. R.K Das						
Sampling Location	LBSS Building						
Average Flow Rate of SPM (m <sup>3</sup> /min)/ Gases (lpm)	1.1/1.0						
Weather Conditions	Clear						
Reference No.	CEMC-02122019A1						
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment						

ANALYSIS RESULT

	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NOx	CO	NH <sub>3</sub>	O <sub>3</sub>	Pb	Ni	An	Danger	D.D
Date	$(\mu g/m^3)$		1		(mg/m <sup>3</sup> )				(ng/m <sup>3</sup> )	As (ng/m <sup>3</sup> )	Benzene (µg/m³)	
04.11.2019		36.9	9.8	14.1	0.5							
07.11.2019	62.9	33.8	9.2	12.7	0.4							
12.11.2019	64.6	35.3	9.8	12.9	0.5							
15.11.2019	65.3	35.9	9.9	13.4	0.5	<20	<10	< 0.1	<0.6	< 0.44	<5	<1
18.11.2019	66.7	36.2	9.8	13.6	0.5			Media				
21.11.2019	67.9	36.8	9.9	13.5	0.5				-			
25.11.2019	69.4	37.3	10.1	14.2	0.5				- Miles			
28.11.2019	67.8	36.5	9.6	13.8	0.4		1					
Avg												
NAAQ* Standard	100	60	80	80	4	400	100	1.0	20	6	5	1
Methods of Analysis	IS: 5182 (Part- 23)	Gravimetric Method as per CPCB method	IS: 5182 (Part- 2)	IS: 5182 (Part- 6)	IS: 5182 (Part- 10)	Indophenol Blue Method followed by CPCB	IS: 5182 (Part- 9)	7.7	As per CPCB method followed by AAS	method followed	IS: 5182 (Part- 11)	IS: 5182 (Part- 12)

N.B. \*NAAQ- National Ambient Air Quality Standard as per 18th Nov, 2009 Garage and Standard as per 18th Nov.

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#### Report no.-CEMC/TSL/021219/A2

Issued Date-02.12.2019

## AMBIENT AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd, (Ferro Alloys Plant), Gopalpur			
Sample Description	Ambient Air Quality			
Sample Drawn Period/ Time	Monthly/ 0600 to 0600 next day			
Sample Drawn by	Mr. R.K Das			
Sampling Location	MRSS Building			
Average Flow Rate of SPM (m³/min)/ Gases(lpm)	1.1/1.0			
Weather Conditions	Clear			
Reference No.	CEMC-02122019A2			
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment			

**ANALYSIS RESULT** 

					ANALI	SIS RESUL	a k					
Date	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NOx	CO	NH <sub>3</sub>	03	Pb	Ni	As	Benzene	
01110010	(µg/m <sup>3</sup> )				(mg/m <sup>3</sup> )	(µg/m³)	(µg/m <sup>3</sup> )	(µg/m³)	(ng/m³)	(ng/m <sup>3</sup> )	(μg/m <sup>3</sup> )	(ng/m <sup>3</sup>
04.11.2019		37.9	10.3	13.8	0.5							
07.11.2019		34.5	9.2	12.4	0.4							
12.11.2019	65.6	37.2	10.1	13.5	0.5					who made		
15.11.2019		37.6	9.9	13.7	0.5	<20	<10	<0.1	< 0.6	< 0.44	<5	<1
18.11.2019	67.8	38.2	10.4	13.9	0.6				-			
21.11.2019	66.9	37.4	10.2	13.6	0.5		2010					90-100
25.11.2019	67.1	37.5	10.4	13.8	0.6							20.00
28.11.2019	65.4	36.9	9.8	13.5	0.5							
Avg												
NAAQ* Standard	100	60	80	80	4	400	100	1.0	20	6	5	1
Methods of Analysis	IS: 5182 (Part- 23)	Gravimetric Method as per CPCB method	IS: 5182 (Part- 2)	IS: 5182 (Part- 6)	IS: 5182 (Part- 10)	Indophenol Blue Method followed by CPCB	IS: 5182 (Part- 9)	7.7			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/021219/A3

Issued Date-02.12.2019

## AMBIENT AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd, (Ferro Alloys Plant), Gopalpur
Sample Description	Ambient Air Quality
Sample Drawn Period/ Time	Monthly/ 0700 to 0700 next day
Sample Drawn by	Mr. R.K Das
Sampling Location	Canteen
Average Flow Rate of SPM (m³/min)/ Gases(lpm)	1.1/1.0
Weather Conditions	Clear
Reference No.	CEMC-02122019A3
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

ANIAL WOLC DECLE TO

			-		ANAL	SIS RESU						
Dte	PM <sub>10</sub> (μg/m <sup>3</sup> )	PM <sub>2.5</sub>	SO <sub>2</sub>	NOx	CO	NH <sub>3</sub>	O <sub>3</sub>	Pb	Ni	As	Benzene	
04 11 0010				(µg/m³)		(μg/m³)	(μg/m <sup>3</sup> )	(μg/m°	$(ng/m^3)$	(ng/m <sup>3</sup> )	$(\mu g/m^3)$	(ng/m <sup>3</sup> )
04.11.2019		35.1	9.2	13.5	0.5							
07.11.2019		31.8	8.9	12.1	0.3							
12.11.2019		32.5	9.3	12.6	0.4							
15.11.2019		34.7	9.1	13.4	0.5	<20	<10	< 0.1	< 0.6	< 0.44	<5	<1
18.11.2019		35.4	9.5	13.5	0.5							
21.11.2019	63.9	35.8	9.9	13.7	0.5					~~		
25.11.2019	61.3	34.6	9.4	13.3	0.4							
28.11.2019	64.1	36.2	9.9	13.8	0.5		==					
Avg												
NAAQ*	100	60	90	90	4	400	100	4.0	20		_	
Standard	100	OU	80	80	4	400	100	1.0	20	6	5	1
		Gravimetric	IS:	IS:	IS:	Indophenol	IC.	TO.	As per	As per		IS:
Methods	IS: 5182	Method as	5182	5182	5182	Blue	IS: 5182	IS:	CPCB		IS: 5182	5182
of	(Part-	per CPCB	(Part-	(Part-	(Part-	Method		5182 (Part-	method	method	(Part-	(Part-
Analysis	23)	method	2)	6)	10)	followed	(Part- 9)	(Part-	followed	followed	11)	12)
N. D.	43×1 10 3				,	by CPCB			by AAS	by AAS		

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

\*END OF REPORT\*

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Report no.-CEMC/TSL/021219/A4

Issued Date-02.12.2019

#### AMBIENT AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd, (Ferro Alloys Plant), Gopalpur			
Sample Description	Ambient Air Quality			
Sample Drawn Period/ Time	Monthly/ 0800 to 0800 next day			
Sample Drawn by	Mr. R.K Das			
Sampling Location	ETP Building			
Average Flow Rate of SPM (m <sup>3</sup> /min)/ Gases(lpm)	1.1/1.0			
Weather Conditions	Clear			
Reference No.	CEMC-02122019A4			
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment			

ANALYSIS RESULT

	T) 3 /	2020-40	00	MIC		DISTESUI		77.1	75.770	1 4	_	7000
Date	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NOx	CO	NH <sub>3</sub>	O <sub>3</sub>	Pb	Ni	As	Benzene	
	(μg/m³)	$(\mu g/m^3)$	(μg/m³)	$(\mu g/m^3)$	$(mg/m^3)$	$(\mu g/m^3)$	$(\mu g/m^3)$	$(\mu g/m^3)$	(ng/m <sup>3</sup> )	$(ng/m^3)$	$(\mu g/m^3)$	$(ng/m^3)$
04.11.2019	65.4	36.3	9.8	13.9	0.6							***
07.11.2019	57.8	30.2	8.9	12.2	0.4						m-as	
12.11.2019	60.3	31.9	9.2	12.7	0.4							
15.11.2019	63.6	34.1	9.5	13.4	0.5	<20	<10	< 0.1	< 0.6	< 0.44	<5	<1
18.11.2019	64.5	35.4	9.7	13.6	0.5		M-0					
21.11.2019	62.7	34.8	9.4	13.3	0.5							
25.11.2019	65.2	36.1	9.8	13.9	0.6				mes.			
28.11.2019	64.1	35.5	9.6	13.5	0.5					****		
Avg												
NAAQ*	100	<b>CO</b>	00	00	4	400	100	4.0	20		_	
Standard	100	60	80	80	4	400	100	1.0	20	6	5	1
Methods	IS: 5182	Gravimetric Method as	IS:	IS:	13:	Indophenol Blue	12:	IS:	As per CPCB	As per CPCB		IS: 5182
of	(Part-	Method as	5182	5182	5182	Method	5182	5182	method		IS: 5182	
Analysis	23)	per CPCB	(Part-	(Part-	(Part-		(Part-	(Part-			(Part-11)	(Part-
Allalysis	20)	method	2)	6)	10)	followed	9)	22)	followed			12)
			-			by CPCB			by AAS	Dy AAS		

N.B. \*NAAQ- National Ambient Air Quality Standard as per 18th Nov. 2009, Garly you cation.

