

FAMD/FAPG/ENV/25/FY21

Date: 20/11/2020

То

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 (April 2020 to September 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 April 2020 to September 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 14th August 2012 and amended EC dated 08th August 2014 & letter No. 11-63/2012-IA.III dated 18th 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.

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

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

B Srinivas.

Factory Manager Ferro Chrome Plant, Gopalpur Tata Steel Limited

Encl. a/a

Copy to:

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

Project Gopalpur Gajapati Nagar Main lane Berhampur 760010 Dist. Ganjam odisha India Tel +91 680 2290212 2290046



HALF YEARLY COMPLIANCE REPORT

(Period from April 2020 to September 2020)

For

55,000 TPA High Carbon Ferro-Chrome Plant,

Of

M/s Tata Steel Limited

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

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 ³	 Installation of Continuous monitoring of SPM for process stack is in progress. Fume Extraction System with bag filters and ID fan has been installed to control emission. Adequate stack height is maintained in submerged arc furnace. Dust extraction system also installed.
4	The National Ambient Air Quality Standards issued by the Ministry vide G.S.R. No. 826(E) dated 16 th November 2009 shall be followed.	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.	 Surface water quality monitoring is being carried out regularly around the project site by third party registered and NABL accredited labs. Upstream and downstream surface water is being carried out every month. Ground & Surface Water monitoring results is attached in Annexure-1.

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 development over a period of 5 years and has been taken up in phase wise manner. We are pending with around 1000 saplings only 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.	 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. Rupees 582.16 lacs have been spent towards the above-mentioned activities in April to September 2020-21. (Refer Annexure-2)
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.

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 PM ₁₀ , SO ₂ 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_{10} , SO_2 and NOX etc. are as per the anticipation of SPCB. The Air Quality, Fugitive emission and Stack monitoring result is attached in Annexure-3 .
5	Industrial wastewater shall be properly collected, treated so as to conform to the standards prescribed under GSR 422(E) dated 19 th May, 1993 and 31 st 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 Annexure-4 .

7	Occupational health surveillance of	Health Records of the workers are being
	the workers shall be done on a regular basis and records maintained as per the Factories Act.	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 ground water table. The project proponent shall also comply with all the environmental protection measures and safeguards recommended in the EIA/EMP report.	• Environmental Protection measures as indicated in the EIA and EMP report has been implemented.
	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.	 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.
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. 26,18,364/-
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.	 Environment Clearance copy has been submitted to the concerned Govt. /Private Bodies in Aug 2012. Environment Clearance letter has been uploaded on the Tata Steel website, <u>www.tatasteel.com</u>

12	The project proponent shall upload	• Last six-monthly compliance reports have
	the status of compliance of the stipulated environmental clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent the Regional Office of the MoEF at Bhubaneswar. The respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels namely; PM_{10} , SO_2 , NO_X (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.	 been uploaded to the company's website <u>www.tatasteel.com</u>. Electronic multi-line display board was installed on 5th June 2014 which was displaying the results of the monitored data i.e. ambient air quality, noise level, and water quality at the main entrance of. However, it is malfunctioned. Replacement process is in progress. However, the criteria pollutant levels namely; PM₁₀, SO₂, NO_x or critical sectoral parameters, indicated for the projects are monitored and displayed at main gate of the company manually. The compliance reports are being sent to the Regional Office, MoEF and the respective zonal office of CPCB and SPCB.
13	The project proponent shall also submit six monthly reports on the	Last Six-Monthly Compliance report for the period October'2019 to March'2020 was
	status of the compliance of the stipulated environmental conditions	submitted to MoEF/OSPCB Regional Office
	including results of monitored data (both in hard copies as well as by e- mail) to the Regional Office of MoEF, the respective Zonal Office of CPCB and the SPCB. The Regional Office of this Ministry at Bhubaneswar/ CPCB/ SPCB shall monitor the stipulated conditions.	both in hard as well as soft copy in June 2020.
14	The environmental statement for each financial year ending 31st March	The environmental statement has been
	in Form-V as is mandated to be submitted by the project proponent	submitted every year and the same has been uploaded on company's website
	to the concerned Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of	www.tatasteel.com.
	compliance of environmental conditions and shall also be sent to	
	the respective Regional Office of the MoEF at Bhubaneswar by e-mail.	

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15	The Project Proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the SPCB and may also be seen at Website of the Ministry of Environment and Forests at http:/envfor.nic.in. This shall be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same should be forwarded to the Regional Office at Bhubaneswar.	 Complied. Paper advertisement details are as follows; a. Odia: SAMBAD, Page No. 9 b. English: The New Indian Express, Page no. 5 Advertisement details have been submitted to the MoEF Eastern Regional Office at Bhubaneswar on 19.08.12 and were also attached with the 1st Half Yearly Compliance Report.
16	Project authorities shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of commencing the land development work.	 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.

ANNEXURE-I

NTRE FOR ENVOTECH AND MANAGEMENT CONSULTANCY PVT. LTD.

An ISO 9001-2008 & OHSAS 18001:2007 Certified Company, Empanelled with OCCL, ORSAC and SPCB of Govt. of Odisha Accredited by NABET, QCI for EIA Studies as 'A' Category Consultant Organization. Empanelled with PCCF(Wildlife) & CWLW, Odisha Enlisted in Construction Industry Development Council (CIDC) established by the Planning Commission (Govt. of India) MoEF&CC, Govt. of India, Recognised Environment Laboratory under Environment (Protection) Act, 1986.

Report no.-CEMC/TSL/020620/W1 Issued Date-02.06.2020 SURFACE WATER QUALITY TEST REPORT Name & Address of the Client

Date of Sampling Sampling by **Date of Sample Received Sample Description Date of Analysis** Reference No.

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

- : 17.05.2020
- : R.K Das
- : 18.05.2020
- : Surface Water
- : 18.05.2020 to 29.05.2020
- : CEMC-02062020W1

ANALYSIS RESULT

SI. 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	8.23
3	Iron as Fe, Max.	mg/l	0.5	0.22
4	Chloride as Cl, Max.	mg/l	600	24.3
5	Dissolved Solids, Max.	mg/l	1500	193.5
6	Dissolved Oxygen, Min.	mg/l	4	7.4
7	BOD for 3 days@ 27 ⁰ 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 ₄ , Max.	mg/l	400	1.9
11	Nitrate as NO ₃ , Max.	mg/l	50	35.6
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 ₆ H ₅ 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/100m1	5000	17
23	Faecal Coliform	CouMPN 400ml		12

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

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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.

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.

Laboratory At: Plot No. 800/1274, Johal, Pahal, Bhubaneswar-752101.

NTRE FOR ENVOTECH AND GEMENT CONSULTANCY PVT. LTD.

An ISO 9001-2008 & OHSAS 18001:2007 Certified Company, Empanelled with OCCL, ORSAC and SPCB of Govt, of Odisha Accredited by NABET, QCI for EIA Studies as 'A' Category Consultant Organization. Empanelled with PCCF(Wildlife) &CWLW,Odisha Enlisted in Construction Industry Development Council (CIDC) established by the Planning Commission (Govt. of India) MoEF&CC, Govt. of India, Recognised Environment Laboratory under Environment (Protection) Act, 1988.

Report no.-CEMC/TSL/020620/W2 Issued Date-02.06.2020 SURFACE WATER QUALITY TEST REPORT Name & Address of the Client

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

Reference No.

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

- ; 17.05.2020
- : R.K Das

: 18.05.2020

- : Surface Water
- : 18.05.2020 to 29.05.2020
- : CEMC-02062020W2

ANALYSIS RESULT

SI. No.	Test Parameters	Unit	Max. Tolerance Limit as per IS 2296 : Class C	Khari Nala Up Stream
1	Colour, Max.	Hazen	300	5
2	pH Value @ 25°C		6.5 to 8.5	7.5
3	Iron as Fe, Max.	mg/l	50	0.15
4	Chloride as Cl, Max.	mg/l	600	26.9
5	Dissolved Solids, Max.	mg/l	1500	270.8
6	Dissolved Oxygen, Min.	mg/l	4	4.6
_ 7	BOD for 3 days@ 27 ⁰ C, Max.	mg/l	3	2.4
8	Oil & Grease, Max.	mg/l	0.1	ND
9	Copper as Cu, Max.	mg/l	1.5	< 0.03
10	Sulphate as SO ₄ , Max.	mg/l	400	9.2
11	Nitrate as NO ₃ , Max.	mg/l	50	13.8
12	Fluoride as F, Max.	mg/l	1.5	0.2
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 ₆ H ₅ 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.	A CONTRACT A	5000	300
23	Faecal Coliform D- Not Detectable, MPN-Most Probable Number	MPN/I00ml		21

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Notes:

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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.

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/020620/W3 Issued Date-02.06.2020 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.

- : 17.05.2020
- : R.K Das

: 18.05.2020

- : Surface Water
- : 18.05.2020 to 29.05.2020
- : CEMC-02062020W3

ANALYSIS RESULT

SI. No.	Test Parameters	Unit	Max. Tolerance Limit as per IS 2296 : Class C	Khari Nala Down Stream
1	Colour, Max.	Hazen	300	5
2	pH Value @ 25°C		6.5 to 8.5	7.7
3	Iron as Fe, Max.	mg/l	50	0.17
4	Chloride as Cl, Max.	mg/l	600	32.2
5	Dissolved Solids, Max.	mg/l	1500	275.6
6	Dissolved Oxygen, Min.	mg/l	4	4.2
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 ₄ , Max.	mg/l	400	11.4
11	Nitrate as NO ₃ , Max.	mg/l	50	16.4
12	Fluoride as F, Max.	mg/l	1.5	0.22
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 ₆ H ₅ 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/100m1	5000	350
23	Faecal Coliform	E-MIPN-400ml		21

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

Author Notes:

The results relate only to the sample tested.

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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/020720/W1

Issued Date-02.07.2020 SURFACE WATER QUALITY TEST REPORT

Name & Address of the Client

Date of Sampling Sampling by **Date of Sample Received Sample Description Date of Analysis Reference** No.

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

- Gopalpur
- : 09.06.2020
- : R.K Das
- : 10.06.2020
- : Surface Water
- : 10.06.2020 to 18.06.2020
- : CEMC-02072020W1

ANALYSIS RESULT

SI. 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	8.03
3	Iron as Fe, Max.	mg/l	0.5	0.24
4	Chloride as Cl, Max.	mg/l	600	21.6
5	Dissolved Solids, Max.	mg/l	1500	169.1
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 ₄ , Max.	mg/l	400	2.4
11	Nitrate as NO ₃ , Max.	mg/l	50	32.1
12	Fluoride as F, Max.	mg/l	1.5	0.07
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 ₆ H ₅ 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/100m1	5000	110
23	Faecal Coliform	Manadar Mooml		15

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

Signatory Author Notes:

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Report no.-CEMC/TSL/020720/W2 Issued Date-02.07.2020 SURFACE WATER QUALITY TEST REPORT

Name & Address of the Client **Date of Sampling** Sampling by **Date of Sample Received Sample Description Date of Analysis** Reference No.

