



TSL/FAMD/FAPG/FY25/1391

Dt.23/09/2024

To,

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

Sub: Submission of Environment Statement 2023-2024.

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

Dear Sir,

With reference to Rule 14 of the environment (Protection) Rules 1986, we are enclosing the herewith the environmental statement report for the financial year 2023-2024.

This is for your kind information.

Thanking You,

Yours Truly,  
For Tata Steel Limited

(A. Rambabu)  
Plant Head & Factory Manager  
Ferro Chrome Plant, Gopalpur

Copy to: Regional Officer, State Pollution Control Board,  
Berhampur



**TATA STEEL LIMITED**

Project Gopalpur Gajapati Nagar Main lane Berhampur 760010 Dist. Ganjam odisha India

Tel +91 680 2290212 2290046

Registered Office Bombay House 24 Homi Mody Street Fort Mumbai 400 001

Tel 91 22 66658282 Fax 91 22 66657724

127100MH1907PLC000260



Scanned with OKEN Scanner



# ENVIRONMENT STATEMENT

FOR THE FINANCIAL YEAR 2023-2024

Submitted to SPCB under Rule 14 of The Environment (Protection) Rules 1986

**TATA STEEL LIMITED**

**FERRO CHROME PLANT, Gopalpur**

**FORM – V**  
**ENVIRONMENTAL STATEMENT FOR THE FINANCIAL YEAR ENDING**  
**31<sup>ST</sup> MARCH 2024**

**PART – A**

|   |  |
|---|--|
| Name & address of the owner/ occupier of the industry, operation or process | T V Narendran<br>CEO & Managing Director<br>Tata Steel Limited<br>Chamakhandi, Chatrapur Tehsil,<br>Ganjam, Odisha |
| Industry categories   | Large Scale Industry   |
| Production Capacity   | High Carbon Ferro Chrome (HCFC)<br>2X18 MVA Furnace – 55000 MTPA   |
| Year of Establishment   | 2016-17  |
| Date of last environmental statement submitted                              | 29 September 2023  |

**PART – B**

**WATER AND RAW MATERIAL CONSUMPTION**

- I. **Water Consumption (for 2X18 MVA):** 144456.3m<sup>3</sup>(April-2023 - March 2024) = 395 m<sup>3</sup>/day
- Process : 303.74 m<sup>3</sup>/day
- Cooling : 45.35 m<sup>3</sup>/day
- Domestic : 45.91 m<sup>3</sup>/day

| SN | Name of Product          | Process water consumption per unit of product output (Cum/Ton) |                                   |
|----|--------------------------|--|-----------------------------------|
| 1  | High Carbon Ferro Chrome | During the previous financial year                             | During the current financial year |
|    |                          | Water is not used in the process                               | Water is not used in the process  |

## II. Raw Material Consumption:

| SN | Name of Product                 | Name of Raw Material | Consumption of raw material per unit of output      |  |
|----|---------------------------------|----------------------|---|--|
|    |                                 |                      | During the previous financial year 2022-23 (Tonnes) | During the current financial year 2023-24 (Tonnes) |
| 1  | High Carbon Ferro Chrome (HCFC) | Chrome Ore           | 133235.9  | 128410.175   |
|    |                                 | Coke                 | 24290.5   | 30103.71   |
|    |                                 | Coal                 | 5100  | 0  |
|    |                                 | Quartzite            | 8467  | 7792.25  |
|    |                                 | Bauxite              | 0.00  | 0.00   |
|    |                                 | Magnesite            | 142.36  | 223.62   |
|    |                                 | Molasses             | 6723.2  | 7994.25  |
|    |                                 | Lime                 | 3211.20   | 5323.25  |
|    |                                 | Carbon Paste         | 640.5   | 689  |
|    |                                 | Fluorite             | 0.00  | 7.84   |

## PART - C

### POLLUTION DISCHARGED TO ENVIRONMENT PER UNIT OF OUTPUT

(Parameters as specified in the consent issued)

#### **Brief description of the process producing FeCr:**

During the smelting process; oxides of Chromium, Iron, Silicon, Sulphur and Phosphorous are reduced. The Sulphur goes into the Slag and also escapes to the atmosphere through the stack as SO<sub>2</sub>.