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Report no.-CEMC/TSL/021219/F1

Issued Date-02.12,2019

### FUGITIVE AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd, (Ferro Alloys Plant), Gopalpur
Sample Description	Fugitive Air Quality
Sample Drawn Period	Monthly Once
Sample Drawn by	Mr. R.K Das
Sampling Location	RMHS
Instrument Used	Respirable Dust Sample
Date of Sampling	12.11.2019
Date of Receiving	13.11.2019
Date of Testing	13.11.2019 to 20.11.2019
Reference No.	CEMC-02122019F1

#### ANALYSIS RESULT

Sl. No.	Locations	Suspended Particulate Matter (SPM)
1	RMHS (Raw Material Handling Site)	1228.5
	d as per Environment (protection) endment) Rules-2012 by MoEF	2000
Unit		μg/m³
Testing .	Method	Gravimetric
		*END OF REPOR

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Report no.-CEMC/TSL/021219/F2

Issued Date-02.12.2019

#### FUGITIVE AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd, (Ferro Alloys Plant), Gopalpur
Sample Description	Fugitive Air Quality
Sample Drawn Period	Monthly Once
Sample Drawn by	Mr. R.K Das
Sampling Location	FPHS
Instrument Used	Respirable Dust Sample
Date of Sampling	12.11.2019
Date of Receiving	13.11.2019
Date of Testing	13.11.2019 to 20.11.2019
Reference No.	CEMC-02122019F2

#### **ANALYSIS RESULT**

Sl. No.	Locations	Suspended Particulate Matter (SPM)
1	FPHS (Fine Product Handling Site)	1192.4
	d as per Environment (protection) endment) Rules-2012 by MoEF	2000
Unit		μg/m³
Testing .	Method	Gravimetric

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Report no.-CEMC/TSL/021219/F3

Issued Date-02.12.2019

#### FUGITIVE AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd, (Ferro Alloys Plant), Gopalpur
Sample Description	Fugitive Air Quality
Sample Drawn Period	Monthly Once
Sample Drawn by	Mr. R.K Das
Sampling Location	I-Bin Building
Instrument Used	Respirable Dust Sample
Date of Sampling	12.11.2019
Date of Receiving	13.11.2019
Date of Testing	13.11.2019 to 20.11.2019
Reference No.	CEMC-02122019F3

#### ANALYSIS RESULT

Sl. No.	Locations	Suspended Particulate Matter (SPM)
1	I-Bin Building	1197.4
	l as per Environment (protection) indment) Rules-2012 by MoEF	2000
Unit		μg/m³
Testing .	Method	Gravimetric

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Report no.-CEMC/TSL/020120/A1

Issued Date-02.01.2020

### AMBIENT AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd, (Ferro Alloys Plant), Gopalpur			
Sample Description	Ambient Air Quality			
Sample Drawn Period/ Time	Monthly/ 0900 to 0900 next day			
Sample Drawn by	Mr. R.K Das			
Sampling Location	LBSS Building			
Average Flow Rate of SPM (m³/min)/ Gases (lpm)	1.1/1.0			
Weather Conditions	Clear			
Reference No.	CEMC-02012020A1			
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment			

ANALYSIS RESULT

					ANALI	SIS KESUL	J.					
Data	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NOx	CO	NH <sub>3</sub>	O <sub>3</sub>	Pb	Ni	As	Benzene	BaP
Date	$(\mu g/m^3)$	(μg/m³)	$(\mu g/m^3)$	$(\mu g/m^3)$	$(mg/m^3)$	(µg/m³)	$(\mu g/m^3)$	$(\mu g/m^3)$	(ng/m³)	$(ng/m^3)$	(µg/m³)	$(ng/m^3)$
03.12.2019		35.4	9.6	13.8	0.5							
07.12.2019	64.5	34.6	9.4	13.3	0.5							
10.12.2019	67.2	36.1	9.9	14.2	0.5	1						
13.12.2019	65.8	35.2	9.5	13.6	0.5	<20	<10	< 0.1	<0.6	<0.44	<5	<1
17.12.2019	66.3	35.4	9.7	13.7	0.5			10-01				
20.12.2019	64.9	34.5	9.3	13.5	0.5							
23.12.2019	67.1	36.3	9.9	14.0	0.5	_					men.	
27.12.2019	65.6	35.5	9.8	13.4	0.5		-					
Avg												
NAAQ* Standard	100	60	80	80	4	400	100	1.0	20	6	5	1
Methods of Analysis	IS: 5182 (Part- 23)	Gravimetric Method as per CPCB method	IS: 5182 (Part- 2)	IS: 5182 (Part- 6)	IS: 5182 (Part- 10)	Indophenol Blue Method followed by CPCB	IS: 5182 (Part- 9)	22)	As per CPCB method followed by AAS		, ,	IS: 5182 (Part- 12)

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

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Report no.-CEMC/TSL/020120/A2

Issued Date-02.01.2020

### AMBIENT AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd, (Ferro Alloys Plant), Gopalpur				
Sample Description	Ambient Air Quality				
Sample Drawn Period/ Time	Monthly/ 0600 to 0600 next day				
Sample Drawn by	Mr. R.K Das				
Sampling Location	MRSS Building				
Average Flow Rate of SPM (m³/min)/ Gases(lpm)	1.1/1.0				
Weather Conditions	Clear				
Reference No.	CEMC-02012020A2				
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment				

**ANALYSIS RESULT** 

					ANALI	212 KF201	2 JL					
Date	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NOx	CO	NH <sub>3</sub>	O <sub>3</sub>	Pb	Ni	As	Benzene	BaP
	(μg/m <sup>3</sup> )	(μg/m <sup>3</sup> )	(μg/m <sup>3</sup> )	$(\mu g/m^3)$	$(mg/m^3)$	$(\mu g/m^3)$	$(\mu g/m^3)$	$(\mu g/m^3)$	$(ng/m^3)$	(ng/m <sup>3</sup> )	$(\mu g/m^3)$	$(ng/m^3)$
03.12.2019		34.7	9.5	13.4	0.4		***					
07.12.2019	64.6	34.2	9.3	12.9	0.4							
10.12.2019	66.2	35.8	9.8	13.7	0.5		***			No. Hor		
13.12.2019	65.8	35.1	9.6	13.4	0.5	<20	<10	<0.1	< 0.6	< 0.44	<5	<1
17.12.2019	67.1	36.9	10.1	13.8	0.6							
20.12.2019	66.4	35.7	9.7	13.5	0.5	****			Per See	-		
23.12.2019	65.9	35.3	9.5	13.3	0.5							
27.12.2019	67,5	37.1	9,9	13.8	0.5		and the			m		
Avg									_			
NAAQ*	100	70	00	00	4	400	400	4.0	**		_	
Standard	100	60	80	80	4	400	100	1.0	20	6	5	1
Methods of	IS: 5182 (Part-	Gravimetric Method as per CPCB	IS: 5182 (Part-	IS: 5182 (Part-	IS: 5182 (Part-	Indophenol Blue Method	IS: 5182 (Part-	IS: 5182 (Part-		method	IS: 5182 (Part-	IS: 5182 (Part-
Analysis	23)	method	2)	6)	10)	followed by CPCB	9)	22)	followed by AAS	followed by AAS	/	12)

N.B. \*NAAQ- National Ambient Air Quality Standard as per 18th Nov, 2009 Gen. Northeation.