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

- : 09.06.2020
- : R.K Das
- : 10.06.2020
- : Surface Water
- : 10.06.2020 to 18.06.2020
- : CEMC-02072020W2

ANALYSIS RESULT

2 pH V 3 Iron 4 Chlo 5 Diss 6 Diss 7 BOI 8 Oil & 9 Copp 10 Sulp 11 Nitra 12 Fluo 13 Anic 14 Cadh 15 Sele: 16 Arse 17 Cyar	bur, Max. Value @ 25°C as Fe, Max. boride as Cl, Max. bolved Solids, Max. bolved Oxygen, Min. D for 3 days@ 27°C, Max. & Grease, Max. per as Cu, Max. bhate as SO ₄ , Max.	Hazen mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	300 6.5 to 8.5 50 600 1500 4 3 0.1 1.5	12 7.64 0.15 19.2 230.6 5.6 2.6 ND <0.03
3 Iron 4 Chlo 5 Diss 6 Diss 7 BOI 8 Oil d 9 Cop 10 Sulp 11 Nitra 12 Fluo 13 Anic 14 Cadh 15 Sele: 16 Arse 17 Cyar	as Fe, Max. pride as Cl, Max. polved Solids, Max. polved Oxygen, Min. D for 3 days@ 27 ⁰ C, Max. & Grease, Max. per as Cu, Max. phate as SO ₄ , Max.	mg/l mg/l mg/l mg/l mg/l mg/l	50 600 1500 4 3 0.1 1.5	0.15 19.2 230.6 5.6 2.6 ND
 4 Chlc 5 Diss 6 Diss 7 BOI 8 Oil & 9 Copp 10 Sulp 11 Nitra 12 Fluo 13 Anic 14 Cadh 15 Sele 16 Arse 17 Cyar 	oride as Cl, Max. olved Solids, Max. olved Oxygen, Min. D for 3 days@ 27 ⁰ C, Max. & Grease, Max. per as Cu, Max. hate as SO ₄ , Max.	mg/l mg/l mg/l mg/l mg/l mg/l	600 1500 4 3 0.1 1.5	19.2 230.6 5.6 2.6 ND
5 Diss 6 Diss 7 BOI 8 Oil & 9 Cop 10 Sulp 11 Nitra 12 Fluo 13 Anic 14 Cadn 15 Sele: 16 Arse 17 Cyar	olved Solids, Max. olved Oxygen, Min. D for 3 days@ 27 ⁰ C, Max. & Grease, Max. per as Cu, Max. hate as SO ₄ , Max.	mg/l mg/l mg/l mg/l mg/l mg/l	1500 4 3 0.1 1.5	230.6 5.6 2.6 ND
6 Diss 7 BOI 8 Oil & 9 Copp 10 Sulp 11 Nitra 12 Fluo 13 Anic 14 Cadh 15 Sele 16 Arse 17 Cyar	olved Oxygen, Min. D for 3 days@ 27 ⁰ C, Max. & Grease, Max. per as Cu, Max. hate as SO ₄ , Max.	mg/l mg/l mg/l mg/l mg/l	4 3 0.1 1.5	5.6 2.6 ND
7 BOI 8 Oil & 9 Copp 10 Sulp 11 Nitra 12 Fluo 13 Anic 14 Cadh 15 Sele 16 Arse 17 Cyan	D for 3 days@ 27 ⁰ C, Max. & Grease, Max. per as Cu, Max. hate as SO ₄ , Max.	mg/l mg/l mg/l mg/l	3 0.1 1.5	5.6 2.6 ND
8 Oil d 9 Cop 10 Sulp 11 Nitra 12 Fluo 13 Anic 14 Cadh 15 Sele 16 Arse 17 Cyar	& Grease, Max. per as Cu, Max. hate as SO ₄ , Max.	mg/l mg/l mg/l	0.1 1.5	ND
9 Cop 10 Sulp 11 Nitra 12 Fluo 13 Anic 14 Cadh 15 Sele 16 Arse 17 Cyan	per as Cu, Max. hate as SO ₄ , Max.	mg/l mg/l	1.5	
10 Sulp 11 Nitra 12 Fluo 13 Anic 14 Cadn 15 Sele 16 Arse 17 Cyan	hate as SO ₄ , Max.	mg/1		< 0.03
11Nitra12Fluo13Anic14Cadh15Sele:16Arse17Cyar				
12 Fluo 13 Anic 14 Cadi 15 Sele: 16 Arse 17 Cyan	ALL NO M		400	4.2
13 Anic 14 Cadn 15 Sele 16 Arse 17 Cyan	ate as NO_3 , Max.	mg/l	50	6.2
14 Cadn 15 Seler 16 Arse 17 Cyan	ride as F, Max.	mg/l	1.5	0.09
15 Sele 16 Arse 17 Cyar	onic detergent	mg/l	1	ND
16Arse17Cyar	mium as Cd, Max.	mg/l	0.01	< 0.003
17 Cyar	nium as Se, Max.	mg/l	0.05	< 0.001
	nic as As, Max.	mg/l	0.2	< 0.001
18 Phen	nide as CN, Max.	mg/l	0.05	ND
10 I HOL	nolic compound as C ₆ H ₅ OH, Max.	mg/l	0.005	ND
19 Lead	l as Pb, Max.	mg/l	0.1	< 0.01
	as Zn, Max.	mg/l	15	< 0.05
	avalent Chromium as Cr ⁺⁶ Max.	mg/l	0.05	< 0.05
22 Tota		MPN/100m1	5000	210
23 Faec	l Coliform, Max.	TALL LALLOVILLE		22

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Notes:

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Report no.-CEMC/TSL/020720/W3

Issued Date-02.07.2020

SURFACE WATER QUALITY TEST REPORT

Date of Sampling Sampling by **Date of Sample Received Sample Description Date of Analysis Reference** No.

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

- : 09.06.2020
- : R.K Das
- : 10.06.2020
- : Surface Water
- : 10.06.2020 to 18.06.2020
- : CEMC-02072020W3

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	10
2	pH Value @ 25°C		6.5 to 8.5	7.69
3	Iron as Fe, Max.	mg/l	50	0.15
4	Chloride as Cl, Max.	mg/l	600	19.6
5	Dissolved Solids, Max.	mg/l	1500	235.4
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 ₄ , Max.	mg/l	400	4.3
11	Nitrate as NO ₃ , Max.	mg/l	50	6.7
12	Fluoride as F, Max.	mg/l	1.5	0.09
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 ₆ H ₅ 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	210
23	Faecal Coliform	hanald Allooml		26

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

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Notes: 3

The results relate only to the sample tested.

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Report no. - CEMC/TSL/120620/W1

Issued Date-12.06.2020

Name & Address of the Client	: M/s. Tata Steel Ltd, (Ferro Chrome Plant)
	Gopalpur.
Date of Sampling	: 06.06.2020
Sampling by	: R.K Das
Date of Sample Received	; 08.06.2020
Sample Description	: Drinking Water
Sample Location	: Drinking Water Tank (WTP)
Date of Analysis	: 08.06.2020 to 12.06.2020
Reference No.	: CEMC-12062020W1
	ANALYSIS RESULT

SI. No	Parameter	Unit of measurement	Standard as per IS: 10500, 2012		Result
			Acceptable Limit	Permissible Limit	
1	Colour	Hazen	5	15	<5
2	Odour	-	AL	AL	AL
3	Taste		AL	AL	AL
4	Turbidity	NTU	1	5 ి	1
5	pH Value @ 25°C		6.5-8.5	No Relaxation	8.09
6	Total Hardness (as CaCO ₃)	mg/l	200	600	102
7	Iron (as Fe)	mg/l	0,3	No Relaxation	0.12
8	Chloride (as Cl)	mg/l	250	1000	14.3
9	Residual, free Chlorine	mg/l	0.2	1.0	ND
0	Total Dissolved Solids	mg/l	500	2000	188.9
11	Calcium (as Ca)	mg/l	75	200	21.64
12	Magnesium (as Mg)	mg/l	30	100	11.66
13	Copper (as Cu)	mg/l	0.05	1.5	< 0.03
4	Manganese (as Mn)	mg/l	0.1	0.3	<0.05
5	Sulphate (as SO ₄)	mg/l	200	400	7.9
16	Nitrate (as NO ₃)	mg/l	45	No Relaxation	3.39
7	Fhuoride (as F)	mg/l	1_0	1.5	0.07
18	Phenolic Compounds (as C ₆ H ₅ 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/t	0.5	No Relaxation	< 0.05
28	Total Alkalinity (as CaCO ₃)	mg/l	200	600	154
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	Absen
32	Faecal Coliform	MPN/100 ml	Absent in 100 mL Sample	Absent	Absen

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



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Report no.-CEMC/TSL/030820/W1 Issued Date-03.08.2020 SURFACE WATER QUALITY TEST REPORT Name & Address of the Client : M/s. TATA Steel Ltd, (Ferro Alloys Plant),

Date of Sampling Sampling by **Date of Sample Received Sample Description Date of Analysis Reference No.**

Gopalpur

- : 22.07.2020
- : R.K Das
- : 23.07.2020
- : Surface Water
- : 23.07.2020 to 31.07.2020
- : CEMC-03082020W1

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	8.18
3	Iron as Fe, Max.	mg/l	0.5	0.25
4	Chloride as Cl, Max.	mg/l	600	23.9
5	Dissolved Solids, Max.	mg/l	1500	178.2
6	Dissolved Oxygen, Min.	mg/l	4	6.8
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 ₄ , Max.	mg/l	400	2.8
11	Nitrate as NO ₃ , Max.	mg/l	50	36.2
12	Fluoride as F, Max.	mg/l	1.5	0.07
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 ₆ H ₅ 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/100m1	5000	150
23	Faecal Coliform D-Not Detectable MPN-Most Probable Number	MPN/100ml		17

etectable, MPN-Most Probable Number

Authorized Signatory

Notes:

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Report no.-CEMC/TSL/030820/W2

Issued Date-03.08.2020

SURFACE WATER QUALITY TEST REPORT Name & Address of the Client

Date of Sampling Sampling by **Date of Sample Received Sample Description Date of Analysis Reference** No.

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

- Gopalpur : 22.07.2020
- : R.K Das
- : 23.07.2020
- : Surface Water
- : 23.07.2020 to 31.07.2020
- : CEMC-03082020W2

ANALYSIS RESULT

SI. No.	Test Parameters	Unit	Max. Tolerance Limit as per IS 2296 : Class C	Khori Nala Up Stream
1	Colour, Max.	Hazen	300	15
2	pH Value @ 25°C		6.5 to 8.5	7.71
3	Iron as Fe, Max.	mg/l	50	0.17
4	Chloride as Cl, Max.	mg/l	600	21.9
5	Dissolved Solids, Max.	mg/l	1500	242.4
6	Dissolved Oxygen, Min.	mg/l	4	5.7
7	BOD for 3 days@ 27 [°] C, Max.	mg/l	3	2.4
8	Oil & Grease, Max.	mg/l	0.1	ND
9	Copper as Cu, Max.	mg/l	1.5	< 0.03
10	Sulphate as SO ₄ , Max.	mg/l	400	5.1
11	Nitrate as NO ₃ , Max.	mg/l	50	7.4
12	Fluoride as F, Max.	mg/l	1.5	0.09
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 ₆ H ₅ 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	240
23	Faecal Coliform	anagemente		26
NB: N	D- Not Detectable, MPN-Most Probable Number	enieni		

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Notes:

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Report noCEMC/TSL/030820/W3	Issued Date-03.08.2020
SURFACE WATER QU	ALITY TEST REPORT
Name & Address of the Client	: M/s. TATA Steel Ltd, (Ferro Alloys Plant),
	Gopalpur
Date of Sampling	: 22.07.2020
Sampling by	: R.K Das

Date of Sample Received Sample Description Date of Analysis Reference No.