#### **Sources of Pollution:**

The sources of pollution can be in the form of:

1. Water Pollution
2. Air Pollution

#### **1. Water Pollution:**

We are treating water where chances of Hexavalent chromium contamination present through ETP and the treated water is used in metal cooling, watering on plantation, dust suppression etc.

## 2. Air Pollution:

2nos. 18 MVA Arc Furnace produces the following air pollutants which is released to atmosphere through Gas Cleaning Plant. SPM, SO<sub>2</sub>, NO<sub>2</sub> & CO

| SN | Pollutants      | Quantity of pollutants discharged (Ton/Day) |       | Concentration of pollutants in discharges (mg/NM <sup>3</sup> ) |       | Percentage of variation from prescribed standard with reason |
|----|-----------------|---|-------|---|-------|--|
| A  | Water           | 0.00  |       | 0.00  |       | Zero discharge (analysis report attached as annexure-I)      |
| B  | Air: PM         | 0.084                                       | 0.098 | 31.92   | 37.13 | SPM within standard (analysis report attached as annexure-I) |
|    | SO <sub>x</sub> | -   | -     | -   | -     | -  |
|    | NO <sub>x</sub> | -   | -     | -   | -     | -  |

### PART - D

#### HAZARDOUS WASTES

AS SPECIFIED UNDER HAZARDOUS WASTES (MANAGEMENT, HANDLING AND TRANSBOUNDARY MOVEMENT) RULES, 2008 AND AMENDMENT THEREOF

| Hazardous Wastes                   | Total Quantity   |   |
|------------------------------------|--|---|
|                                    | During the previous financial year 2022-23                                   | During the current financial year 2023-24                                   |
| a) From process                    | Used Oil / Spent Oil – 14.6 T/A<br>Waste/Residues Containing Oil – 0.73 T/A, | Used Oil / Spent Oil – 2.6 T/A<br>Waste/Residues Containing Oil – 0.65 T/A, |
| b) From pollution control facility | Flue dust from GCP of FerroAlloys Furnace – 1161MT (Recycled)                | Flue Gas Cleaning Residue – 1163MT/A  |

### PART-E

#### SOLID WASTES

| Sl. No. | Solid Waste | Total Quantity                            |   |
|---------|-------------|---|---|
|         |             | During the previous financial year 2022 - | During the current financial year 2023- |

|    |  | 23 (Tonne)  | 24(Tonnes)   |
|----|--|---|--|
| a) | From process                                       | 54038   | 55000  |
| b) | From Pollution Control facility                    | NA  | NA   |
| c) | i. Quantity recycled or reutilized within the unit | 56035<br>(Used in filling low lying areas inside plant premise) | 55000<br>(Used in filling low lying areas inside plant premise, road making and as an aggregate) |
|    | ii. Sold   | No  | No   |
|    | iii. Disposed                                      | 00  | 00   |

### PART - F

**PLEASE SPECIFY THE CHARACTERIZATION (IN TERMS OF COMPOSITION OF QUANTUM) OF HAZARDOUS WASTE AS WELL AS SOLID WASTE AND INDICATE DISPOSAL PRACTICE ADOPTED FOR BOTH THESE CATEGORIES OF WASTES**

**A. Hazardous Waste:** As plant was not in operation for more than nine months of that financial year, no used oil and residue containing oil was generated. The GCP residue which is generated from the process is 100% recycled in briquette production. The procedure is to collect the waste oil generated at various sources in leak proof barrels and then are kept on an impervious floor. It is also ensured that the caps of the barrels remain intact. The storage area is properly fenced and caution board displayed. During transfer of waste oil to barrels, care is taken in order to prevent land contamination due to oil spillage. Then at a fixed interval, these barrels will be returned to stores for final disposal through auction to the authorized recycler.