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Report no.-CEMC/TSL/020120/A3

Issued Date-02.01.2020

### AMBIENT AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd, (Ferro Alloys Plant), Gopalpur
Sample Description	Ambient Air Quality
Sample Drawn Period/ Time	Monthly/ 0700 to 0700 next day
Sample Drawn by	Mr. R.K Das
Sampling Location	Canteen
Average Flow Rate of SPM (m <sup>3</sup> /min)/ Gases(lpm)	1.1/1.0
Weather Conditions	Clear
Reference No.	CEMC-02012020A3
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

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					ANAL	312 KE201	<i>1</i> 1					
Dte	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NOx	CO	NH <sub>3</sub>	<b>O</b> <sub>3</sub>	Pb	Ni	As	Benzene	
	(µg/m³)	(µg/m³)	(μg/m³)	(μg/m³)	(mg/m <sup>3</sup> )	$(\mu g/m^3)$	$(\mu g/m^3)$	(μg/m <sup>3</sup> )	$(ng/m^3)$	$(ng/m^3)$	$(\mu g/m^3)$	$(ng/m^3)$
03.12.2019	60.4	32.9	9.1	13.2	0.4							~~
07.12.2019		34.1	9.6	13.5	0.4					thront.		
10.12.2019	59.8	32.6	9.0	12.8	0,3							
13.12.2019	62.6	34.4	9.5	13.3	0.5	<20	<10	< 0.1	< 0.6	< 0.44	<5	<1
17.12.2019	61.7	33.8	9.4	13.4	0.5	Web.					-	
20.12.2019	60.9	33.1	9.3	13.2	0.5	_						
23.12.2019	62.5	34.6	9.7	13.6	0.5							
27.12.2019	60.5	32.8	9.2	13.1	0.4				-	_		
Avg												
NAAQ*	100	60	80	80	4	400	100	1.0	20	6	5	1
Standard	100		00	00	~7	400	100	1.0	20	U	3	1
Methods	12: 2187	Gravimetric Method as	IS: 5182	IS: 5182	IS: 5182	Indophenol Blue	IS: 5182	IS: 5182	As per CPCB	As per CPCB	IS: 5182	IS: 5182
of Analysis	(Part- 23)	per CPCB method	(Part- 2)	(Part- 6)	(Part- 10)	Method followed by CPCB	(Part- 9)	(Part-	followed	method followed by AAS	\ \ \	(Part- 12)

N.B- \*NAAQ- National Ambient Air Quality Standard as per 18th Nov, 2009 (ath Natification.

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Report no.-CEMC/TSL/020120/A4

Issued Date-02.01.2020

## AMBIENT AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd, (Ferro Alloys Plant), Gopalpur				
Sample Description	Ambient Air Quality				
Sample Drawn Period/ Time	Monthly/ 0800 to 0800 next day				
Sample Drawn by	Mr. R.K Das				
Sampling Location	ETP Building				
Average Flow Rate of SPM (m³/min)/ Gases(lpm)	1.1/1.0				
Weather Conditions	Clear				
Reference No.	CEMC-02012020A4				
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment				

ANALYSIS RESULT

Date	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NOx	CO	NH <sub>3</sub>	$O_3$	Pb	Ni	As	Benzene	BaP
	(μg/m³)	$(\mu g/m^3)$	(µg/m³)	(µg/m³)	(mg/m <sup>3</sup> )	$(\mu g/m^3)$	$(\mu g/m^3)$	$(\mu g/m^3)$	$(ng/m^3)$	$(ng/m^3)$	$(\mu g/m^3)$	$(ng/m^3)$
03.12.2019	63.7	34.1	9.3	13.4	0.5							
07.12.2019	60.6	32.5	9.0	13.1	0.5					****		
10.12.2019	62.4	33.2	9.2	13.3	0.5						Marin .	ne-
13.12.2019	65.3	35.6	9.8	13.7	0,6	<20	<10	< 0.1	< 0.6	< 0.44	<5	<1
17.12.2019	61.9	33.0	9.1	13.2	0.5			less-visit				
20.12.2019	64.2	34.7	9.6	13.5	0.5							
23.12.2019	62.8	33.4	9.5	13.3	0.5							
27.12.2019	65.1	35.3	9.7	13.6	0.6				ana			
Avg											111	
NAAQ*	100	60	90	90	4	400	400	4.0			_	
Standard	100	00	80	80	4	400	100	1.0	20	6	5	1
Methods of Analysis	IS: 5182 (Part- 23)	Gravimetric Method as per CPCB method	IS: 5182 (Part- 2)	IS: 5182 (Part- 6)	IS: 5182 (Part- 10)	Indophenol Blue Method followed by CPCB	IS: 5182 (Part- 9)	7 2 1 1	As per CPCB method followed		IS: 5182 (Part-11)	IS: 5182 (Part- 12)

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

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#### Report no.-CEMC/TSL/020120/F1

Issued Date-02.01.2020

#### FUGITIVE AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd, (Ferro Alloys Plant), Gopalpur
Sample Description	Fugitive Air Quality
Sample Drawn Period	Monthly Once
Sample Drawn by	Mr. R.K Das
Sampling Location	RMHS
Instrument Used	Respirable Dust Sample
Date of Sampling	31.12.2019
Date of Receiving	01.01.2020
Date of Testing	01.01.2020 to 02.01.2020
Reference No.	CEMC-02012020F1

#### **ANALYSIS RESULT**

Sl. No.	Locations	Suspended Particulate Matter (SPM)
1	RMHS (Raw Material Handling Site)	1271.3
	l as per Environment (protection) endment) Rules-2012 by MoEF	2000
Unit		μg/m³
Testing 1	Method	Gravimetric

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Report no.-CEMC/TSL/020120/F2

Issued Date-02.01.2020

## FUGITIVE AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd, (Ferro Alloys Plant), Gopalpur
Sample Description	Fugitive Air Quality
Sample Drawn Period	Monthly Once
Sample Drawn by	Mr. R.K Das
Sampling Location	FPHS
Instrument Used	Respirable Dust Sample
Date of Sampling	31.12.2019
Date of Receiving	01.01.2020
Date of Testing	01.01,2020 to 02.01,2020
Reference No.	CEMC-02012020F2

#### ANALYSIS RESULT

Sl. No.	Locations	Suspended Particulate Matter (SPM)			
1	FPHS (Fine Product Handling Site)	1128.6			
	d as per Environment (protection) endment) Rules-2012 by MoEF	2000			
Unit		μg/m³			
Testing I	Method	Gravimetric			

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Report no.-CEMC/TSL/020120/F3

Issued Date-02.01.2020

## FUGITIVE AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd, (Ferro Alloys Plant), Gopalpur
Sample Description	Fugitive Air Quality
Sample Drawn Period	Monthly Once
Sample Drawn by	Mr. R.K Das
Sampling Location	I-Bin Building
Instrument Used	Respirable Dust Sample
Date of Sampling	31.12.2019
Date of Receiving	01.01.2020
Date of Testing 01.01.2020 to 02.01.2020	
Reference No.	CEMC-02012020F3

### <u>ANALYSIS RES</u>ULT

Sl. No.	Locations	Suspended Particulate Matter (SPM)				
1	I-Bin Building	1142.5				
	l as per Environment (protection) indment) Rules-2012 by MoEF	2000				
Unit		μg/m³				
Testing I	Method	Gravimetric				

\*END OF REPORT\*

Authorized Notes:

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Report no.-CEMC/TSL/030220/A1

Issued Date-03.02.2020

## AMBIENT AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd, (Ferro Alloys Plant), Gopalpur
Sample Description	Ambient Air Quality
Sample Drawn Period/ Time	Monthly/ 0900 to 0900 next day
Sample Drawn by	Mr. R.K Das
Sampling Location	LBSS Building
Average Flow Rate of SPM (m³/min)/ Gases (lpm)	1.1/1.0
Weather Conditions	Clear
Reference No.	CEMC-03022020A1
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

ANALYSIS RESULT

	TATALETOIS RESOLT											
Date	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NOx	CO	NH <sub>3</sub>	03	Pb	Ni	As	Benzene	
	(μg/m <sup>3</sup> )		(µg/m³)	(µg/m²)	$(mg/m^3)$	$(\mu g/m^3)$	(µg/m³)	$(\mu g/m^3)$	(ng/m³)	(ng/m <sup>3</sup> )	$(\mu g/m^3)$	$(ng/m^3)$
02.01.2020	57.4	33.0	9.5	13.4	0.4							
06.01.2020	55.9	31.9	8.9	12.9	0.3	Med after						
09.01.2020	56.3	32.7	9.2	13.1	0.4							
13.01.2020	58.2	34.1	9.9	13.5	0.5	<20	<10	< 0.1	<0.6	<0.44	<5	<1
17.01.2020	56.5	32.6	9.4	13.2	0.4							
20.01.2020	57.8	32.9	9.5	13.6	0.5		44.44					
24.01.2020	55.6	31.8	9.6	12.8	0.4							
28.01.2020	58.1	33.4	9.8	13.7	0.5							юш
Avg												
NAAQ* Standard	100	60	80	80	4	400	100	1.0	20	6	5	1
Methods of Analysis	IS: 5182 (Part- 23)	Gravimetric Method as per CPCB method	IS: 5182 (Part- 2)	IS: 5182 (Part- 6)	IS: 5182 (Part- 10)	Indophenol Blue Method followed by CPCB	IS: 5182 (Part- 9)	(Part-	followed	As per CPCB method followed by AAS	IS: 5182 (Part- 11)	IS: 5182 (Part- 12)