: 23.07.2020 : Surface Water

: 23.07.2020 to 31.07.2020

: CEMC-03082020W3

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	15
2	pH Value @ 25°C		6.5 to 8.5	7.78
3	Iron as Fe, Max.	mg/l	50	0.18
4	Chloride as Cl, Max.	mg/l	600	22.9
5	Dissolved Solids, Max.	mg/l	1500	248.2
6	Dissolved Oxygen, Min.	mg/l	4	5.6
7	BOD for 3 days@ 27 [°] C, Max.	mg/l	3	2.5
8	Oil & Grease, Max.	mg/l	0.1	ND
9	Copper as Cu, Max.	mg/l	1.5	< 0.03
10	Sulphate as SO ₄ , Max.	mg/l	400	5.6
11	Nitrate as NO ₃ , Max.	mg/l	50	7.9
12	Fluoride as F, Max.	mg/l	1.5	0.09
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 ₆ H ₅ 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/100m1	5000	280
23	Faecal Coliform	magement		30

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

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Notes: 2

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Report no. - CEMC/TSL/230720/W1

Issued Date-23.07.2020

Date of Sampling Sampling by Date of Sample Received Sample Description Sample Location Date of Analysis Reference No.

- : M/s. Tata Steel Ltd, (Ferro Chrome Plant) Gopalpur.
- : 16.07.2020
- : R.K. Das
- : 17.07.2020
- : Drinking Water
- : Drinking Water Tank (WTP)
- : 17.07.2020 to 23.07.2020
- : CEMC-23072020W1

ANALYSIS RESULT

SI.		Unit of	Standard as per IS: 10500, 2012		Result
No	Parameter	measurement	Acceptable Limit	Permissible Limit	
1	Colour	Hazen	5	15	<5
2	Odour	+-	AL	AL	AL
3	Taste		AL	AL	AL
4	Turbidity	NTU	1	5	<1
5	pH Value @ 25°C		6.5-8.5	No Relaxation	7.78
6	Total Hardness (as CaCO ₃)	mg/l	200	600	96
7	Iron (as Fc)	mg/l	0.3	No Relaxation	0.12
8	Chloride (as Cl)	mg/l	250	1000	22.9
9	Residual, free Chlorine	mg/l	0.2	. 1.0	ND
10	Total Dissolved Solids	mg/l	500	2000	182.2
<u></u>	Calcium (as Ca)	mg/l	75	200	23.24
12	Magnesium (as Mg)	mg/l	30	100	9.23
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_4)	mg/l	200	400	6.9
16	Nitrate (as NO ₃)	mg/l	45	No Relaxation	2.3
17	Fhoride (as F)	mg/l	1.0	1.5	0.08
18	Phenolic Compounds (as C ₆ H ₅ OH)	mg/l	0.001	0.002	< 0.001
19	Morcury (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 ₃)	mg/l	200	600	96
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



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Report no.-CEMC/TSL/020920/W1 Issued Date-02.09.2020 SURFACE WATER QUALITY TEST REPORT Name & Address of the Client

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

- Gopalpur : 20.08.2020
- : R.K Das
- : 21.08.2020
- : Surface Water
- : 21.08.2020 to 31.08.2020
- : CEMC-02092020W1

ANALYSIS RESULT

 Colour, Max. pH Value @ 25°C Iron as Fe, Max. Chloride as Cl, Max. Dissolved Solids, Max. 	Hazen mg/l	300	50
3 Iron as Fe, Max.4 Chloride as Cl, Max.	 mg/l	([] 0 [00
4 Chloride as Cl, Max.	mg/l	6.5 to 8.5	8.12
	1116/1	0.5	0.34
5 Dissolved Solids, Max.	mg/l	600	19.9
	mg/l	1500	202.6
6 Dissolved Oxygen, Min.	mg/l	4	4.5
7 BOD for 3 days@ 27 [°] C, Max.	mg/l	3	2.3
8 Oil & Grease, Max.	mg/l	0.1	ND
9 Copper as Cu, Max.	mg/l	1.5	< 0.03
10 Sulphate as SO ₄ , Max.	mg/l	400	6.6
11 Nitrate as NO ₃ , Max.	mg/l	50	3.9
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 ₆ H ₅ 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	170
23 Faecal Coliform B: ND-Not Detector MPN-Most Probable Number	MPN/100ml	-	22

Notes: The results relate only to the sample tested.

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Report noCEMC/TSL/020920/W2	Issued Date-02.09.2020
SURFACE WATER	QUALITY TEST REPORT
Name & Address of the Client	: M/s. TATA Steel Ltd, (Ferro Alloys Plant),

Date of Sampling Sampling by **Date of Sample Received Sample Description Date of Analysis Reference No.**

- Gopalpur : 20.08.2020
- : R.K Das
- : 21.08.2020
- : Surface Water
- : 21.08.2020 to 31.08.2020
- : CEMC-02092020W2

ANALYSIS RESULT

SI. No.	Test Parameters	Unit	Max. Tolerance Limit as per IS 2296 : Class C	Khori Nala Up Stream
1	Colour, Max.	Hazen	300	30
2	pH Value @ 25°C		6.5 to 8.5	7.93
3	Iron as Fe, Max.	mg/l	50	0.34
4	Chloride as Cl, Max.	mg/i	600	21.9
5	Dissolved Solids, Max.	mg/l	1500	312.4
6	Dissolved Oxygen, Min.	mg/l	4	6.1
7	BOD for 3 days@ 27 ⁰ C, Max.	mg/l	3	2.7
8	Oil & Grease, Max.	mg/l	0.1	ND
9	Copper as Cu, Max.	mg/i	1.5	<0.03
10	Sulphate as SO ₄ , Max.	mg/l	400	6.8
11	Nitrate as NO ₃ , Max.	mg/l	50	4.7
12	Fluoride as F, Max.	mg/l	1.5	0.09
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 ₆ H ₅ 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	330
23	Faecal Coliform	MPN/100ml		28
ND: N Author	D- Not Deterrable, MPN-Most Probable Number	of Laboratory	Con Con	

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Notes: The results relate only to the sample tested.

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Report no.-CEMC/TSL/020920/W3

020920/W3 Issued Date-02.09.2020 SURFACE WATER OUALITY TEST REPORT

Name & Address of the Client

Date of Sampling Sampling by Date of Sample Received Sample Description Date of Analysis Reference No. : M/s. TATA Steel Ltd, (Ferro Alloys Plant),

- **Gopalpur** : 20.08.2020
- : 20.08.20
- : A.K. Das : 21,08,2020
- : Surface Water
- : Surrace water
- : 21.08.2020 to 31.08.2020 : CEMC-02092020W3

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	40
2	pH Value @ 25°C	Bur das	6.5 to 8.5	7.63
3	Iron as Fe, Max.	mg/l	50	0.38
Л	Chloride as Cl, Max.	mg/l	600	23.9
5	Dissolved Solids, Max.	mg/l	1500	328.2
6	Dissolved Oxygen, Min.	mg/l	4	5.9
7	BOD for 3 days@ 27 [°] C, Max.	mg/l	3	2.7
8	Oil & Grease, Max.	mg/l	0.1	ND
9	Copper as Cu, Max.	mg/l	1.5	< 0.03
10	Sulphate as SO ₄ , Max.	mg/l	400	7.6
11	Nitrate as NO ₃ , Max.	mg/l	50	5.2
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 ₆ H ₅ 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/100m1	5000	370
23	Faecal Coliform	MPN/100ml		34
NB: N	D- Not Debetable, MPN-Most Probable Number	A ST AND ST	en. Ga	

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Report no. - CEMC/TSL/280820/W1

Issued Date-28.08.2020

Name & Address of the Clien	nt
Date of Sampling Sampling by	
Date of Sample Received	

Sampling by Date of Sample Received Sample Description Sample Location Date of Analysis Reference No.

- : M/s. Tata Steel Ltd, (Ferro Chrome Plant) Gopalpur. : 21.08.2020 : R.K. Das : 22.08.2020 : Drinking Water
- : Drinking Water Tank (WTP)
- : 22.08.2020 to 28.08.2020

: CEMC-28082020W1 ANALYSIS RESULT

Standard as per IS: 10500, 2012 SI. Result Unit of Parameter No measurement Acceptable Limit **Permissible** Limit 1 Colour Hazen 4 15 5 2 Odour AL AL -AL 3 Taste AL. AL AL, 4 Turbidity NTU 1 5 1 pH Value @ 25°C 5 6.5-8.5 No Relaxation 7 97 *** 6 Total Hardness (as CaCO₃) mg/l 200 600 96 Iron (as Fe) 7 mg/l 0.3 No Relaxation 0.11 8 Chloride (as CI) mg/l 2501000 11.9 9 Residual, free Chlorine mg/I 0.2 1.0 ND 10 **Total Dissolved Solids** mg/l 500 2000 168.2 11 Calcium (as Ca) mg/l 75 200 20.04 12 Magnesium (as Mg) mg/l 30 100 11.18 13 Copper (as Cu) 0.05 mg/l 1.5 < 0.03Manganese (as Mn) 14 mg/l 0.1 0.3 <0.05 15 Sulphate (as SO₄) mg/l 200 400 6,7 Nitrate (as NO₃) 16 45 mg/l No Relaxation 3.8 17 Fhioride (as F) mg/l 1.0 1.5 0.07 18 Phenolic Compounds (as C₆H₅OH) 0.001 mg/l 0.002 <0.001 19 Mercury (as Hg) 0.001 mg/l No Relaxation <0.001 20 Cadmium (as Cd) 0.003 mg/l No Relaxation <0.003 21 Selenium (as Se) 0.01 No Relaxation mg/l < 0.00122 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 3 <0.05 15 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 Alkalimity (as CaCO₁) mg/l 200 600 140 29 Aluminium (as AI) mg/l 0.03 0.2< 0.0130 Boron (as B) mø/l 0.5 1.0 <0.2 Absent in 100 mL 31 **Total** Coliform MPN/100 ml Absent Absent Sample Absent in 100 mL 32 Faecal Coliform MPN/100 ml Absent Absent

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

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Report no.-CEMC/TSL/031020/W1

Issued Date-03.10,2020 SURFACE WATER QUALITY TEST REPORT

Name & Address of the Client

Date of Sampling Sampling by **Date of Sample Received Sample Description Date of Analysis** Reference No.

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

- : 17.09.2020
- : R.K Das
- : 18.09.2020
- : Surface Water
- : 18.09.2020 to 29.09.2020
- : CEMC-03102020W1

ANALYSIS RESULT

SI. No.	Test Parameters	Unit	Max. Tolerance Limit as per IS 2296 : Class C	Reservoir	
1	Colour, Max.	Hazen	300	40	
2	pH Value @ 25°C		6.5 to 8.5	8.02	
3	Iron as Fe, Max.	mg/l	0.5	0.36	
4	Chloride as Cl, Max.	mg/l	600	21.9	
5	Dissolved Solids, Max.	mg/l	1500	214.2	
6	Dissolved Oxygen, Min.	mg/l	4	4.6	
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 ₄ , Max.	mg/l	400	6.8	
11	Nitrate as NO ₃ , Max.	mg/l	50	4.2	
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 ₆ H ₅ OH, Max.	mg/l	0.005	ND	
19	Lead as Pb, Max.	mg/l	0.1	< 0.01	
20	Zinc as Zn, Max.	mg/1	15	< 0.05	
21	Hexavalent Chromium as Cr ⁺⁶ , Max.	mg/l	0.05	< 0.05	
22	Total Coliform, Max.	MPN/100m1	5000	190	
23	Faecal Coliform	MPN/100mb		28	
N	D- Not Detectable, MPN-Most Probable Number orized Signatory Seal	of Laboratory			

Notes: 5

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Report no.-CEMC/TSL/031020/W2

Issued Date-03.10,2020 SURFACE WATER QUALITY TEST REPORT

Name & Address of the Client

Date of Sampling Sampling by **Date of Sample Received Sample Description Date of Analysis** Reference No.