**B. Characteristics (in terms of concentration and quantum) of solid waste**

Ferro chrome slag which is in lumpy form dumped in dump yard designated inside plant premises.

| <b>Characteristics of Ferro Chrome Slag</b> |                      |
|---|----------------------|
| <b>Parameter</b>                            | <b>Result (in %)</b> |
| Cr <sub>2</sub> O <sub>3</sub>              | 10-13                |
| SiO <sub>2</sub>                            | 27-30                |
| MgO   | 25-27                |
| FeO   | 3-5                  |
| Al <sub>2</sub> O <sub>3</sub>              | 22-25                |
| CaO   | 5-7                  |

The slag is dumped for back filing with-in our premises. The necessary TCLP test of slag has been carried out.

## **PART – G**

### **IMPACT ON THE POLLUTION ABATEMENT MEASURES TAKEN ON CONSERVATION OF NATURAL RESOURCES AND ON THE COST OF PRODUCTION**

- ✚ 1080 numbers of forest tree sapling planted.
- ✚ Water Sprinkler installed for 1.2 KM to suppress dust
- ✚ Full-fledged Morden Dry Gas Cleaning Plant with Air Pulse Jet Bag Filter Technology (BFT) has been installed to clean process gas generated from furnace. Bag filters are also installed at briquetting plant to control dust emission during operation.
- ✚ Final dust of GCP is collected from silo in silo bags to control fugitive emission and the chrome dust is again reused 100% for briquette making.
- ✚ In plant control measures and, dust extraction system, fume extraction system, dry fog dust suppression system has been installed at vulnerable areas to reduce fugitive emission.
- ✚ Waste water utilization is continuing in regular activities like metal and slag cooling, road sprinkling, will be used in jigging plant, dust suppression and gardening.
- ✚ Maintenance of tree saplings is being carried out to ensure more than 90% survival rate.
- ✚ All internal roads inside the plant are made pucca to reduce dust emission.
- ✚ Side sheeting are given on sheds like bin building and briquetting plant to control cross wind and fugitive emission.
- ✚ Approx.55800 forest trees planted towards green at a survival rate more than 90%.
- ✚ Four numbers of ambient air quality monitoring stations installed to monitor air quality parameters and to take corrective action in-case of deviation from prescribed standard.
- ✚ Single use plastic is not used.

- ✚ Weather monitoring station is also installed for temperature, humidity, wind speed etc.
- ✚ Steel water bottles instead of plastic water s are in use to avoid plastic usage.

## **PART – H**

### **Additional measures / investment proposal during 2023-24 for environmental protection including abatement of pollution and prevention of pollution**

- ✚ Fixed water sprinkling at Raw Material area for fugitive dust suppression.
- ✚ Phase wise installation of LED lights in place of MH/HPSV lights for energy conservation.
- ✚ Green belt development over the year.
- ✚ Replacement in-case of old and damaged bags of GCP bag house with new ones to improve emission control.
- ✚ Waste water utilization in jigging plant.
- ✚ Continuing environmental monitoring.
- ✚ Celebrating World Environment Day
- ✚ Training on EMS to create awareness
- ✚ Effective solid wastes management
- ✚ 100% recycling of effluent water
- ✚ Proper handling and management of Hazardous Wastes

## **PART – I**

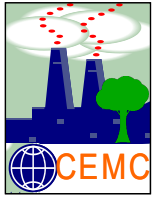
### **Miscellaneous**

### **Any other particulates in respect of environment protection and abatement of pollution**

- ✚ Only PUC certified vehicles are engaged inside plant premise.
- ✚ World environment day celebrated.
- ✚ Monitoring of stack emission, weather, ambient air, upstream and downstream water quality, noise every month.
- ✚ Adoption of good housekeeping practices in which proper and systematic stacking and movement of materials is ensured.
- ✚ ETP and STP has been installed to treat domestic and industrial wastewater.