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

\*END OF REPORT\*

Authorized Notes:

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Report no.-CEMC/TSL/030220/A2

Issued Date-03.02,2020

## AMBIENT AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd, (Ferro Alloys Plant), Gopalpur
Sample Description	Ambient Air Quality
Sample Drawn Period/ Time	Monthly/ 0600 to 0600 next day
Sample Drawn by	Mr. R.K Das
Sampling Location	MRSS Building
Average Flow Rate of SPM (m³/min)/ Gases(lpm)	1.1/1.0
Weather Conditions	Clear
Reference No.	CEMC-03022020A2
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

ANALYSIS RESULT

	ANALISIS RESULT											
Date	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NOx	CO	NH <sub>3</sub>	O <sub>3</sub>	Pb	Ni	As	Benzene	
	(μg/m <sup>3</sup> )		(µg/m³)	(µg/m³)	$(mg/m^3)$	$(\mu g/m^3)$	$(\mu g/m^3)$	(μg/m³)	$(ng/m^3)$	(ng/m³)	$(\mu g/m^3)$	$(ng/m^3)$
02.01.2020		32.2	9.2	13.2	0.4							
06.01.2020	57.1	32.8	9.4	13.6	0.5					_		
09.01.2020	55.7	31.9	9.1	12.9	0.4							
13.01.2020	58.4	34.1	9.8	13.8	0.6	<20	<10	< 0.1	< 0.6	< 0.44	<5	<1
17.01.2020	57.8	33,0	9,5	13.4	0.5							
20.01.2020	56.9	32.7	9.3	13.2	0.4							
24.01.2020	58.6	33.8	9.9	13.7	0.6							
28.01.2020	57.5	33.1	9.6	13.5	0.5							
Avg												
NAAQ*	100	60	00	00	4	400	400	4.0		-		
Standard	100	00	80	80	4	400	100	1.0	20	6	5	1
	IS:	Gravimetric	IS:	TC.	TC.	Indophenol	TC	10	As per	As per		IS:
Methods	5182	Method as	5182	IS:	IS:	Blue	IS:	IS:	CPCB		IS: 5182	5182
of	(Part-	per CPCB		5182	5182	Method	5182	5182	method		(Part-	(Part-
Analysis	23)	method	(Part-	(Part-	(Part-	followed	(Part-	(Part-	followed	followed	,	12)
	43)	memod	2)	6)	10)	by CPCB	9)	//1	by AAS			,

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

\*END OF REPORT\*

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Report no.-CEMC/TSL/030220/A3

Issued Date-03.02.2020

### AMBIENT AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd, (Ferro Alloys Plant), Gopalpur
Sample Description	Ambient Air Quality
Sample Drawn Period/ Time	Monthly/ 0700 to 0700 next day
Sample Drawn by	Mr. R.K Das
Sampling Location	Canteen
Average Flow Rate of SPM (m³/min)/ Gases(lpm)	1.1/1.0
Weather Conditions	Clear
Reference No.	CEMC-03022020A3
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

ANALYSIS RESULT

	***		~~			DID REDUI						
Dte	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NOx	CO	NH <sub>3</sub>	O <sub>3</sub>	Pb	Ni	As	Benzene	BaP
	$(\mu g/m^3)$	(μg/m³)	(μg/m³)	(µg/m³)	$(mg/m^3)$	$(\mu g/m^3)$	$(\mu g/m^3)$	$(\mu g/m^3)$	(ng/m <sup>3</sup> )	$(ng/m^3)$	$(\mu g/m^3)$	$(ng/m^3)$
02.01.2020	55.4	31.9	9.1	12.9	0.4		mer					
06.01.2020	56.8	32.8	9.6	13.2	0.4							
09.01.2020	58.1	33.9	9.9	13.6	0.5				****	_		HEAR
13.01.2020	57.6	33.7	9.7	13.4	0.5	<20	<10	< 0.1	<0.6	< 0.44	<5	<1
17.01.2020	56.9	33.2	9.4	13.2	0.4							
20.01.2020	55.7	31.8	9.2	12.8	0.3						m-s	
24.01.2020	57.3	32.6	9.5	13.3	0.5		-			_		
28.01.2020	56.2	32.1	9.3	13.0	0.4				TH-TH			
Avg												
NAAQ*	100	<b>CO</b>	00	0.0	4	400	400	4.0			_	
Standard	100	60	80	80	4	400	100	1.0	20	6	5	1
		Cuarius stuis	TC.	TC.	TC.	Indophenol	TO	TC	As per	As per		IS:
Methods	IS: 5182	Gravimetric		IS:	IS:	Blue	IS:	IS:	CPCB		IS: 5182	5182
of	(Part-	Method as	5182	5182	5182	Method	5182	5182	method		(Part-	(Part-
Analysis	23)	per CPCB	(Part-	(Part-	(Part-	followed	(Part-	(Part-		followed		12)
		method	2)	6)	10)	by CPCB	9)	22)	by AAS	by AAS		

N.B- \*NAAQ-National Ambient Air Quality Standard as per 18th Nov. 2000

\*END OF REPORT\*

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Report no.-CEMC/TSL/030220/A4

Issued Date-03.02.2020

### AMBIENT AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd, (Ferro Alloys Plant), Gopalpur
Sample Description	Ambient Air Quality
Sample Drawn Period/ Time	Monthly/ 0800 to 0800 next day
Sample Drawn by	Mr. R.K Das
Sampling Location	ETP Building
Average Flow Rate of SPM (m <sup>3</sup> /min)/ Gases(lpm)	1.1/1.0
Weather Conditions	Clear
Reference No.	CEMC-03022020A4
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

ANALYSIS RESULT

	ANADISIS RESULT											
Date	$PM_{10}$	PM <sub>2.5</sub>	SO <sub>2</sub>	NOx	CO	NH <sub>3</sub>	$O_3$	Pb	Ni	As	Benzene	BaP
	(µg/m <sup>3</sup> )	(μg/m³)	$(\mu g/m^3)$	$(\mu g/m^3)$	(mg/m <sup>3</sup> )	$(\mu g/m^3)$	$(\mu g/m^3)$	$(\mu g/m^3)$	$(ng/m^3)$	$(ng/m^3)$	$(\mu g/m^3)$	$(ng/m^3)$
02.01.2020	58.2	34.0	9.2	13.6	0.5		-					
06.01.2020	56.4	32.3	9.0	13.1	0.5							
09.01.2020	55.9	31.9	8.8	12.9	0.4			мш				
13.01.2020	57.3	33.6	9.1	13.5	0.5	<20	<10	<0.1	<0.6	<0.44	<5	<1
17.01.2020	58.9	33.8	9.6	13.6	0.5						~~	
20.01.2020	56.5	33.1	9.2	13.2	0.4							
24.01.2020	57.7	33.4	9.1	13.4	0.5							
28.01.2020	59.1	34.2	9.8	13.7	0.6							
Avg					*							
NAAQ*	100	60	90	00	4	400	400	4.0			_	
Standard	100	00	80	80	4	400	100	1.0	20	6	5	1
Methods of Analysis	IS: 5182 (Part- 23)	Gravimetric Method as per CPCB method	5182 (Part-	IS: 5182 (Part-	5182 (Part-	Indophenol Blue Method followed	5182 (Part-	IS: 5182 (Part-	As per CPCB method followed		IS: 5182 (Part-11)	IS: 5182 (Part- 12)
		method	2)	6)	10)	by CPCB	9)	7/1	by AAS			/

N.B- \*NAAQ-National Ambient Air Quality Standard as per 18th Nov, 2002 Chits Notification.