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

- : 17,09,2020
- : R.K Das
- : 18.09.2020
- : Surface Water
- : 18.09.2020 to 29.09.2020
- : CEMC-03102020W2

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	25	
2	pH Value @ 25°C		6.5 to 8.5	7.86	
3	Iron as Fe, Max.	mg/l	50	0.35	
4	Chloride as Cl, Max.	mg/l	600	20.9	
5	Dissolved Solids, Max.	mg/l	1500	321.6	
6	Dissolved Oxygen, Min.	mg/l	4	6.2	
7	BOD for 3 days@ 27 ⁰ C, Max.	mg/l	3	2.4	
8	Oil & Grease, Max.	mg/l	0.1	ND	
9	Copper as Cu, Max.	mg/l	1.5	< 0.03	
10	Sulphate as SO ₄ , Max.	mg/l	400	7.1	
11	Nitrate as NO ₃ , Max.	mg/l	50	4.9	
12	Fluoride as F, Max.	mg/l	1.5	0.09	
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 ₆ H ₅ 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 ⁴⁶ Max.	mg/l	0.05	< 0.05	
22	Total Coliform, Max.	MPN/100ml	5000	310	
23	FaecabColiform	MPN/100mk		26	
NAN	Nor Detectable, MPN-Most Probable Number	Senvironmental			

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Report no.-CEMC/TSL/031020/W3 SURFACE WATER OUALITY TEST REPORT

Issued Date-03.10.2020

Name & Address of the Client **Date of Sampling**

Sampling by **Date of Sample Received** Sample Description **Date of Analysis** Reference No.

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

- : 17.09.2020
- : R.K Das
- : 18.09.2020
- : Surface Water
- : 18.09.2020 to 29.09.2020
- : CEMC-03102020W3

ANALYSIS RESULT

SI. No.	Test Parameters	Unit Max. Tolerance Limit as per IS 2296 : Class C						
1	Colour, Max.	Hazen	300	40				
2	pH Value @ 25°C		6.5 to 8.5	7.68				
3	Iron as Fe, Max.	mg/l	50	0.39				
4	Chloride as Cl, Max.	mg/l	600	24.9				
5	Dissolved Solids, Max.	mg/l	1500	335.4				
6	Dissolved Oxygen, Min.	mg/l	4	6.0				
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 ₄ , Max.	mg/l	400	7.8				
11	Nitrate as NO ₃ , 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 ₆ H ₅ 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	380				
23	Faecal Coliform	MPN/100mh		44				
M	D- Not Deccable, MPN-Most Probable Number	of Lanoratory	o insultancy					

Notes:

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CS	CSR Expenditure by Tata Steel, Gopalpur during April'20 to October'20							
SI. No.	Expenditure Head	Amount (Rs. In Lakhs)						
1	Drinking water	4.00						
2	Health	7.70						
3	Education	1.63						
4	Skill Development	0.00						
5	Agriculture	19.23						
6	Environment	0.06						
7	Sports	0.00						
8	Infrastructure	15.02						
9	Special Commitments for COVID-19	486.12						
10	Common Exp./Administration	48.40						
	TOTAL	582.16						

CSR-Finance & Accounts, Gopalpur Unit.

ANNEXURE -3

CENTRE FOR ENVOTECH AND MANAGEMENT CONSULTANCY PVT. LTD.

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Report no.-CEMC/TSL/020620/A1

Issued Date-02.06.2020

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 (m ³ /min)/ Gases (lpm)	1.1/1.0
Weather Conditions	Clear
Reference No.	CEMC-02062020A1
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

ANALYSIS RESULT

Date	PM ₁₀ (μg/m ³)	PM _{2.5} (μg/m ³)	SO_2 (µg/m ³)	NOx (ug/m ³)	CO (mg/m ³)	NH ₃ (μg/m ³)	O_3	Pb (ug/m ³)	Ni (ng/m ³)	As (ng/m ³)	Benzene (µg/m ³)	
21.05.2020	62.5	35.1	9.7	13.9	0.3		(POB/ III)			(ng/m)	(µg/m)	(ug/m)
25.05.2020	60.8	34.2	9.8	14.0	0.4	s				=-=		
28.05.2020	61.3	34.5	9.9	14.2	0.4	<20	<10	<0.1	<0.6	< 0.44	<5	<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)	IS: 5182 (Part- 22)	As per CPCB method followed by AAS	method followed	`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/020620/A2

Issued Date-02.06.2020

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 (m ³ /min)/ Gases(1pm)	1.1/1.0
Weather Conditions	Clear
Reference No.	CEMC-02062020A2
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

ANALYSIS RESULT

					Married Street S	Contraction of the local division of the loc						
Date	$\frac{PM_{10}}{(\mu g/m^3)}$	PM _{2.5} (μg/m ³)	$\frac{SO_2}{(\mu g/m^3)}$	NOx (µg/m ³)	CO (mg/m ³)	NH ₃ (μg/m ³)	O_3 ($\mu g/m^3$)	Pb (µg/m ³)	Ni (ng/m ³)	As (ng/m ³)	Benzene (µg/m ³)	
21.05.2020	59.8	33.7	9.5	13.7	0.4						~	
25.05.2020	61.2	34.6	9.8	13.9	0.4					99 VD		
28.05.2020	60.4	33.9	9.9	14.0	0.5	<20	<10	< 0.1	<0.6	< 0.44	<5	<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)	IS: 5182 (Part- 22)	followed	method		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/020620/A3

Issued Date-02.06.2020

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 ³ /min)/ Gases(lpm)	1.1/1.0
Weather Conditions	Clear
Reference No.	CEMC-02062020A3
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler,
instantent 0.500	Gaseous Attachment

	ANALYSIS RESULT											
Dte	PM ₁₀	PM _{2.5}	SO ₂	NOx	CO	NH ₃	03	Pb	Ni	As	Benzene	BaP
	(µg/m³)		(µg/m*)	(µg/m')	(mg/m^3)	$(\mu g/m^3)$	$(\mu g/m^3)$	$(\mu g/m^3)$	(ng/m^3)	(ng/m^3)	$(\mu g/m^3)$	(ng/m^3)
21.05.2020		33.1	9.4	12.9	0.3							
25.05.2020	60.4	33.8	9.8	13.5	0.4		Bá bán					
28.05.2020	59.6	34.0	9.9	13.7	0.5	<20	<10	<0.1	<0.6	<0.44	<5	<1
Avg												
NAAQ*	100	(0	00	00		10.0						
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	method followed	(Part- 11)	IS: 5182 (Part- 12)

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

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Report no.-CEMC/TSL/020620/A4

Issued Date-02.06.2020

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 ³ /min)/ Gases(lpm)	1.1/1.0
Weather Conditions	Clear
Reference No.	CEMC-02062020A4
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler,
	Gaseous Attachment

					ALALI	ISIS RESUL						
Date	PM ₁₀ (μg/m ³)	PM _{2.5} (μg/m ³)	SO_2	NOx	CO (mg/m ³)	NH ₃	03	Pb	Ni	As	Benzene	
21.05.2020			-		1	$(\mu g/m^3)$	(µg/m [°])	(µg/m)) (ng/m ³)	(ng/m^3)	$(\mu g/m^3)$	(ng/m°
	0010	33.9	9.8	13.7	0.4							
25.05.2020	-	33.2	9.6	13.4	0.3							
28.05.2020	61.3	34.7	9.9	13.6	0.4	. <20	<10	<0.1	<0.6	<0.44	<5	<1
Avg										-0.11		
NAAQ*	100	(0)	0.0									
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	LOTTO MAN		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/020620/F1

Issued Date-02.06.2020

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	30.05.2020
Date of Receiving	30.05.2020
Date of Testing	01.06.2020 to 02.06.2020
Reference No.	CEMC-02062020F1

ANALYSIS RESULT

SI. No.	Locations	Suspended Particulate Matter (SPM)
1	RMHS (Raw Material Handling Site)	695.8
Standar (3 rd am	d as per Environment (protection) endment) Rules-2012 by MoEF	2000
Unit		μg/m ³
Testing .	Method	Gravimetric

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Notes:

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Report no.-CEMC/TSL/020620/F2

Issued Date-02.06.2020

END OF REPORT

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	30.05.2020
Date of Receiving	30.05,2020
Date of Testing	01.06.2020 to 02.06.2020
Reference No.	CEMC-02062020F2

ANALYSIS RESULT

SI. No.	Locations	Suspended Particulate Matter (SPM)
1	FPHS (Fine Product Handling Site)	493.7
Standard (3 rd ame	d as per Environment (protection) endment) Rules-2012 by MoEF	2000
Unit		μg/m ³
Testing 1	Method	Gravimetric

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Report no.-CEMC/TSL/020620/F3

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The results relate only to the sample tested.

Notes:

Issued Date-02.06.2020

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	30.05.2020
Date of Receiving	30.05.2020
Date of Testing	01.06.2020 to 02.06.2020
Reference No.	CEMC-02062020F3

ANALYSIS RESULT

SI. No.	Locations	Suspended Particulate Matter (SPM)
1	I-Bin Building	287.9
	l as per Environment (protection) endment) Rules-2012 by MoEF	2000
Unit		μg/m ³
Testing .	Method	Gravimetric

END OF REPORT

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Report no.-CEMC/TSL/020720/A1

Issued Date-02.07.2020

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 (m ³ /min)/ Gases (lpm)	1.1/1.0
Weather Conditions	Clear
Reference No.	CEMC-02072020A1
ANALYS	IS RESULT

Date	PM ₁₀	PM _{2.5}	SO ₂	NOx	CO	NH ₃	03	Pb	Ni	As	Benzene	
	$(\mu g/m^3)$	$(\mu g/m^3)$	(µg/m')	(µg/m³)	(mg/m^3)	$(\mu g/m^3)$	(µg/m³)	$(\mu g/m^3)$	(ng/m^3)	(ng/m^3)	$(\mu g/m^3)$	(ng/m^3)
01.06,2020	59.4	33.5	9.4	13.2	0.4							
04.06.2020	56.6	30.7	9.1	13.1	0.4							
08.06.2020	56.1	30.2	8.9	12.4	0.4							
12.06.2020	57.2	31.3	9.0	12.5	0.4	<20	<10	< 0.1	<0.6	<0.44	<5	<1
15.06.2020	58.3	32.1	9.3	13.0	0.4							
18.06.2020	59.5	33.6	9.4	13.2	0.4				-1.02	-		
22.06.2020	60.7	33.8	9.7	13.4	0.5						701 PM	
25.06.2020	61.3	34.1	9.9	13.8	0.5							
Avg												
NAAQ* Standard	100	60	80	80	4	400	100	1.0	20	6	5	1
Methods of Analysis	5182 (Part- 23)	Gravimetric Method as per CPCB method ational Ambient	5182 (Part- 2)	IS: 5182 (Part- 6)	15: 5182 (Part- 10)	Indophenol Blue Method followed by CPCB	15: 5182 (Part- 9)	22)	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,

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Report no.-CEMC/TSL/020720/A2

Issued Date-02.07.2020

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 (m ³ /min)/ Gases(lpm)	1.1/1.0
Weather Conditions	Clear
Reference No.	CEMC-02072020A2
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

ANALYSIS RESULT

Date	PM ₁₀	PM _{2.5}	SO ₂	NOx	CO	NH ₃	O ₃	Pb	Ni	As	Benzene	BaP
Date	$(\mu g/m^3)$	$(\mu g/m^3)$	$(\mu g/m^3)$	$(\mu g/m^3)$	(mg/m^3)	$(\mu g/m^3)$	$(\mu g/m^3)$	$(\mu g/m^3)$	(ng/m^3)	(ng/m ³)	$(\mu g/m^3)$	(ng/m^3)
01.06.2020	59.2	33.6	9.5	13.3	0.4		94 BA				an sin	
04.06.2020	57.4	31.9	9.1	12.9	0.4				= M			
08.06.2020	58.1	31.4	9.0	12.7	0.4	·:						
12.06.2020	57.3	31.6	9.4	13.0	0.4	<20	<10	<0.1	<0.6	<0.44	<5	<1
15.06.2020	58.9	32.2	9.2	12.8	0.4							
18.06.2020	59.7	33.8	9.7	13.4	0.5							
22.06.2020	60.5	33.9	9.8	13.6	0.5							
25.06.2020	61.8	34.0	9.9	13.8	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)	IS: 5182 (Part- 22)	As per CPCB method followed by AAS	method	/	IS: 5182 (Part- 12)