# CENTRE FOR ENVOTECH AND MANAGEMENT CONSULTANCY PVT. LTD.

Annexure-I

An ISO 9001-2015 & OHSAS 45001:2018 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 & NABL Accredited Laboratory


Ref: CEMC-21092024A1

Date: 21.09.2024

## AAQ MONITORING REPORT FOR(2023-2024)

|                           |   |  |
|---------------------------|---|--|
| 1. Name of Industry       | : | M/s. TATA Steel Ltd, (Ferro Alloys Plant), Gopalpur                  |
| 2. Sampling Location      | : | AAQMS-1 : MRSS Building Roof   |
| 3. Monitoring Instruments | : | RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Monitor, VOC Sampler. |
| 4. Sample collected by    | : | CEMCPL Representative  |

| Date          | PARAMETERS                               |   |   |   |                            |  |   |   |                             |                            |                            |                            |
|---------------|--|---|---|---|----------------------------|--|---|---|-----------------------------|----------------------------|----------------------------|----------------------------|
|               | PM <sub>10</sub><br>(µg/m <sup>3</sup> ) | PM <sub>2.5</sub><br>(µg/m <sup>3</sup> ) | SO <sub>2</sub><br>(µg/m <sup>3</sup> ) | NO <sub>x</sub><br>(µg/m <sup>3</sup> ) | CO<br>(mg/m <sup>3</sup> ) | O <sub>3</sub><br>(µg/m <sup>3</sup> ) | NH <sub>3</sub><br>(µg/m <sup>3</sup> ) | C <sub>6</sub> H <sub>6</sub><br>(µg/m <sup>3</sup> ) | BaP<br>(ng/m <sup>3</sup> ) | Ni<br>(ng/m <sup>3</sup> ) | Pb<br>(µg/m <sup>3</sup> ) | As<br>(ng/m <sup>3</sup> ) |
| APR-23        | 70.8                                     | 36.7                                      | 11.8                                    | 15.9                                    | 0.6                        | <10                                    | <20                                     | <5  | <1                          | <0.6                       | <0.1                       | <0.44                      |
| MAY-23        | 72.9                                     | 38.6                                      | 12.7                                    | 17.0                                    | 0.6                        | <10                                    | <20                                     | <5  | <1                          | <0.6                       | <0.1                       | <0.44                      |
| JUNE-23       | 73.7                                     | 38.4                                      | 13.5                                    | 17.1                                    | 0.6                        | <10                                    | <20                                     | <5  | <1                          | <0.6                       | <0.1                       | <0.44                      |
| JULY-23       | 66.6                                     | 34.0                                      | 10.6                                    | 15.5                                    | 0.5                        | <10                                    | <20                                     | <5  | <1                          | <0.6                       | <0.1                       | <0.44                      |
| AUG-23        | 71.0                                     | 36.7                                      | 11.9                                    | 15.9                                    | 0.6                        | <10                                    | <20                                     | <5  | <1                          | <0.6                       | <0.1                       | <0.44                      |
| SEPT-23       | 71.6                                     | 36.7                                      | 12.7                                    | 16.7                                    | 0.6                        | <10                                    | <20                                     | <5  | <1                          | <0.6                       | <0.1                       | <0.44                      |
| OCT-23        | 71.51                                    | 35.86                                     | 12.77                                   | 16.7                                    | 0.56                       | <10                                    | <20                                     | <5  | <1                          | <0.6                       | <0.1                       | <0.44                      |
| NOV-23        | 70.09                                    | 36.53                                     | 13.2                                    | 16.73                                   | 0.55                       | <10                                    | <20                                     | <5  | <1                          | <0.6                       | <0.1                       | <0.44                      |
| DEC-23        | 68.26                                    | 35.74                                     | 12.02                                   | 16.82                                   | 0.45                       | <10                                    | <20                                     | <5  | <1                          | <0.6                       | <0.1                       | <0.44                      |
| JAN-24        | 67.78                                    | 33.98                                     | 12.25                                   | 16.03                                   | 0.44                       | <10                                    | <20                                     | <5  | <1                          | <0.6                       | <0.1                       | <0.44                      |
| FEB-24        | 69.49                                    | 34.96                                     | 12.42                                   | 16.76                                   | 0.41                       | <10                                    | <20                                     | <5  | <1                          | <0.6                       | <0.1                       | <0.44                      |
| MAR-24        | 71.55                                    | 36.7                                      | 12.69                                   | 16.7                                    | 0.57                       | <10                                    | <20                                     | <5  | <1                          | <0.6                       | <0.1                       | <0.44                      |
| Average       | <b>70.44</b>                             | <b>36.24</b>                              | <b>12.38</b>                            | <b>16.49</b>                            | <b>0.54</b>                | <10                                    | <20                                     | <5  | <1                          | <0.6                       | <0.1                       | <0.44                      |
| NAAQ Standard | 100                                      | 60  | 80                                      | 80                                      | 180                        | 4                                      | 400                                     | 5   | 1                           | 20                         | 1                          | 6                          |