\*END OF REPORT\*

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Report no.-CEMC/TSL/030220/F1

Issued Date-03.02.2020

### FUGITIVE AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd, (Ferro Alloys Plant), Gopalpur
Sample Description	Fugitive Air Quality
Sample Drawn Period	Monthly Once
Sample Drawn by	Mr. R.K Das
Sampling Location	RMHS
Instrument Used	Respirable Dust Sample
Date of Sampling	09.01.2020
Date of Receiving	10.01,2020
Date of Testing	10.01.2020 to 15.01.2020
Reference No.	CEMC-03022020F1

#### ANALYSIS RESULT

Sl. No.	Locations	Suspended Particulate Matter (SPM)
1	RMHS (Raw Material Handling Site)	1012.3
	d as per Environment (protection) endment) Rules-2012 by MoEF	2000
Unit		μg/m³
Testing.	Method	Gravimetric

\*END OF REPORT\*

Authorized Notes:

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Report no.-CEMC/TSL/030220/F2

Issued Date-03.02.2020

#### FUGITIVE AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd, (Ferro Alloys Plant), Gopalpur
Sample Description	Fugitive Air Quality
Sample Drawn Period	Monthly Once
Sample Drawn by	Mr. R.K Das
Sampling Location	FPHS
Instrument Used	Respirable Dust Sample
Date of Sampling	09.01.2020
Date of Receiving	10.01.2020
Date of Testing	10.01.2020 to 15.01.2020
Reference No.	CEMC-03022020F2

#### **ANALYSIS RESULT**

SI. No.	Locations	Suspended Particulate Matter (SPM)
1	FPHS (Fine Product Handling Site)	604.7
	d as per Environment (protection) endment) Rules-2012 by MoEF	2000
Unit		μg/m³
Testing	Method	Gravimetric
		*END OF REPORT*

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Report no.-CEMC/TSL/030220/F3

Issued Date-03.02.2020

### FUGITIVE AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd, (Ferro Alloys Plant), Gopalpur
Sample Description	Fugitive Air Quality
Sample Drawn Period	Monthly Once
Sample Drawn by	Mr. R.K Das
Sampling Location	I-Bin Building
Instrument Used	Respirable Dust Sample
Date of Sampling	09.01.2020
Date of Receiving	10.01.2020
Date of Testing	10.01.2020 to 15.01.2020
Reference No.	CEMC-03022020F3

### ANALYSIS RESULT

Sl. No.	Locations	Suspended Particulate Matter (SPM)
1	I-Bin Building	407.3
	d as per Environment (protection) endment) Rules-2012 by MoEF	2000
Unit		μg/m³
Testing 1	Method	Gravimetric

\*END OF REPORT\*

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Report no.-CEMC/TSL/020320/A1

Issued Date-02.03.2020

## AMBIENT AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd, (Ferro Alloys Plant), Gopalpur
Sample Description	Ambient Air Quality
Sample Drawn Period/ Time	Monthly/ 0900 to 0900 next day
Sample Drawn by	Mr. R.K Das
Sampling Location	LBSS Building
Average Flow Rate of SPM (m³/min)/ Gases (lpm)	1.1/1.0
Weather Conditions	Clear
Reference No.	CEMC-02032020A1
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

ANALYSIS RESULT

					ANALI	SIS KESUL	1					
Data	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NOx	CO	NH <sub>3</sub>	O <sub>3</sub>	Pb	Ni	5	Benzene	
Date	$(\mu g/m^3)$	(μg/m³)	$(\mu g/m^3)$	$(\mu g/m^3)$	$(mg/m^3)$	$(\mu g/m^3)$	$(\mu g/m^3)$	$(\mu g/m^3)$	(ng/m <sup>3</sup> )	(ng/m <sup>3</sup> )	(µg/m³)	$(ng/m^3)$
03.02.2020	59.6	33.4	9.7	13.5	0.4					900,000		
06.02.2020	61.3	34.2	9.9	13.8	0.4							
10.02.2020	60.7	33.9	9.8	13.6	0.5			No.				
13.02.2020	62.1	34,5	10.2	13.9	0.5	<20	<10	< 0.1	<0.6	<0.44	<5	<1
17.02.2020	59.4	33.4	9.6	13.3	0.4		***			mi-sit		
20.02.2020	61.5	34.8	9.9	13.7	0.5							
24.02,2020	58.9	33.1	9.4	12.9	0.4							
27.02.2020	60.2	33.6	9.5	13.4	0.4							
Avg												
NAAQ* Standard	100	60	80	80	4	400	100	1.0	20	6	5	1
Methods of Analysis	IS: 5182 (Part- 23)	Gravimetric Method as per CPCB method	IS: 5182 (Part- 2)	IS: 5182 (Part- 6)	IS: 5182 (Part- 10)	Indophenol Blue Method followed by CPCB	IS: 5182 (Part- 9)	22)	followed	method	11)	IS: 5182 (Part- 12)

N.B. \*NAAQ- National Ambient Air Quality Standard as per 18th Nov, 2009 Galla Noville

\*END OF REPORT\*

Authorized Signatury

Notes:

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Report no.-CEMC/TSL/020320/A2

Issued Date-02.03.2020

## AMBIENT AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd, (Ferro Alloys Plant), Gopalpur
Sample Description	Ambient Air Quality
Sample Drawn Period/ Time	Monthly/ 0600 to 0600 next day
Sample Drawn by	Mr. R.K Das
Sampling Location	MRSS Building
Average Flow Rate of SPM (m³/min)/ Gases(lpm)	1.1/1.0
Weather Conditions	Clear
Reference No.	CEMC-02032020A2
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

ANALYSIS RESULT

			f		The same of the last	SIS RESUL	,					
Date	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NOx	CO	NH <sub>3</sub>	O <sub>3</sub>	Pb	Ni	As	Benzene	,
	$(\mu g/m^3)$	(µg/m³)	(µg/m³)	(µg/m³)	$(mg/m^3)$	(μg/m³)	(μg/m³)	$(\mu g/m^3)$	$(ng/m^3)$	$(ng/m^3)$	$(\mu g/m^3)$	$(ng/m^3)$
03.02.2020		33.1	9.5	13.3	0.5							
06.02.2020	58.1	32.7	9.2	13.1	0.4	_						
10.02.2020	60.2	33.5	9.7	13.6	0.5							
13.02.2020	61.3	34.2	9.9	13.8	0.5	<20	<10	<0.1	<0.6	< 0.44	<5	<1
17.02.2020	59.8	33.4	9.6	13.4	0.4							
20.02.2020	60.9	33.8	9.8	13.7	0.5		***					
24.02.2020	61.5	34.3	9.9	13.9	0.6							
27.02.2020	58.6	32,9	9.3	13.2	0.4			Maria.			-	
Avg												
NAAQ* Standard	100	60	80	80	4	400	100	1.0	20	6	5	1
Methods of Analysis	IS: 5182 (Part- 23)	Gravimetric Method as per CPCB method	IS: 5182 (Part- 2)	IS: 5182 (Part- 6)	IS: 5182 (Part- 10)	Indophenol Blue Method followed by CPCB	IS: 5182 (Part- 9)		As per CPCB method followed by AAS	method followed		IS: 5182 (Part- 12)

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

\*END OF REPORT\*

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Report no.-CEMC/TSL/020320/A3

Issued Date-02.03.2020

#### AMBIENT AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd, (Ferro Alloys Plant),
	Gopalpur
Sample Description	Ambient Air Quality
Sample Drawn Period/ Time	Monthly/ 0700 to 0700 next day
Sample Drawn by	Mr. R.K Das
Sampling Location	Canteen
Average Flow Rate of SPM (m³/min)/ Gases(lpm)	1.1/1.0
Weather Conditions	Clear
Reference No.	CEMC-02032020A3
To advance and Tile of	Respirable Dust Sampler, Fine Dust Sampler,
Instrument Used	Gaseous Attachment