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

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Report no.-CEMC/TSL/020720/A3

Issued Date-02.07.2020

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 ³ /min)/ Gases(lpm)	1.1/1.0
Weather Conditions	Clear
Reference No.	CEMC-02072020A3
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

					ALLI	SIS RESUL	<u></u>		2			
Dte	PM ₁₀	PM _{2.5}	SO ₂	NOx	CO	NH ₃	03	Pb	Ni	As	Benzene	BaP
Die	$(\mu g/m^3)$	$(\mu g/m^3)$	$(\mu g/m^3)$	$(\mu g/m^3)$	(mg/m^3)	$(\mu g/m^3)$	$(\mu g/m^3)$	$(\mu g/m^3)$	(ng/m^3)	(ng/m^3)	$(\mu g/m^3)$	(ng/m^3)
01.06.2020	57.9	32.7	9.3	12.5	0.4							
04.06.2020	59.2	33.8	9.5	13.1	0.5							
08.06.2020	55.1	30.6	9.0	12.7	0.4							
12.06.2020	57.3	32.2	9.1	12.2	0.4	<20	<10	< 0.1	<0.6	< 0.44	<5	<1
15.06.2020	58.4	33.3	9.2	12.8	0.4							
18.06.2020	57.3	32.6	9.3	13.0	0.5					men		
22.06.2020	59.8	33.5	9.2	12.9	0.5							
25.06.2020	60.2	34.1	9.6	13.3	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)		As per CPCB method followed by AAS	followed	IS: 5182 (Part- 11)	IS: 5182 (Part- 12)

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

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Report no.-CEMC/TSL/020720/A4

Issued Date-02.07.2020

AMBIENT AIR QUALITY MONITORING TEST REPORT

M/s. TATA Steel Ltd, (Ferro Alloys Plant), Gopalpur
Ambient Air Quality
Monthly/ 0800 to 0800 next day
Mr. R.K Das
ETP Building
1.1/1.0
Clear
CEMC-02072020A4
Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

					ANALI	SIS RESUL	11					
Date	PM ₁₀	PM _{2.5}	SO2	NOx	CO	NH ₃	O ₃	Pb	Ni	As	Benzene	BaP
	$(\mu g/m^3)$	$(\mu g/m^3)$	(µg/m)	(µg/m`)	(mg/m^3)	$(\mu g/m^3)$	(µg/m*)	$(\mu g/m^3)$	(ng/m^3)	(ng/m^3)	$(\mu g/m^3)$	(ng/m^3)
01.06.2020	59.2	33.6	9.5	13.7	0.5							
04.06.2020	57.4	32.8	9.2	13.1	0.4							
08.06.2020	56.1	32.3	9.1	13.0	0.4							
12.06.2020	55.7	31.2	9.0	12.6	0.4	<20	<10	<0.1	<0.6	< 0.44	<5	<1
15.06.2020	58.3	32.9	9.3	12.9	0.4							
18.06.2020	59.1	33.4	9.5	13.4	0.5							
22.06.2020	60.6	33.9	9.7	13.8	0.5							
25.06.2020	61.5	34.1	9.8	13.9	0.5							
Avg											·····	
NAAQ* Standard	100	60	80	80	4	400	100	1.0	-20	6	5	1
Standart		<u> </u>	TO	то	TO	Indophenol			As per	As per		IS:
Methods	IS: 5182	Gravimetric		IS:	19:	Blue	15:	IS:	CPCB	CPCB		5182
of	(Part-	Method as per CPCB	5182	5182	5182	Method	5182	5182	method		IS: 5182	(Part-
Analysis	23)	method	(Part- 2)	(Part-	(Part-	followed	(Part-	(Part-	followed		(Part-11)	12)
		memou		6)	10)	by CPCB	9)	22)	by AAS	by AAS		

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

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Report no.-CEMC/TSL/020720/F1

Issued Date-02.07.2020

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	27.06.2020
Date of Receiving	29.06.2020
Date of Testing	29.06.2020 to 01.07.2020
Reference No.	CEMC-02072020F1

ANALYSIS RESULT

SI. No.	Locations	Suspended Particulate Matter (SPM)
1	RMHS (Raw Material Handling Site)	511.6
	d as per Environment (protection) endment) Rules-2012 by MoEF	2000
Unit		μg/m ³
Testing	Method	Gravimetric
		END OF REPORT

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Report no.-CEMC/TSL/020720/F2

Issued Date-02.07.2020

END OF REPORT

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	27.06.2020			
Date of Receiving	29.06.2020			
Date of Testing	29.06.2020 to 01.07.2020			
Reference No.	CEMC-02072020F2			

ANALYSIS RESULT

Sl. No.	Locations	Suspended Particulate Matter (SPM)
1	FPHS (Fine Product Handling Site)	327.3
Standar (3 rd ami	d as per Environment (protection) endment) Rules-2012 by MoEF	2000
Unit		μg/m ³
Testing	Method	Gravimetric
		*END OF REPOR

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Report no.-CEMC/TSL/020720/F3

Issued Date-02.07.2020

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	27.06.2020
Date of Receiving	29.06.2020
Date of Testing	29.06.2020 to 01.07.2020
Reference No.	CEMC-02072020F3

ANALYSIS RESULT

Sl. No.	Locations	Suspended Particulate Matter (SPM)
1	I-Bin Building	276.8
	l as per Environment (protection) ndment) Rules-2012 by MoEF	2000
Unit		μg/m ³
Testing 1	Method	Gravimetric

END OF REPORT

Authorized Signatory Notes:

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Report no.-CEMC/TSL/020720/F3

Issued Date-02.07.2020

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	27.06.2020				
Date of Receiving	29.06.2020				
Date of Testing	29.06.2020 to 01.07.2020				
Reference No. CEMC-02072020F3					

ANALYSIS RESULT

Sl. No.	Locations	Suspended Particulate Matter (SPM)				
1	I-Bin Building	276.8				
	l as per Environment (protection) endment) Rules-2012 by MoEF	2000				
Unit		μg/m ³				
Testing I	Method	Gravimetric				

END OF REPORT

Authorized Signatory Notes:

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Report no.-CEMC/TSL/030820/A1

Issued Date-03.08.2020

AMBIENT AIR QUALITY MONITORING TEST REPORT

M/s. TATA Steel Ltd, (Ferro Alloys Plant),
Gopalpur
Ambient Air Quality
Monthly/ 0900 to 0900 next day
Mr. R.K Das
LBSS Building
1.1/1.0
Clear
CEMC-03082020A1

ANAL	YSIS	RESULT	
	1		•

Date	PM ₁₀	PM _{2.5}	SO ₂	NOx	СО	NH ₃	O ₃	Pb	Ni	As	Benzene	BaP
Date	$(\mu g/m^3)$	$(\mu g/m^3)$	$(\mu g/m^3)$	$(\mu g/m^3)$	(mg/m^3)	$(\mu g/m^3)$	$(\mu g/m^3)$	$(\mu g/m^3)$	(ng/m^3)	(ng/m^3)	$(\mu g/m^3)$	(ng/m^3)
02.07.2020	58.2	33.2	9.3	13.0	0.4							
06.07.2020	55.8	30.2	8.8	12.2	0.4							
14.07.2020	56.6	30.5	9.2	12.8	0.4							
17.07.2020	57.8	31.5	8.6	12.6	0.4	<20	<10	< 0.1	<0.6	<0.44	<5	<1
20.07.2020	57.6	31.8	9.2	12.9	0.4							
23.07.2020	56.2	30.4	9.0	12.4	0.4							
28.07.2020	58.8	33.4	9.4	13.4	0.4							
31.07.2020	58.6	33.0	9.2	13.2	0.4				CM 86			-
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	method followed	11)	IS: 5182 (Part- 12)

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

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Report no.-CEMC/TSL/030820/A2

Issued Date-03.08.2020

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 (m ³ /min)/ Gases(lpm)	1.1/1.0
Weather Conditions	Clear
Reference No.	CEMC-03082020A2
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

Dete	PM ₁₀	PM _{2.5}	SO ₂	NOx	CO	NH ₃	03	Pb	Ni	As	Benzene	BaP
Date	$(\mu g/m^3)$	$(\mu g/m^3)$	$(\mu g/m^3)$	$(\mu g/m^3)$	(mg/m^3)			$(\mu g/m^3)$				(ng/m^3)
02.07.2020	57.8	32.4	9.3	13.1	0.4							
06.07.2020	56.2	30.2	9.0	12.0	0.4							
14.07.2020	57.0	31.8	9.4	12.5	0.4							
17.07.2020	56.8	31.2	9.1	12.8	0.4	<20	<10	< 0.1	<0.6	< 0.44	<5	<1
20.07.2020	57.4	31.6	8.8	12.9	0.4						319 164	
23.07.2020	56.4	30.4	9.2	12.2	0.4					100-004		
28.07.2020	58.4	31.8	9.6	13.4	0.4							
31.07.2020	58.0	32.2	9.2	13.2	0.4							
Avg												
NAAQ*	100	60	80	80	4	400	100	1.0	30	6	_	-1
Standard	100	00	00	au		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- 12)

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

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Report no.-CEMC/TSL/030820/A3

Issued Date-03.08.2020

END OF REPORT

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 ³ /min)/ Gases(lpm)	1.1/1.0
Weather Conditions	Clear
Reference No.	CEMC-03082020A3
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