  
Authorized Signatory



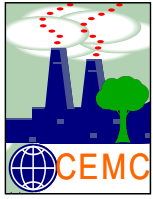
Environmental Studies (EIA & EMP), Monitoring, Forest Diversion Planning, DPR, Wildlife Management Plan, Hazardous & Safety Studies, RS& GIS, Baseline Survey, Hydrological & Geological Studies, Socio-economic Studies, DGPS & ETS Survey.

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

E-mail- cemc\_consultancy@yahoo.co.in, cemc122@gmail.com, website: www.cemc.in.

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

E-mail: cemclab@yahoo.in



# CENTRE FOR ENVOTECH AND MANAGEMENT CONSULTANCY PVT. LTD.

Annexure-I

An ISO 9001-2015 & OHSAS 45001:2018 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 & NABL Accredited Laboratory

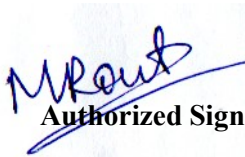
Ref: CEMC-21092024A2

Date: 21.09.2024

## AAQ MONITORING REPORT FOR(2023-2024)

|                           |   |  |
|---------------------------|---|--|
| 1. Name of Industry       | : | M/s. TATA Steel Ltd, (Ferro Alloys Plant), Gopalpur                  |
| 2. Sampling Location      | : | AAQMS-2 : LBSS Building Roof   |
| 3. Monitoring Instruments | : | RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Monitor, VOC Sampler. |
| 4. Sample collected by    | : | CEMCPL Representative  |