ANALYSIS RESULT

					THINING	DID KEDUI	4 II					
Dte	PM <sub>10</sub> (μg/m <sup>3</sup> )	PM <sub>2.5</sub> (μg/m <sup>3</sup> )	SO <sub>2</sub> (μg/m <sup>3</sup> )	NOx (μg/m³)	CO (mg/m <sup>3</sup> )	NH <sub>3</sub> (μg/m <sup>3</sup> )	Ο <sub>3</sub> (μg/m <sup>3</sup> )	Pb (μg/m³)	Ni (ng/m³)	As (ng/m³)	Benzene (µg/m³)	BaP (ng/m³)
03.02.2020	58.3	32.7	9.4	13.2	0.4							metall
06.02.2020	60.5	33.4	9.8	13.6	0.5	_						
10.02.2020	59.6	33.1	9.6	13.3	0.5		WIE.					
13.02.2020	57.4	32.0	9.2	13.1	0.4	<20	<10	< 0.1	< 0.6	<0.44	<5	<1
17.02.2020	60.8	33.5	9.7	13.5	0.5							
20.02.2020	61.7	33.8	9.9	13.8	0.5	-			~=	रूप उच्च		
24.02.2020	59.2	32.9	9.5	13.4	0.4							Market .
27.02.2020	61.1	33.6	9.8	13.7	0.5			mer des				
Avg												
NAAQ* Standard	100	60	80	80	4	400	100	1.0	20	6	5	1
Methods of Analysis	IS: 5182 (Part- 23)	Gravimetric Method as per CPCB method	IS: 5182 (Part- 2)	IS: 5182 (Part- 6)	IS: 5182 (Part- 10)	Indophenol Blue Method followed by CPCB	IS: 5182 (Part- 9)	IS: 5182 (Part- 22)	followed	As per CPCB method followed by AAS	IS: 5182 (Part- 11)	IS: 5182 (Part- 12)

N.B- \*NAAQ- National Ambient Air Quality Standard as per 18th Nov, 2009 (Mill Metalication

\*END OF REPORT\*

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Report no.-CEMC/TSL/020320/A4

Issued Date-02.03.2020

#### AMBIENT AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd, (Ferro Alloys Plant), Gopalpur
Sample Description	Ambient Air Quality
Sample Drawn Period/ Time	Monthly/ 0800 to 0800 next day
Sample Drawn by	Mr. R.K Das
Sampling Location	ETP Building
Average Flow Rate of SPM (m³/min)/ Gases(lpm)	1.1/1.0
Weather Conditions	Clear
Reference No.	CEMC-02032020A4
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

ANALYSIS RESULT

					ANALY	212 KE201	<u> </u>					
Date	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NOx	CO	NH <sub>3</sub>	$O_3$	Pb	Ni	As	Benzene	
Date	$(\mu g/m^3)$	$(\mu g/m^3)$	(µg/m³)	(µg/m³)	$(mg/m^3)$	(μg/m³)	$(\mu g/m^3)$	$(\mu g/m^3)$	(ng/m³)	(ng/m <sup>3</sup> )	$(\mu g/m^3)$	(ng/m <sup>3</sup> )
03.02.2020	61.4	34.7	9.8	13.7	0,5					-		
06.02.2020	60.5	33.6	9.5	13.4	0.5					Mar ablic.		
10,02,2020	58.8	32,9	9.1	13.0	0.4					AD-1940		
13,02,2020	61,1	34.2	9,7	13.6	0.5	<20	<10	< 0.1	< 0.6	< 0.44	<5	<1
17.02.2020	59.6	33.5	9.3	13.2	0.5		-		10-11			
20.02.2020	60.9	33.8	9.6	13.5	0.5	Mile Nation			-			
24,02,2020	58.3	32.6	9.1	13.1	0.4					Printer.		
27.02.2020	61.7	34.4	9.9	13.8	0.5	per see						
Avg												
NAAQ*	100	60	80	80	4	400	100	1.0	20	6	5	1
Standard	100	00	ου	ου	4	400	100	1.0	20	O	5	1
Methods of Analysis	IS: 5182 (Part- 23)	Gravimetric Method as per CPCB method	IS: 5182 (Part- 2)	IS: 5182 (Part- 6)	IS: 5182 (Part- 10)	Indophenol Blue Method followed by CPCB	IS: 5182 (Part- 9)	773	As per CPCB method followed by AAS	followed	í .	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/020320/F1

Issued Date-02.03.2020

## FUGITIVE AIR QUALITY MONITORING TEST REPORT

Issued to	M/s TATA Steel I td (Farms All D)
Sample Description	M/s. TATA Steel Ltd, (Ferro Alloys Plant), Gopalpur Fugitive Air Quality
Sample Drawn Period	Monthly Once
Sample Drawn by	Mr. R.K Das
Sampling Location	RMHS
Instrument Used	Respirable Dust Sample
Date of Sampling	28.02,2020
Date of Receiving	29.02.2020
Date of Testing	29.02.2020 to 02.03.2020
Reference No.	CEMC-02032020F1

### ANALYSIS RESULT

Sl. No.	Locations	Suspended Particulate Matter
1	RMHS (Raw Material Handling Site)	(SPM)
Standare	d as per Environment (protection)	993.8
(3" ame	endment) Rules-2012 by MoEF	2000
Unit		µg/m³
Testing [	Method	Gravimetric

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Report no.-CEMC/TSL/020320/F2

Issued Date-02.03.2020

### FUGITIVE AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd, (Ferro Alloys Plant), Gopalpur
Sample Description	Fugitive Air Quality
Sample Drawn Period	Monthly Once
Sample Drawn by	Mr. R.K Das
Sampling Location	FPHS
Instrument Used	Respirable Dust Sample
Date of Sampling	28.02.2020
Date of Receiving	29.02.2020
Date of Testing	29.02.2020 to 02.03,2020
Reference No.	CEMC-02032020F2

#### **ANALYSIS RESULT**

Sl. No.	Locations	Suspended Particulate Matter (SPM)
1	FPHS (Fine Product Handling Site)	732.4
	d as per Environment (protection) endment) Rules-2012 by MoEF	2000
Unit		μg/m³
Testing .	Method	Gravimetric

\*END OF REPORT\*

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Report no.-CEMC/TSL/020320/F3

Issued Date-02.03.2020

### FUGITIVE AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd, (Ferro Alloys Plant), Gopalpur
Sample Description	Fugitive Air Quality
Sample Drawn Period	Monthly Once
Sample Drawn by	Mr. R.K Das
Sampling Location	I-Bin Building
Instrument Used	Respirable Dust Sample
Date of Sampling	28.02.2020
Date of Receiving	29.02.2020
Date of Testing	29.02.2020 to 02.03.2020
Reference No.	CEMC-02032020F3

### **ANALYSIS RESULT**

Sl. No.	Locations	Suspended Particulate Matter (SPM)
1	I-Bin Building	541.6
(3 <sup>rd</sup> ame	d as per Environment (protection) endment) Rules-2012 by MoEF	2000
Unit		μg/m³
Testing 1	Method	Gravimetric

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Report no.-CEMC/TSL/020420/A1

Issued Date-02.04.2020

## AMBIENT AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd, (Ferro Alloys Plant), Gopalpur
Sample Description	Ambient Air Quality
Sample Drawn Period/ Time	Monthly/ 0900 to 0900 next day
Sample Drawn by	Mr. R.K Das
Sampling Location	LBSS Building
Average Flow Rate of SPM (m³/min)/ Gases (lpm)	1.1/1.0
Weather Conditions	Clear
Reference No.	CEMC-02042020A1
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

ANALYSIS RESULT

	ANALYSIS RESULT											
Date	PM <sub>10</sub> (μg/m <sup>3</sup> )		SO <sub>2</sub> (μg/m <sup>3</sup> )	NOx (ug/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )	NH <sub>3</sub> (μg/m <sup>3</sup> )	O <sub>3</sub>	Pb (μg/m³	Ni (ng/m³)	As (ng/m³)	Benzene	
02.03.2020	60.3	34.6	9,8	13.8	0.4		mg/III	(Leg/III	/ (ng/m )		(μg/m <sup>3</sup> )	(ng/m
05.03.2020	59.1	33.9	9.6	13.5	0.4						-	
09.03.2020	58.5	33.1	9.5	13.3	0.4							
12.03.2020	61.2	34.8	10.0	13.9	0.5	<20	<10	<0.1	<0.6	<0.44	<5	<1
16.03.2020	58.7	33.5	9.7	13.4	0.4						7	
19.03.2020	60.4	34.3	9.6	13.6	0.4			-				
Avg										-		
NAAQ*	100	60		00								
Standard	100	60	80	80	4	400	100	1.0	20	6	5	1
Methods of Analysis	IS: 5182 (Part- 23)	Gravimetric Method as per CPCB method	IS: 5182 (Part- 2)	IS: 5182 (Part- 6)	IS: 5182 (Part- 10)	Indophenol Blue Method followed by CPCB	IS: 5182 (Part- 9)	1.7.	followed	As per CPCB method followed by AAS	IS: 5182 (Part- 11)	IS: 5182 (Part- 12)

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

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Report no.-CEMC/TSL/020420/A2