PM ₁₀ (µg/m ³) 55.4 54.6 55.8 56.2	PM _{2.5} (µg/m ³) 30.2 29.0 29.8	8.8 8.2	NOx (μg/m ³) 12.2 11.6	CO (mg/m ³) 0.4	NH ₃ (µg/m ³)	Ο ₃ (μg/m ³)	Pb (μg/m ³)	Ni (ng/m ³)	As (ng/m ³)	Benzene (µg/m ³)	BaP (ng/m ³)
55.4 54.6 55.8	30.2 29.0	8.8 8.2	12.2				(µg/m~)	(ng/m~)	(ng/m [°])	(µg/m')	(ng/m')
54.6 55.8	29.0	8.2		0.4	·						
55.8		f	116								a
	29.8		11.0	0.4							
56.2		8.6	11.9	0.4							
00.2	29.4	8.4	12.4	0.4	<20	<10	< 0.1	< 0.6	< 0.44	<5	<1
56.0	29.6	8.9	11.7	0.4							eter kar
54.9	29.2	8.3	11.8	0.4							
55.6	30.0	8.7	12.4	0.4							_
57.4	30.6	9.4	12.9	0.4							
							·····				
100	(0	00	00		400	100	1.0			3	
100	00	a 0	90	4	400	100	1.0	20	6	5	1
S: 5182 (Part- 23)	Method as per CPCB	5182 (Part-	IS: 5182 (Part- 6)	15: 5182 (Part-	Blue Method followed	15: 5182 (Part-	IS: 5182 (Part- 22)	followed	method followed	IS: 5182 (Part- 11)	IS: 5182 (Part- 12)
	56.0 54.9 55.6 57.4 100 : 5182 Part-	56.0 29.6 54.9 29.2 55.6 30.0 57.4 30.6 100 60 Gravimetric Method as per CPCB	56.0 29.6 8.9 54.9 29.2 8.3 55.6 30.0 8.7 57.4 30.6 9.4 Image: signal sign	56.0 29.6 8.9 11.7 54.9 29.2 8.3 11.8 55.6 30.0 8.7 12.4 57.4 30.6 9.4 12.9 100 60 80 80 : 5182 Gravimetric Method as per CPCB IS: IS: (Part- 23) 5182 (Part-	56.0 29.6 8.9 11.7 0.4 54.9 29.2 8.3 11.8 0.4 55.6 30.0 8.7 12.4 0.4 57.4 30.6 9.4 12.9 0.4 100 60 80 80 4 Gravimetric IS: IS: IS: IS: S182 Part-23) per CPCB (Part- (Part-	56.0 29.6 8.9 11.7 0.4 54.9 29.2 8.3 11.8 0.4 55.6 30.0 8.7 12.4 0.4 57.4 30.6 9.4 12.9 0.4 100 60 80 80 4 400 : 5182 5182 5182 5182 Blue Part- 23) Part- (Part- (Part- followed	56.0 29.6 8.9 11.7 0.4 54.9 29.2 8.3 11.8 0.4 55.6 30.0 8.7 12.4 0.4 57.4 30.6 9.4 12.9 0.4 100 60 80 80 4 400 100 : 5182 Gravimetric Method as per CPCB (Part- 2) 5182 5182 5182 5182 23) method 2) 6) 10) 6) 10) 10)	56.0 29.6 8.9 11.7 0.4 54.9 29.2 8.3 11.8 0.4 55.6 30.0 8.7 12.4 0.4 57.4 30.6 9.4 12.9 0.4 100 60 80 80 4 400 100 1.0 100 60 80 80 4 400 100 1.0 100 60 80 80 4 400 100 1.0 100 60 80 80 4 400 100 1.0 100 60 80 80 4 400 100 1.0 100 60 80 80 4 400 100 1.0 100 60 80 80 4 400 100 1.0	56.0 29.6 8.9 11.7 0.4 -	56.0 29.6 8.9 11.7 0.4 -	56.0 29.6 8.9 11.7 0.4

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

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ANALYSIS RESULT

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Report no.-CEMC/TSL/030820/A4

Issued Date-03.08.2020

END OF REPORT

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 ³ /min)/ Gases(1pm)	1.1/1.0
Weather Conditions	Clear
Reference No.	CEMC-03082020A4
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

ANALYSIS RESULT

PM ₁₀	PM _{2.5}	SO ₂	NOx	CO	NH ₃	03	Pb	Ni	As	Benzene	
(µg/m ⁻)	(µg/m [*])	(µg/m ⁻)	(µg/m~)	(mg/m ⁻)	(µg/m [°])	(µg/m~)	(µg/m`)	(ng/m [*])	(ng/m°)	(µg/m')	(ng/m^3)
58.4	32.2	9.2	13.4	0.4							
56.0	29.8	9.0	12.6	0.4							
55.4	32.0	8.8	12.9	0.4				<u></u>			
56.2	31.6	9.2	12.8	0.4	<20	<10	< 0.1	< 0.6	< 0.44	<5	<1
58.8	32.6	9.4	13.2	0.4					Alleria		
56.2	30.0	9.1	12.7	0.4							10 M
60.2	33.2	9.5	13.6	0.4							
60.8	33.6	9.7	13.8	0.5							
100	60	00	00	4	40.0	100	10	40			
100	00	80	80	4	400	100	1.0	-20	0	5	1
IS: 5182 (Part- 23)	Gravimetric Method as per CPCB method	5182 (Part-	IS: 5182 (Part- 6)	IS: 5182 (Part- 10)	Blue Method followed	15: 5182 (Part-	IS: 5182 (Part- 22)	followed	followed	(Part-11)	IS: 5182 (Part- 12)
	(µg/m ³) 58.4 56.0 55.4 56.2 58.8 56.2 60.2 60.2 60.8 100 IS: 5182 (Part-	(μg/m³) (μg/m³) 58.4 32.2 56.0 29.8 55.4 32.0 56.2 31.6 58.8 32.6 56.2 30.0 60.2 33.2 60.8 33.6 100 60 IS: 5182 Gravimetric Method as per CPCB	(μg/m³) (μg/m³) (μg/m³) 58.4 32.2 9.2 56.0 29.8 9.0 55.4 32.0 8.8 56.2 31.6 9.2 58.8 32.6 9.4 56.2 30.0 9.1 60.2 33.2 9.5 60.8 33.6 9.7 100 60 80 IS: 5182 Gravimetric Method as per CPCB IS: (Part- 23)	(μg/m³) (μg/m³) (μg/m³) (μg/m³) (μg/m³) 58.4 32.2 9.2 13.4 56.0 29.8 9.0 12.6 55.4 32.0 8.8 12.9 56.2 31.6 9.2 12.8 58.8 32.6 9.4 13.2 56.2 30.0 9.1 12.7 60.2 33.2 9.5 13.6 60.8 33.6 9.7 13.8 100 60 80 80 IS: 5182 Gravimetric Method as per CPCB IS: 5182 (Part- (Part- 23) IS: 5182	(μg/m ³) (mg/m ³) 58.4 32.2 9.2 13.4 0.4 56.0 29.8 9.0 12.6 0.4 55.4 32.0 8.8 12.9 0.4 56.2 31.6 9.2 12.8 0.4 58.8 32.6 9.4 13.2 0.4 56.2 30.0 9.1 12.7 0.4 60.2 33.2 9.5 13.6 0.4 60.8 33.6 9.7 13.8 0.5 100 60 80 80 4 IS: 5182 Gravimetric Method as per CPCB IS: IS: IS: 5182 5182 5182 5182 5182 5182 6	($\mu g/m^3$)($\mu g/m^3$)58.432.29.213.40.456.029.89.012.60.455.432.08.812.90.456.231.69.212.80.456.230.09.112.70.456.230.09.112.70.460.233.29.513.60.460.833.69.713.80.51006080804400IS: 5182GravimetricIS:IS:IS:Method as per CPCB518251825182 (Part-S182 (Part-23)9.513.60.4	(µg/m³)(µg/m³)(µg/m³)(µg/m³)(µg/m³)(µg/m³)(µg/m³) 58.4 32.2 9.2 13.4 0.4 56.0 29.8 9.0 12.6 0.4 55.4 32.0 8.8 12.9 0.4 56.2 31.6 9.2 12.8 0.4 $$ 56.2 31.6 9.2 12.8 0.4 $$ 56.2 31.6 9.2 12.8 0.4 $$ 56.2 30.0 9.1 12.7 0.4 56.2 30.0 9.1 12.7 0.4 56.2 30.0 9.1 12.7 0.4 60.2 33.2 9.5 13.6 0.4 100 60 80 80 4 400 100 IS: 5182GravimetricIS: 5182 5182 5182 5182 (Part- $2)$ 6 10 60 9 9	(µg/m³)<	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	(µg/m³)<	$\begin{array}{c c c c c c c c c c c c c c c c c c c $

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Report no.-CEMC/TSL/030820/F1

Issued Date-03.08.2020

END OF REPORT

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	29.07.2020
Date of Receiving	30.07.2020
Date of Testing	30.07.2020 to 03.08.2020
Reference No.	CEMC-03082020F1

ANALYSIS RESULT

Sl. No.	Locations	Suspended Particulate Matter (SPM)				
1	RMHS (Raw Material Handling Site)	498.2				
	d as per Environment (protection) endment) Rules-2012 by MoEF	2000				
Unit		μg/m ³				
Testing .	Method	Gravimetric				

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Report no.-CEMC/TSL/030820/F2 Issued Date-03.08.2020 <u>FUGITIVE AIR QUALITY MONITORING TEST REPORT</u>

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	29.07.2020
Date of Receiving	30.07.2020
Date of Testing	30.07.2020 to 03.08.2020
Reference No.	CEMC-03082020F2

ANALYSIS RESULT

Sl. No.	Locations	Suspended Particulate Matter (SPM)
1	FPHS (Fine Product Handling Site)	312.8
	d as per Environment (protection) endment) Rules-2012 by MoEF	2000
Unit		μg/m ³
Testing.	Method	Gravimetric
		*END OF REPORT

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Report no.-CEMC/TSL/030820/F3 Issued Date-03.08.2020 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	30.07.2020
Date of Receiving	31.07.2020
Date of Testing	31.07.2020 to 03.08.2020
Reference No.	CEMC-03082020F3

ANALYSIS RESULT

SI. No.	Locations	Suspended Particulate Matter (SPM)				
1	I-Bin Building	262.4				
	d as per Environment (protection) endment) Rules-2012 by MoEF	2000				
Unit		μg/m ³				
Testing I	Method	Gravimetric				

END OF REPORT



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- Notes:
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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/020920/A1

Issued Date-02.09.2020

AMBIENT AIR QUALITY MONITORING TEST REPORT

Issu	ued to	<u>, (,</u> , , <u>, , , , , , , , , , , , , , , , </u>		M/s. TATA Steel Ltd, (Ferro Alloys Plant), Gopalpur								
San	nnle De	scription		Ambient Air Quality								
		awn Period				0 next d	av		-			
		awn by				Mr. R.F		100070	UTICAL	ici y		-
		Location				LBSS B						-
				31	10		unung					
(lpr	n)	ow Rate of	SPM (n	1%min)	/ Gases	1.1/1.0						
		onditions				Clear						
Ref	erence	No.				CEMC-()209202	20A1				
					ANALY	SIS RESUI	T					
	PM ₁₀	PM _{2.5}	SO ₂	NOx	CO	NH ₃	O ₃	Pb	Ni	As	Benzen	BaP
Date	(μ g/m ³)	(µg/m³)	(μ g/m ³)	(μ g/m³)	(mg/m		(μ g/m³)	(μ g/m³)	(ng/m	(ng/m	е (µg/m³)	(ng/m
03.08.202	/			- CV /								
0	50.4	27.4	7.8	11.6	0.3							
06.08.202					24							
0	52.8	28.6	8.1	12.0	0.4							
10.08.202												
0	53.2	28.9	8.7	12.3	0.4	** <u></u>						
18.08.202						20	4.0	~ ~	0.6			
0	54.6	29.8	8.3	12.6	0.4	<20	<10	<0.1	<0.6	<0.44	<5	<1
21.08.202		· · · · · · · · · · · · · · · · · · ·			0.4			• • • • • • • • • • • • • • • • • • •	a			
0	55.2	30.4	8.5	12,2	0.4							100 Xer
24.08.202					0.1							
0	54.4	29.6	9.0	12.4	0.4							100 (Jan
27.08.202					0.4							
0	56.4	31.8	9.1	12.8	0.4	~~						
Avg												
NAAQ*	100	(0)	00	00	4	400	100	10	00		-	
Standard	100	60	80	80	4	400	100	1.0	20	6	5	1
Methods of	IS: 5182 (Part-	Gravimetri c Method as per	IS: 5182 (Part-	IS: 5182 (Part-	IS: 5182 (Part-	Indophen ol Blue Method	IS: 5182 (Part-	IS: 5182 (Part-	CPCB metho d	d	IS: 5182 (Part-	(Part-
Analysis	23)	CPCB method	2)	6)	10)	followed by CPCB	9)	22)	followe d by AAS	d by AAS	11)	12)

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

END OF REPORT

Environmental Studies (ELA & 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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Seal of Laboratory

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Report no.-CEMC/TSL/020920/A2

Issued Date-02.09.2020

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 (m ³ /min)/ Gases(lpm)	1.1/1.0
Weather Conditions	Clear
Reference No.	CEMC-02092020A2
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