| Date          | PARAMETERS                               |   |   |   |                            |  |   |   |                             |                            |                            |                            |
|---------------|--|---|---|---|----------------------------|--|---|---|-----------------------------|----------------------------|----------------------------|----------------------------|
|               | PM <sub>10</sub><br>(µg/m <sup>3</sup> ) | PM <sub>2.5</sub><br>(µg/m <sup>3</sup> ) | SO <sub>2</sub><br>(µg/m <sup>3</sup> ) | NO <sub>x</sub><br>(µg/m <sup>3</sup> ) | CO<br>(mg/m <sup>3</sup> ) | O <sub>3</sub><br>(µg/m <sup>3</sup> ) | NH <sub>3</sub><br>(µg/m <sup>3</sup> ) | C <sub>6</sub> H <sub>6</sub><br>(µg/m <sup>3</sup> ) | BaP<br>(ng/m <sup>3</sup> ) | Ni<br>(ng/m <sup>3</sup> ) | Pb<br>(µg/m <sup>3</sup> ) | As<br>(ng/m <sup>3</sup> ) |
| APR-23        | 61.1                                     | 35.0                                      | 10.2                                    | 15.0                                    | 0.5                        | <10                                    | <20                                     | <5  | <1                          | <0.6                       | <0.1                       | <0.44                      |
| MAY-23        | 63.5                                     | 34.58                                     | 10.73                                   | 15.23                                   | 0.52                       | <10                                    | <20                                     | <5  | <1                          | <0.6                       | <0.1                       | <0.44                      |
| JUNE-23       | 65.0                                     | 35.4                                      | 12.5                                    | 16.3                                    | 0.6                        | <10                                    | <20                                     | <5  | <1                          | <0.6                       | <0.1                       | <0.44                      |
| JULY-23       | 60.3                                     | 31.1                                      | 10.6                                    | 15.2                                    | 0.4                        | <10                                    | <20                                     | <5  | <1                          | <0.6                       | <0.1                       | <0.44                      |
| AUG-23        | 61.1                                     | 35.0                                      | 10.2                                    | 15.0                                    | 0.5                        | <10                                    | <20                                     | <5  | <1                          | <0.6                       | <0.1                       | <0.44                      |
| SEPT-23       | 63.6                                     | 33.7                                      | 11.5                                    | 15.5                                    | 0.6                        | <10                                    | <20                                     | <5  | <1                          | <0.6                       | <0.1                       | <0.44                      |
| OCT-23        | 63.96                                    | 32.43                                     | 10.8                                    | 15.52                                   | 0.51                       | <10                                    | <20                                     | <5  | <1                          | <0.6                       | <0.1                       | <0.44                      |
| NOV-23        | 65.4                                     | 32.69                                     | 11.19                                   | 15.5                                    | 0.53                       | <10                                    | <20                                     | <5  | <1                          | <0.6                       | <0.1                       | <0.44                      |
| DEC-23        | 65.41                                    | 33.25                                     | 10.27                                   | 15.17                                   | 0.42                       | <10                                    | <20                                     | <5  | <1                          | <0.6                       | <0.1                       | <0.44                      |
| JAN-24        | 64.21                                    | 32.36                                     | 11.05                                   | 15.14                                   | 0.41                       | <10                                    | <20                                     | <5  | <1                          | <0.6                       | <0.1                       | <0.44                      |
| FEB-24        | 65.88                                    | 34.66                                     | 11.14                                   | 16.41                                   | 0.38                       | <10                                    | <20                                     | <5  | <1                          | <0.6                       | <0.1                       | <0.44                      |
| MAR-24        | 63.56                                    | 33.68                                     | 11.46                                   | 15.54                                   | 0.55                       | <10                                    | <20                                     | <5  | <1                          | <0.6                       | <0.1                       | <0.44                      |
| Average       | <b>63.59</b>                             | <b>33.65</b>                              | <b>10.97</b>                            | <b>15.46</b>                            | <b>0.49</b>                | <10                                    | <20                                     | <5  | <1                          | <0.6                       | <0.1                       | <0.44                      |
| NAAQ Standard | 100                                      | 60  | 80                                      | 80                                      | 180                        | 4                                      | 400                                     | 5   | 1                           | 20                         | 1                          | 6                          |

  
Authorized Signatory



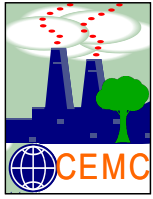
Environmental Studies (EIA & EMP), Monitoring, Forest Diversion Planning, DPR, Wildlife Management Plan, Hazardous & Safety Studies, RS& GIS, Baseline Survey, Hydrological & Geological Studies, Socio-economic Studies, DGPS & ETS Survey.

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

E-mail- cemc\_consultancy@yahoo.co.in, cemc122@gmail.com, website: www.cemc.in.