Issued Date-02.04.2020

## AMBIENT AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd, (Ferro Alloys Plant), Gopalpur
Sample Description	Ambient Air Quality
Sample Drawn Period/ Time	Monthly/ 0600 to 0600 next day
Sample Drawn by	Mr. R.K Das
Sampling Location	MRSS Building
Average Flow Rate of SPM (m³/min)/ Gases(lpm)	1.1/1.0
Weather Conditions	Clear
Reference No.	CEMC-02042020A2
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

**ANALYSIS RESULT** 

					ANALI	212 KF201	<i></i> 1					
Date	PM <sub>10</sub> (μg/m <sup>3</sup> )	PM <sub>2.5</sub> (μg/m <sup>3</sup> )	$SO_2$ $(\mu g/m^3)$	NOx (μg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )	NH <sub>3</sub> (μg/m <sup>3</sup> )	Ο <sub>3</sub> (μg/m <sup>3</sup> )	Pb (μg/m <sup>3</sup> )	Ni (ng/m³)	As (ng/m³)	Benzene (µg/m³)	
02.03.2020		32.8	9.3	13.1	0.4							
05.03.2020	59.9	33.5	9.6	13.4	0.5							
09.03.2020	58.4	32.6	9.1	12.9	0.4				100.00			
12.03.2020	60.2	33.7	9.8	13.2	0.4	<20	<10	< 0.1	<0.6	< 0.44	<5	<1
16.03.2020	58.6	32.9	9.4	13.1	0.4							
19.03.2020	60.3	33.5	9.7	13.8	0.4							
Avg												
NAAQ* Standard	100	60	80	80	4	400	100	1.0	20	6	5	1
Methods of Analysis	IS: 5182 (Part- 23)	Gravimetric Method as per CPCB method	IS: 5182 (Part- 2)	IS: 5182 (Part- 6)	IS: 5182 (Part- 10)	Indophenol Blue Method followed by CPCB	IS: 5182 (Part- 9)	771	followed	As per CPCB method followed by AAS	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/020420/A3

Issued Date-02.04,2020

## AMBIENT AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd, (Ferro Alloys Plant), Gopalpur
Sample Description	Ambient Air Quality
Sample Drawn Period/ Time	Monthly/ 0700 to 0700 next day
Sample Drawn by	Mr. R.K Das
Sampling Location	Canteen
Average Flow Rate of SPM (m³/min)/ Gases(lpm)	1.1/1.0
Weather Conditions	Clear
Reference No.	CEMC-02042020A3
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

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ANALYSIS RESULT												
Dte	PM <sub>10</sub> (μg/m <sup>3</sup> )	PM <sub>2.5</sub>	SO <sub>2</sub>	NOx	CO	NH <sub>3</sub>	O <sub>3</sub>	Pb	Ni	As	Benzene	
02.02.2020			(μg/m <sup>3</sup> )		(mg/m <sup>3</sup> )	$(\mu g/m^3)$	(µg/m <sup>*</sup> )	(μg/m <sup>3</sup>	$(ng/m^3)$	$(ng/m^3)$	$(\mu g/m^3)$	(ng/m <sup>3</sup> )
02.03.2020		32.9	9.5	13.1	0.4							
05.03.2020		33.6	9.7	13.4	0.4							
09.03.2020		34.2	9.9	13.6	0.5		gra Ma					
12.03.2020		33.4	9.6	13.2	0.4	<20	<10	< 0.1	< 0.6	< 0.44	<5	<1
16.03.2020		34.5	9.9	13.7	0.5							
19.03.2020	59.5	33.6	9.7	13.5	0.4							
Avg												
NAAQ*	100	60	0.0	00	4	400						
Standard	100	60	80	80	4	400	100	1.0	20	6	5	1
Methods of Analysis	IS: 5182 (Part- 23)	Gravimetric Method as per CPCB method	IS: 5182 (Part- 2)	IS: 5182 (Part- 6)	IS: 5182 (Part- 10)	Indophenol Blue Method followed by CPCB	5182 (Part-	IS: 5182 (Part- 22)		method followed	IS: 5182 (Part- 11)	IS: 5182 (Part- 12)

.B- \*NAAQ- National Ambient Air Quality Standard as per 18th Nov, 2009 Gett. North Callon.

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Report no.-CEMC/TSL/020420/A4

Issued Date-02.04,2020

### AMBIENT AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd, (Ferro Alloys Plant), Gopalpur
Sample Description	Ambient Air Quality
Sample Drawn Period/ Time	Monthly/ 0800 to 0800 next day
Sample Drawn by	Mr. R.K Das
Sampling Location	ETP Building
Average Flow Rate of SPM (m³/min)/ Gases(lpm)	1.1/1.0
Weather Conditions	Clear
Reference No.	CEMC-02042020A4
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

ANALYSIS RESULT

					ANALI	212 KF201						
Date	PM <sub>10</sub> (μg/m <sup>3</sup> )	PM <sub>2.5</sub> (μg/m <sup>3</sup> )	$SO_2$ $(\mu g/m^3)$	NOx (μg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )	NH <sub>3</sub> (μg/m <sup>3</sup> )	$O_3$ $(\mu g/m^3)$	Pb (μg/m <sup>3</sup> )	Ni (ng/m³)	As (ng/m³)	Benzene (µg/m³)	
02.03.2020		33.4	9.6	13.5	0.4							
05.03.2020	58.3	33.1	9.3	13.2	0.4							MI III
09.03.2020	60.7	34.6	9.9	13.8	0.5							
12.03.2020	58.5	33.4	9.4	13.3	0.4	<20	<10	< 0.1	<0.6	< 0.44	<5	<1
16.03.2020	57.8	32.9	9.1	12.9	0.4							
19.03.2020	59.4	33.7	9.8	13.6	0.4					W- 84		
Avg												
NAAQ* Standard	100	60	80	80	4	400	100	1.0	20	6	5	1
Methods of Analysis	IS: 5182 (Part- 23)	Gravimetric Method as per CPCB method	IS: 5182 (Part- 2)	IS: 5182 (Part- 6)	IS: 5182 (Part- 10)	Indophenol Blue Method followed by CPCB	IS: 5182 (Part- 9)	IS: 5182 (Part- 22)	followed	As per CPCB method followed by AAS	(Part-11)	IS: 5182 (Part- 12)

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

\*END OF REPORT\*

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Notes:

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Report no.-CEMC/TSL/020420/F1

Issued Date-02.04.2020

### FUGITIVE AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd, (Ferro Alloys Plant), Gopalpur
Sample Description	Fugitive Air Quality
Sample Drawn Period	Monthly Once
Sample Drawn by	Mr. R.K Das
Sampling Location	RMHS
Instrument Used	Respirable Dust Sample
Date of Sampling	06.03.2020
Date of Receiving	07.03.2020
Date of Testing	07.03.2020 to 16.03.2020
Reference No.	CEMC-02042020F1

#### **ANALYSIS RESULT**

Sl. No.	Locations	Suspended Particulate Matter (SPM)
1 RMHS (Raw Material Handling Site)		876.4
	d as per Environment (protection) endment) Rules-2012 by MoEF	2000
Unit		μg/m³
Testing .	Method	Gravimetric

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Report no.-CEMC/TSL/020420/F2

Issued Date-02.04.2020

### FUGITIVE AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd, (Ferro Alloys Plant), Gopalpur
Sample Description	Fugitive Air Quality
Sample Drawn Period	Monthly Once
Sample Drawn by	Mr. R.K Das
Sampling Location	FPHS
Instrument Used	Respirable Dust Sample
Date of Sampling	06.03.2020
Date of Receiving	07.03.2020
Date of Testing	07.03.2020 to 16.03.2020
Reference No.	CEMC-02042020F2

#### **ANALYSIS RESULT**

Sl. No.	Locations	Suspended Particulate Matter (SPM)
1 FPHS (Fine Product Handling Site)		574.6
	l as per Environment (protection) endment) Rules-2012 by MoEF	2000
Unit		μg/m³
Testing Method		Gravimetric

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Report no.-CEMC/TSL/020420/F3

Issued Date-02.04.2020

#### FUGITIVE AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd, (Ferro Alloys Plant), Gopalpur
Sample Description	Fugitive Air Quality
Sample Drawn Period	Monthly Once
Sample Drawn by	Mr. R.K Das
Sampling Location	I-Bin Building
Instrument Used	Respirable Dust Sample
Date of Sampling	06.03.2020
Date of Receiving	07.03.2020
Date of Testing	07.03.2020 to 16.03.2020
Reference No.	CEMC-02042020F3