						<u>SIS RESUI</u>	.т			8		
Date	PM ₁₀ (μ g/m ³)	PM _{2.5} (μg/m ³)	SO ₂ (μ g/m ³)	NOx (µ g/m ³)	CO (mg/m ³)	NH3 (μg/m ³)	Ο ₃ (μ g/m ³)	Ρb (μ g/m ³)	Ni (ng/m ³)	As (ng/m ³)	Benze ne (µg/m³)	BaP (ng/m 3)
03.08.202 0	51.2	27.8	7.9	11.4	0.3						-	
06.08.202 0	52.4	28.4	8.0	11.8	0.4	.mi "					_	
10.08.202 0	53.8	28.8	8.2	12.1	0.4							P#
18.08.202 0	54.1	29.0	8.4	12.0	0.4	<20	<10	<0.1	<0.6	<0.44	<5	<1
21.08.202 0	55.6	30.5	8.5	12.3	0.4							
24.08.202 0	54.8	29.4	8.3	12.2	0.4							
27.08.202 0	56.0	31.4	8.6	12.4	0.4							
Avg NAAQ* Standard	100	60	80	80	4	400	100	1.0	20	6	5	1
Methods of Analysis	15: 5182 (Part- 23)	Gravimetri c Method as per CPCB method	15: 5182 (Part- 2)	IS: 5182 (Part- 6)	IS: 5182 (Part- 10)	Indophen ol Blue Method followed by CPCB	IS: 5182 (Part- 9)	22)	As per CPCB metho d followe d by AAS	CPĈB metho d followe d by AAS	IS: 5182 (Part- 11)	IS: 5182 (Part- 12)

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

END OF REPORT

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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Report no.-CEMC/TSL/020920/A3

Issued Date-02.09.2020

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 ³ /min)/ Gases(lpm)	1.1/1.0
Weather Conditions	Clear
Reference No.	CEMC-02092020A3
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

Dte	PM10 (μ g/m ³)	PM2.5 (µg/m³)	SO ₂ (μ g/m ³)	NOx (µ g/m ³)	CO (mg/m	NH3 (µg/m³)	Ο3 (μ g/m ³)	Ρb (μ g/m ³)	Ni (ng/m	As (ng/m	Benzen e (µg/m³)	(ng/m
03.08.202	49.6	27.0	7.4	11.2	0.3							
06.08.202 0	52.8	28.0	8.1	11.6	0.4							mage
10.08.202 0	53.4	28.4	8.4	11.7	0.4				-			
18.08.202 0	52.2	29.2	8.2	12.2	0.4	<20	<10	<0.1	<0.6	<0.44	<5	<1
$\underset{0}{21.08.202}$	53.6	28.8	8.7	11.5	0.4	~-						
24.08.202 0	52.8	28.2	8.1	11.6	0.4				-10.45	Type met	*** 804	
27.08.202 0	-53.2	29.4	8.5	12.2	0.4							

ANTAT VOTO DECITI T

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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Avg NAAQ* Standard	100	60	80	80	4	400	100	1.0	20	6	5	1
Methods of Analysis		Gravimetri c Method as per CPCB method	IS: 5182 (Part- 2)	IS: 5182 (Part- 6)	IS: 5182 (Part- 10)	Indophen ol Blue Method followed by CPCB	IS: 5182 (Part- 9)	IS: 5182 (Part- 22)	A	CPCB metho d	IS: 5182 (Part- 11)	IS: 5182 (Part- 12)

.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/020920/A4

Issued Date-02.09.2020

AMBIENT AIR QUALITY MONITORING TEST REPORT

Steel Ltd, (Ferro Alloys Plant),					
ir Quality					
)800 to 0800 next day					
15					
ng					
92020A4					
Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment					
1 1 1 1					

	PM10	PM _{2.5}	SO ₂	NOx	CO	SIS RESU NH3	O ₃	Pb	Ni	As	Benzen	BaP
Date	(μ g/m³)	$(\mu g/m^3)$	(μ g/m ³)	(μ g/m ³)	(mg/m		(μ g/m ³)	(μ g/m ³)	(ng/m		e (µg/m ³)	(ng/m
03.08.202 0	53.4	30.4	8.2	12.2	0.3						-	
06.08.202 0	55.2	31.6	8.6	12.9	0.4						-940 800	
10.08.202 0	56.2	32.4	8.8	13.0	0.4							
18.08.202 0	54.8	31.2	9.2	12.8	0.4	<20	<10	<0.1	<0.6	<0.44	<5	<1
21.08.202 0	56.4	31.8	9.4	13.1	0.4							
24.08.202 0	54.6	31.4	9.1	12.6	0.4				,			
27.08.202 0	57.8	32.6	9.4	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)	Gravimetri c Method as per CPCB method	IS: 5182 (Part- 2)	IS: 5182 (Part- 6)	IS: 5182 (Part- 10)	Indophen ol Blue Method followed by CPCB	IS: 5182 (Part- 9)	IS: 5182 (Part- 22)	As per CPCB metho d followe d by AAS	CPĈB metho d	IS: 5182 (Part- 11)	IS: 5182 (Part- 12)

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

END OF REPORT

Environmental Studies (ELA & 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/020920/F1

Issued Date-02.09.2020

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	22.08.2020
Date of Receiving	24.08.2020
Date of Testing	24.08.2020 to 31.08.2020
Reference No.	CEMC-02092020F1

ANALYSIS RESULT

Sl. No.	Locations	Suspended Particulate Matter (SPM)
1	RMHS (Raw Material Handling Site)	468.4
	ard as per Environment (protection) mendment) Rules-2012 by MoEF	2000
Unit		μg/m ³
Testin	g Method	Gravimetric

END OF REPORT

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Report no.-CEMC/TSL/031020/A1

Issued Date-03.10.2020

AMBIENT AIR QUALITY MONITORING TEST REPORT

Issue	ad to					M/s. TA	TA Stee	l Ltd, (l	Ferro All	oys Plan	t),			
12200						Gopalpi	Gopalpur							
Sam	ple Descri	ption				Ambient	Air Qua	lity						
Sam	ple Drawn	Period/ Tir	ne			Monthly	/ 0900 tc	0900 n	ext day					
Sam	ple Drawn	Mr. R.K	Das											
Sam	pling Loca	ation				LBSS B	LBSS Building							
Ave	rage Flow	Rate of SPN	M (m ³ /mi	in)/ Gase	es (lpm)	1.1/1.0	1.1/1.0							
Wea	ther Cond	itions				Clear	Clear							
Refe	Reference No.						CEMC-03102020A1							
					ANALY	SIS RESUI	T							
ate	PM ₁₀	PM _{2.5}	SO ₂	NOx	CO	NH ₃	O ₃	Pb	Ni		Benzene			
	$(\mu g/m^3)$	$(\mu g/m^3)$	$(\mu g/m^3)$	$(\mu g/m^3)$	(mg/m^3)	$(\mu g/m^3)$	$(\mu g/m^3)$	(µg/m ³)	(ng/m^3)	(ng/m^3)	$(\mu g/m^3)$	(ng/m		
0000		010		100	1 0 1		1				}	1		

Date	(µg/m³)	$(\mu g/m^3)$	(µg/m ³)	$(\mu g/m^3)$	(mg/m^3)	(µg/m³)	(µg/m ³)	$(\mu g/m^3)$	(ng/m^3)	(ng/m^3)	$(\mu g/m^3)$	(ng/m^3)
01.09.2020		31.8	9.4	12.8	0.4		-		-			
04.09.2020	54.4	31.4	9.2	12.6	0.4						-	
07.09.2020	53.8	30.6	8.9	12.4	0.4							
10.09.2020	54.4	30.4	8.7	12.2	0.4					1		
14.09.2020	55.2	31.2	8.8	12.0	0.4	<20	<10	<0.1	<0.6	<0.44	<5	<1
17.09.2020	56.0	32.0	9.6	13.2	0.4				and bas			
21.09.2020	52.2	27.8	8.2	11.8	0.3							
24.09.2020	54.6	30.8	8.9	12.4	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)	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 Gatt. Notification.

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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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> Laboratory At: Plot No. 800/1274, Johal, Pahal, Bhubaneswar-752101, E-mail: cemclab@yahoo.in, Mobile: 9937631956, 8895177314

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Report no.-CEMC/TSL/031020/A2

Issued Date-03.10.2020

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 (m ³ /min)/ Gases(lpm)	1.1/1.0
Weather Conditions	Clear
Reference No.	CEMC-03102020A2
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

					ANALY	<u>SIS RESUL</u>	<u>.</u>					
Date	PM ₁₀	PM _{2.5}	SO ₂	NOx	CO	NH ₃	03	Pb	Ni	As	Benzene	
	$(\mu g/m^3)$					$(\mu g/m^3)$	$(\mu g/m^3)$	(µg/m)	(ng/m^3)	(ng/m^3)	$(\mu g/m^3)$	(ng/m^3)
01.09.2020	56.4	32.2	9.6	13.1	0.4							
04.09.2020	55.2	31.8	9.4	12.8	0.4					*** 70		
07.09,2020	54.6	31.2	9.2	12.6	0.4		PPI NA				500 EP+	
10.09.2020	55.8	32.0	9.5	12.4	0.4			"				
14.09.2020	55.6	31.6	9.0	12.2	0.4	<20	<10	< 0.1	<0.6	< 0.44	<5	<1
17.09.2020	56.2	31.6	9.3	13.0	0.4			-	w			
21.09.2020	52.8	29.2	8.4	11.6	0.3							
24.09.2020	55.2	31.2	9.2	12.4	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)	IS: 5182 (Part- 22)	followed	method		IS: 5182 (Part- 12)

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

Authorized Signatory

Notes:

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Laboratory At: Plot No. 800/1274, Johal, Pahal, Bhubaneswar-752101,

ANALYSIS RESULT

END OF REPORT





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Report no.-CEMC/TSL/031020/A3

Issued Date-03.10,2020

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 ³ /min)/ Gases(lpm)	1.1/1.0
Weather Conditions	Clear
Reference No.	CEMC-03102020A3
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

ANALYSIS RESULT

¥	,	1	1			SIS RESUL						
Dte	PM ₁₀	PM _{2.5}	SO ₂	NOx	CO	NH ₃	O ₃	Pb	Ni	As	Benzene	
	$(\mu g/m^3)$	$(\mu g/m^3)$	$(\mu g/m^3)$	(µg/m²)	(mg/m^3)	$(\mu g/m^3)$	$(\mu g/m^3)$	(µg/m³)	(ng/m^3)	(ng/m^3)	$(\mu g/m^3)$	(ng/m^3)
01.09.2020	49.6	27.0	7.4	11.2	0.3							
04.09.2020	52.8	28.0	8.1	11.6	0.4					-		
07.09.2020	53.4	28.4	8.4	11.7	0.4	-		3				
10.09.2020	52.2	29.2	8.2	12.2	0.4	<20	<10	< 0.1	<0.6	< 0.44	<5	<1
14.09.2020	53.6	28.8	8.7	11.5	0.4							. The set
17.09.2020	52.8	28.2	8.1	11.6	0.4			-				
21.09.2020	53.2	29.4	8.5	12.2	0.4	PR 764						
24.09.2020	54.3	29.8	8.9	12.4	0.4							
Avg												
NAAQ*	100	60	80	80	4	400	100	1.0	20	-	=	4
Standard	100	00	00	00	-11	400	100	1.0	20	6	5	1
Methods		Gravimetric	IS:	IS:	IS:	Indophenol	IS:	IS:	As per	As per		IS:
of	IS: 5182	Method as	15: 5182	15: 5182	15: 5182	Blue	15: 5182	15: 5182	CPCB	CPCB	IS: 5182	5182
Analysis	(Part-	per CPCB	(Part-	(Part-	(Part-	Method	(Part-	(Part-	method	method	(Part-	(Part-
	23)	method	(rait- 2)	(rar - 6)	(rar - 10)	followed	0)	(Fart- 22)	followed			12)
				,	,	by CPCB.	\sim		by AAS	by AAS		

B- No1Q-National Ambient Air Quality Standard as per 18th Nov, 2009 Gate Notification.