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

E-mail: cemclab@yahoo.in



# CENTRE FOR ENVOTECH AND MANAGEMENT CONSULTANCY PVT. LTD.

Annexure-I

An ISO 9001-2015 & OHSAS 45001:2018 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 & NABL Accredited Laboratory

Ref: CEMC-21092024A3

Date: 21.09.2024

## AAQ MONITORING REPORT FOR(2023-2024)

|                           |   |  |
|---------------------------|---|--|
| 1. Name of Industry       | : | M/s. TATA Steel Ltd, (Ferro Alloys Plant), Gopalpur                  |
| 2. Sampling Location      | : | AAQMS-3 : Canteen Building Roof                                      |
| 3. Monitoring Instruments | : | RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Monitor, VOC Sampler. |
| 4. Sample collected by    | : | CEMCPL Representative  |

| Date          | PARAMETERS                               |   |   |   |                            |  |   |   |                             |                            |                            |                            |
|---------------|--|---|---|---|----------------------------|--|---|---|-----------------------------|----------------------------|----------------------------|----------------------------|
|               | PM <sub>10</sub><br>(µg/m <sup>3</sup> ) | PM <sub>2.5</sub><br>(µg/m <sup>3</sup> ) | SO <sub>2</sub><br>(µg/m <sup>3</sup> ) | NO <sub>x</sub><br>(µg/m <sup>3</sup> ) | CO<br>(mg/m <sup>3</sup> ) | O <sub>3</sub><br>(µg/m <sup>3</sup> ) | NH <sub>3</sub><br>(µg/m <sup>3</sup> ) | C <sub>6</sub> H <sub>6</sub><br>(µg/m <sup>3</sup> ) | BaP<br>(ng/m <sup>3</sup> ) | Ni<br>(ng/m <sup>3</sup> ) | Pb<br>(µg/m <sup>3</sup> ) | As<br>(ng/m <sup>3</sup> ) |
| APR-23        | 59.9                                     | 34.4                                      | 9.6                                     | 14.0                                    | 0.5                        | <10                                    | <20                                     | <5  | <1                          | <0.6                       | <0.1                       | <0.44                      |
| MAY-23        | 62.1                                     | 34.0                                      | 10.5                                    | 14.7                                    | 0.5                        | <10                                    | <20                                     | <5  | <1                          | <0.6                       | <0.1                       | <0.44                      |
| JUNE-23       | 63.8                                     | 33.8                                      | 10.4                                    | 13.0                                    | 0.5                        | <10                                    | <20                                     | <5  | <1                          | <0.6                       | <0.1                       | <0.44                      |
| JULY-23       | 58.4                                     | 30.0                                      | 7.8                                     | 11.9                                    | 0.4                        | <10                                    | <20                                     | <5  | <1                          | <0.6                       | <0.1                       | <0.44                      |
| AUG-23        | 60.0                                     | 34.4                                      | 9.6                                     | 14.0                                    | 0.5                        | <10                                    | <20                                     | <5  | <1                          | <0.6                       | <0.1                       | <0.44                      |
| SEPT-23       | 62.9                                     | 32.5                                      | 10.6                                    | 14.6                                    | 0.5                        | <10                                    | <20                                     | <5  | <1                          | <0.6                       | <0.1                       | <0.44                      |
| OCT-23        | 65.09                                    | 33.09                                     | 10.92                                   | 14.8                                    | 0.48                       | <10                                    | <20                                     | <5  | <1                          | <0.6                       | <0.1                       | <0.44                      |
| NOV-23        | 65.74                                    | 33.66                                     | 11.52                                   | 14.93                                   | 0.49                       | <10                                    | <20                                     | <5  | <1                          | <0.6                       | <0.1                       | <0.44                      |
| DEC-23        | 64.96                                    | 33.15                                     | 11.26                                   | 14.8                                    | 0.48                       | <10                                    | <20                                     | <5  | <1                          | <0.6                       | <0.1                       | <0.44                      |
| JAN-24        | 64.35                                    | 32.95                                     | 11.7                                    | 15.61                                   | 0.48                       | <10                                    | <20                                     | <5  | <1                          | <0.6                       | <0.1                       | <0.44                      |
| FEB-24        | 65.74                                    | 33.6                                      | 11.82                                   | 16.5                                    | 0.46                       | <10                                    | <20                                     | <5  | <1                          | <0.6                       | <0.1                       | <0.44                      |
| MAR-24        | 62.9                                     | 32.54                                     | 10.63                                   | 14.61                                   | 0.5                        | <10                                    | <20                                     | <5  | <1                          | <0.6                       | <0.1                       | <0.44                      |
| Average       | <b>62.99</b>                             | <b>33.17</b>                              | <b>10.53</b>                            | <b>14.45</b>                            | <b>0.48</b>                | <10                                    | <20                                     | <5  | <1                          | <0.6                       | <0.1                       | <0.44                      |
| NAAQ Standard | <b>100</b>                               | <b>60</b>                                 | <b>80</b>                               | <b>80</b>                               | <b>180</b>                 | <b>4</b>                               | <b>400</b>                              | <b>5</b>  | <b>1</b>                    | <b>20</b>                  | <b>1</b>                   | <b>6</b>                   |