### **ANALYSIS RESULT**

Sl. No. Locations		Suspended Particulate Matter (SPM)
1 I-Bin Building		523.2
	d as per Environment (protection) endment) Rules-2012 by MoEF	2000
Unit		μg/m³
Testing Method		Gravimetric

\*END OF REPORT\*



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### Report no.-CEMC/TSL/021119/N

ANNEXURE -4 Issued Date-02.11.2019

## NOISE LEVEL MONITORING REPORT

Issued to	M/s. TATA Steel Ltd, (Ferro Alloys Plant), Gopalpur
Sample Description	Ambient Noise Quality
Sample Drawn Period/ Time	Monthly/ 0700 to 0700 next day
Sample Drawn by	Mr. R.K Das
Weather Conditions	Clear
Monitoring Period	01.10.2019 to 31.10.2019
Reference No.	CEMC-02112019N
Instrument Used	Noise Meter

Date	Location	NL D	NL Day Time dB (A)			NL Night Time dB (A)		
		Max	Min.	Avg.	Max.	Min,	Avg.	
05.10.2019	LBSS Building	71.8	69.4	70.6	69.2	62.6	65.9	
03.10.2019	MRSS Building	70.6	66.2	68.4	67.3	61.9	64.6	
04.10.2019	Canteen	53.7	51.5	52.6	43.6	40.2	41.9	
09.10.2019	ETP Building	71.4	65.8	68,6	67.9	63,5	65.7	

## NATIONAL STANDARD OF NOISE LEVEL

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

Notes:

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## Report no.-CEMC/TSL/021219/N

Issued Date-02.12.2019

## NOISE LEVEL MONITORING REPORT

Issued to	M/s. TATA Steel Ltd, (Ferro Alloys Plant), Gopalpur
Sample Description	Ambient Noise Quality
Sample Drawn Period/ Time	Monthly/ 0700 to 0700 next day
Sample Drawn by	Mr. R.K Das
Weather Conditions	Clear
Monitoring Period	01.11.2019 to 30.11.2019
Reference No.	CEMC-02122019N
Instrument Used	Noise Meter

Date	Location	NL D	NL Day Time dB (A)				dB (A)
		Max	Min.	Avg.	Max.	Min.	Avg.
05.11.2019	LBSS Building	72.1	68.7	70.4	68.8	63.2	66.0
04.11.2019	MRSS Building	71.4	66.8	69.1	67.9	62.3	65.1
06.11.2019	Canteen	54.7	52.1	53.4	44.3	40.9	
07.11.2019	ETP Building	71.8	66.2	69.0	68.7	63.1	42.6 65.9

## NATIONAL STANDARD OF NOISE LEVEL

Area	Category of Area/Zone	Permissible I	Limit in dB (A)
couc		Day Time	Night Time
A Industr	ial Area	75	70
B Comme	cial Area	65	55
C Residen	tial Area	55	15
D Silence	Zone	50	43

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Notes:

The result given above related to the tested sample, as received. The customer asked for the above test only.

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### Report no.-CEMC/TSL/020120/N

Issued Date-02.01.2020

## NOISE LEVEL MONITORING REPORT

Issued to	M/s. TATA Steel Ltd, (Ferro Alloys Plant), Gopalpur
Sample Description	Ambient Noise Quality
Sample Drawn Period/ Time	Monthly/ 0700 to 0700 next day
Sample Drawn by	Mr. R.K Das
Weather Conditions	Clear
Monitoring Period	01.12.2019 to 31.12.2019
Reference No.	CEMC-02012020N
Instrument Used	Noise Meter

Date	Location	NL D	NL Day Time dB (A) NL Night Time				
		Max	Min.	Avg.	Max.	Min.	Avg.
05.12.2019	LBSS Building	73.2	67.8	70.5	68.3	64.1	66.2
03.12,2019	MRSS Building	70.9	65.7	68.3	67.4	61.8	64.6
04.12.2019	Canteen	54.2	51.6	52.9	43.9	41.5	42.7
06.12.2019	ETP Building	72.5	67.3	69.9	69.4	62.6	66.0

## NATIONAL STANDARD OF NOISE LEVEL

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

Notes:

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### Report no.-CEMC/TSL/030220/N

Issued Date-03.02,2020

## NOISE LEVEL MONITORING REPORT

Issued to	M/s. TATA Steel Ltd, (Ferro Alloys Plant), Gopalpur
Sample Description	Ambient Noise Quality
Sample Drawn Period/ Time	Monthly/ 0700 to 0700 next day
Sample Drawn by	Mr. R.K Das
Weather Conditions	Clear
Monitoring Period	01.01.2020 to 31.01.2020
Reference No.	CEMC-03022020N
Instrument Used	Noise Meter

Date	Location	NL D	NL Day Time dB (A)				dB (A)
		Max	Min.	Avg.	Max.	Avg.	
17.01.2020	LBSS Building	72.9	68.3	70.6	69.2	Min. 63.6	66.4
18.01.2020	MRSS Building	71.4	67.6	69.5	67.9	62.3	65.1
20.01.2020	Canteen	64.8	61.4	63.1			
21.01.2020	ETP Building			<del></del>	53.7	50.5	52.1
	1 Danumg	70.8	66.6	68.7	67.9	63.3	65,6

## NATIONAL STANDARD OF NOISE LEVEL

Category of Area/Zone	Permissible Limit in dB (A)		
	Day Time	Night Time	
Industrial Area	75	70	
Commercial Area	65	55	
Residential Area	55	15	
Silence Zone	50	43	
	Residential Area	Industrial Area 75 Commercial Area 65 Residential Area 55	

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Notes:

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### Report no.-CEMC/TSL/020320/N

Issued Date-02.03.2020

received. The customer asked for the above

## NOISE LEVEL MONITORING REPORT

Issued to	M/s. TATA Steel Ltd, (Ferro Alloys Plant), Gop	aları
Sample Description	Ambient Noise Quality	
Sample Drawn Period/ Time	Monthly/ 0700 to 0700 next day	
Sample Drawn by	Mr. R.K Das	
Weather Conditions	Clear	
Monitoring Period	01.02.2020 to 29.02.2020	
Reference No.	CEMC-02032020N	
Instrument Used	Noise Meter	

Date	Location	NL Day Time dB (A) NL Night Time					dB (A)
		Max	Min.	Avg.	Max.	Avg.	
06.02.2020	LBSS Building	69.4	66.2	67.8	67.3	Min. 62.1	64.7
05.02.2020	MRSS Building	69.1	65.7	67.4	66.7	61.9	64.3
07.02,2020	Canteen	65.3	62.1	63.7	56.2		
08.02.2020	ETP Building	68.8	65.4	67.1		51.4	53.8
			05.4	0/.1	68.4	62.8	65,6

## NATIONAL STANDARD OF NOISE LEVEL

Area	Code Category of Area/Zone	Permissible I	Limit in dB (A)
Code		Day Time	Night Time
A	Industrial Area	75	70
В	Commercial Area	65	55
C	Residential Area	55	15
D	Silence Zone	50	43

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Report no.-CEMC/TSL/020420/N

Issued Date-02.04.2020

## NOISE LEVEL MONITORING REPORT

Issued to	M/s TATA Stool I tol (Forms All D)
Sample Description	M/s. TATA Steel Ltd, (Ferro Alloys Plant), Gopalpur Ambient Noise Quality
Sample Drawn Period/ Time	Tunislem 1401se Quanty
Sample Drawn by	Monthly/ 0700 to 0700 next day
Weather Conditions	Mr. R.K Das
	Clear
Monitoring Period	01.03.2020 to 31.03,2020
Reference No.	CEMC-02042020N
Instrument Used	Noise Meter

Date	Location		NL Day Time dB (A)			NL Night Time dB (A)		
11.03.2020	LBSS Building	Max	Min.	Avg.	Max.	Min.	Avg.	
10.03.2020	MRSS Building	68.2	64.6	66.4	66.1	61.3	63.7	
	Canteen	68.7	64.3	66.5	67.2	60.8	64.0	
13.03.2020	ETP Building	67.9	61.7	64.8	59.0	51.6	55,3	
10.00.2020	TIT DURING	68.4	63.2	65.8	67.7	62.1	64.9	

## NATIONAL STANDARD OF NOISE LEVEL

Area Code	Category of Area/Zone	Permissible Limit in dB (A)		
Coue		Day Time	Night Time	
A	Industrial Area	75	70	
В	Commercial Area	75	/0	
С	Residential Area	65	55	
D	Silence Zone	55	45	
	Shence Zone	50	40	

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