Authorized Signatory

Notes:

Environmental Laseal of Laboratory

END OF REPORT

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Report no.-CEMC/TSL/031020/A4

Issued Date-03.10.2020

END OF REPORT

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 $(m^3/min)/$ Gases(lpm)	1.1/1.0
Weather Conditions	Clear
Reference No.	CEMC-03102020A4
Instrument Used	Respirable Dust Sampler, Fine Dust Sampler, Gaseous Attachment

ANALYSIS RESULT

PM ₁₀	PM _{2.5}	SO ₂	NOx	CO	NH ₃	O ₃	Pb	Ni	As	Benzene	BaP
(µg/m³)	(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^3)	(ng/m^3)	$(\mu g/m^3)$	(ng/m^3)
53,4	30.4	8.2	12.2	0.3	200 Mile						
55.2	31.6	8.6	12.9	0.4							
56.2	32.4	8.8	13.0	0.4							
54.8	31.2	9.2	12.8	0.4							
56.4	31.8	9.4	13.1	0.4	<20	<10	< 0.1	< 0.6	< 0.44	<5	<1
54.6	31.4	9.1	12.6	0.4							
57.8	32.6	9.4	13.4	0.4							
55.2	31.4	8.8	13.2	0.4			25.00				
100	60	90	00	A	400	100	1.0	20	(=	-1
100	00	00	00		400	100	1.0	-20	0	э	1
IS: 5182 (Part- 23)	Method as per CPCB	5182 (Part-	IS: 5182 (Part-	IS: 5182 (Part- 10)	Blue Method followed	15: 5182 (Part-	IS: 5182 (Part- 22)	followed	followed	IS: 5182 (Part-11)	IS: 5182 (Part- 12)
	(µg/m ³) 53.4 55.2 56.2 54.8 56.4 54.6 57.8 55.2 100 IS: 5182 (Part-	(μg/m³) (μg/m³) 53.4 30.4 55.2 31.6 56.2 32.4 54.8 31.2 56.4 31.8 54.6 31.4 57.8 32.6 55.2 31.4 100 60 IS: 5182 Gravimetric Method as per CPCB	(μg/m ³) (μg/m ³) (μg/m ³) 53.4 30.4 8.2 55.2 31.6 8.6 56.2 32.4 8.8 54.8 31.2 9.2 56.4 31.8 9.4 54.6 31.4 9.1 57.8 32.6 9.4 55.2 31.4 8.8 100 60 80 IS: 5182 Gravimetric Method as per CPCB 5182 (Part- 23)	(μg/m³) (μg/m³) (μg/m³) (μg/m³) (μg/m³) 53.4 30.4 8.2 12.2 55.2 31.6 8.6 12.9 56.2 32.4 8.8 13.0 54.8 31.2 9.2 12.8 56.4 31.8 9.4 13.1 54.6 31.4 9.1 12.6 57.8 32.6 9.4 13.4 55.2 31.4 8.8 13.2 100 60 80 80 IS: 5182 Gravimetric Method as per CPCB IS: 5182 (Part- (Part- S182 (Part-	(μg/m ³) (mg/m ³) 53.4 30.4 8.2 12.2 0.3 55.2 31.6 8.6 12.9 0.4 56.2 32.4 8.8 13.0 0.4 54.8 31.2 9.2 12.8 0.4 56.4 31.8 9.4 13.1 0.4 54.6 31.4 9.1 12.6 0.4 57.8 32.6 9.4 13.4 0.4 55.2 31.4 8.8 13.2 0.4 55.2 31.4 8.8 13.2 0.4 55.2 31.4 8.8 13.2 0.4 100 60 80 80 4 12.5 5182 5182 5182 5182 (Part- 23) per CPCB (Part- (Part- (Part- (Part-	(μg/m³) <	(µg/m³)(µg/m³)(µg/m³)(µg/m³)(µg/m³)(µg/m³)(µg/m³)(µg/m³) 53.4 30.4 8.2 12.2 0.3 55.2 31.6 8.6 12.9 0.4 56.2 32.4 8.8 13.0 0.4 54.8 31.2 9.2 12.8 0.4 56.4 31.8 9.4 13.1 0.4 <20 <10 54.6 31.4 9.1 12.6 0.4 57.8 32.6 9.4 13.4 0.4 55.2 31.4 8.8 13.2 0.4 100 60 80 80 4 400 100 IS: 5182 GravimetricIS: 5182 5182 5182 5182 5182 5182 $S182$ 6 $Method$ followed 9	(µg/m³)<	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	(µg/m³)<	$\begin{array}{c c c c c c c c c c c c c c c c c c c $

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

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Report no.-CEMC/TSL/031020/F1

Issued Date-03.10.2020

FUGITIVE AIR QUALITY MONITORING TEST REPORT

Issued to	M/s. TATA Steel Ltd, (Ferro Alloys Plant), Gopalpur				
Sample Description	Fugitive Air Quality				
ample Drawn Period Monthly Once					
Sample Drawn by	Mr. R.K Das				
Sampling Location	RMHS				
Instrument Used	Respirable Dust Sample				
Date of Sampling	30.09.2020				
Date of Receiving	01.10.2020				
Date of Testing	01.10.2020 to 03.10.2020				
Reference No.	CEMC-03102020F1				

ANALYSIS RESULT

SL No.	Locations	Suspended Particulate Matter (SPM)
1	RMHS (Raw Material Handling Site)	482.2
	d as per Environment (protection) endment) Rules-2012 by MoEF	2000
Unit		μg/m ³
Testing Method		Gravimetric
	to a lateral design of the second sec	*END OF REPORT*

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Report no.-CEMC/TSL/031020/F2 Issued Date-03.10.2020 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	30.09.2020
Date of Receiving	01.10.2020
Date of Testing	01.10.2020 to 03.10.2020
Reference No.	CEMC-03102020F2

ANALYSIS RESULT

SI. No.	Locations	Suspended Particulate Matter (SPM)
1	FPHS (Fine Product Handling Site)	312.8
	d as per Environment (protection) endment) Rules-2012 by MoEF	2000
Unit		μg/m ³
Testing	Method	Gravimetric
Authori Notes:	Jour zed Signatory	*END OF REPORT*

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Report no.-CEMC/TSL/031020/F3 Issued Date-03.10.2020 <u>FUGITIVE AIR QUALITY MONITORING TEST REPORT</u>

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	30.09.2020
Date of Receiving	01.10.2020
Date of Testing	01.10.2020 to 03.10.2020
Reference No.	CEMC-03102020F3

ANALYSIS RESULT

Sl. No.	Locations	Suspended Particulate Matter (SPM)
1	I-Bin Building	262.4
	d as per Environment (protection) endment) Rules-2012 by MoEF	2000
Unit		μg/m ³
Testing .	Method	Gravimetric

END OF REPORT

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ANNEXURE-4

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Report no.-CEMC/TSL/020620/N

Issued Date-02.06.2020

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	01.05.2020 to 30.05.2020
Reference No.	CEMC-02062020N
Instrument Used	Noise Meter

Date	Location	NL Da	NL Day Time dB (A)			NL Night Time dB (A)		
Date			Min.	Avg.	Max.	Min.	Avg.	
29.05.2020	LBSS Building	57.2	54.6	55.9	54.1	51.3	52.7	
28.05.2020	MRSS Building	56.7	50.3	53.5	51.6	49.2	50.4	
30.05.2020	Canteen	55.1	50.2	52.65	49.0	46.6	47.8	
31.05.2020	ETP Building	56.4	51.2	53.8	53.6	49.2	51.4	

NATIONAL STANDARD OF NOISE LEVEL

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

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Notes:

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

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Report no.-CEMC/TSL/020720/N

Issued Date-02.07.2020

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	01.06.2020 to 30.06.2020
Reference No.	CEMC-02072020N
Instrument Used	Noise Meter

Date	Location	NL Day Time dB (A)			NL Night Time dB (A)		
Date	Location	Max	Min.	Avg.	Max.	Min.	Avg.
11.06.2020	LBSS Building	64.3	59.1	61.7	60.4	56.2	58.3
12.06.2020	MRSS Building	67.6	60.2	63.9	59.7	55.5	57.6
13.06.2020	Canteen	63.1	59.5	61.3	58.4	51.4	54.9
15.06.2020	ETP Building	62.5	60.3	61.4	59.1	51.3	55.2

NATIONAL STANDARD OF NOISE LEVEL

Area	Catagory of Area/7070	Permissible Limit in dB (A)			
Code	Category of Area/Zone	Day Time	Night Time 70		
Α	Industrial Area	75			
В	Commercial Area	65	55		
С	Residential Area	55	45		
D	Silence Zone	50	40		

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Notes:

> The result given above related to the tester example, as use eived. The customer asked for the above test only.

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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/030820/N

Issued Date-03.08.2020

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	01.07.2020 to 31.07.2020
Reference No.	CEMC-03082020N
Instrument Used	Noise Meter

Date	Location	NL D	NL Day Time dB (A)			NL Night Time dB (A)		
Date	Location	Max	Min.	Avg.	Max.	Min.	Avg.	
08.07.2020	LBSS Building	64.8	59.4	62.1	60.2	56.4	58.3	
14.07.2020	MRSS Building	68.4	60.6	64.5	59.4	55.2	57.3	
15.07.2020	Canteen	63.6	59.8	61.7	58.2	51.6	54.9	
07.07.2020	ETP Building	62.6	60.0	61.3	59.4	51.5	55.4	

NATIONAL STANDARD OF NOISE LEVEL

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

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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/020920/N

/020920/N Issued Date-02.09.2020 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	01.08.2020 to 31.08.2020
Reference No.	CEMC-02092020N
Instrument Used	Noise Meter

Data	Lagation	NL Day Time dB (A)			NL Night Time dB (A)		
Date	Location	Max	Min.	Avg.	Max.	Min.	Avg.
11.08.2020	LBSS Building	64.2	59.2	61.7	58.8	56.2	57.5
17.08.2020	MRSS Building	67.6	60.4	64.0	59.2	55.6	57.4
18.08.2020	Canteen	63,4	59.6	61.5	58.4	51.2	54.8
19.08.2020	ETP Building	61.8	58.6	60.2	58.8	51.0	54.9

NATIONAL STANDARD OF NOISE LEVEL

Area	Catorows of A non Tonno	Permissible Limit in dB (A)				
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			

Authorized Signatory Notes:



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Report no.-CEMC/TSL/031020/N

Issued Date-03.10.2020

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	01.09.2020 to 30.09.2020
Reference No.	CEMC-03102020N
Instrument Used	Noise Meter

Date	Location	NL D:	NL Day Time dB (A)			NL Night Time dB (A)		
Date	Location	Max	Min.	Avg.	Max.	Min.	Avg.	
08.09.2020	LBSS Building	65.4	60.4	62.9	58.2	56.4	57.3	
09.09.2020	MRSS Building	68.2	60.8	64.5	59.6	55.2	57.4	
07.09.2020	Canteen	63.8	59.4	61.6	58.8	51.0	54.9	
10.09.2020	ETP Building	62.4	58.8	60.6	58.4	51.6	55.0	

NATIONAL STANDARD OF NOISE LEVEL

Area CodeCategory of Area/ZoneAIndustrial Area	Cotogory of Area /7 and	Permissible Limit in dB (A)				
	Category of Area/Zone	Day Time	Night Time			
	75	70				
В	Commercial Area	65	55			
С	Residential Area	55	45			
D	Silence Zone	50	40			

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Authorized Signatory Notes:

- Seal of Laboratory
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