Authorized Signatory

Seal of Laboratory

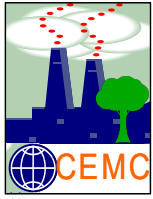
Environmental Studies (EIA & EMP), Monitoring, Forest Diversion Planning, DPR, Wildlife Management Plan, Hazardous & Safety Studies, RS& GIS, Baseline Survey, Hydrological & Geological Studies, Socio-economic Studies, DGPS & ETS Survey.

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

E-mail- cemc\_consultancy@yahoo.co.in, cemc122@gmail.com, website: www.cemc.in.

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

E-mail: cemclab@yahoo.in



# CENTRE FOR ENVOTECH AND MANAGEMENT CONSULTANCY PVT. LTD.

Annexure-I

An ISO 9001-2015 & OHSAS 45001:2018 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 & NABL Accredited Laboratory

Ref: CEMC-21092024A4

Date: 21.09.2024

## AAQ MONITORING REPORT (2023-2024)

|                           |   |  |
|---------------------------|---|--|
| 1. Name of Industry       | : | M/s. TATA Steel Ltd, (Ferro Alloys Plant), Gopalpur                  |
| 2. Sampling Location      | : | AAQMS-4 : ETP Building Roof  |
| 3. Monitoring Instruments | : | RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Monitor, VOC Sampler. |
| 4. Sample collected by    | : | CEMCPL Representative  |

| Date          | PARAMETERS                                       |   |   |   |                                  |  |   |   |                                   |                                  |                                    |                                  |
|---------------|--|---|---|---|----------------------------------|--|---|---|-----------------------------------|----------------------------------|------------------------------------|----------------------------------|
|               | PM <sub>10</sub><br>( $\mu\text{g}/\text{m}^3$ ) | PM <sub>2.5</sub><br>( $\mu\text{g}/\text{m}^3$ ) | SO <sub>2</sub><br>( $\mu\text{g}/\text{m}^3$ ) | NO <sub>x</sub><br>( $\mu\text{g}/\text{m}^3$ ) | CO<br>( $\text{mg}/\text{m}^3$ ) | O <sub>3</sub><br>( $\mu\text{g}/\text{m}^3$ ) | NH <sub>3</sub><br>( $\mu\text{g}/\text{m}^3$ ) | C <sub>6</sub> H <sub>6</sub><br>( $\mu\text{g}/\text{m}^3$ ) | BaP<br>( $\text{ng}/\text{m}^3$ ) | Ni<br>( $\text{ng}/\text{m}^3$ ) | Pb<br>( $\mu\text{g}/\text{m}^3$ ) | As<br>( $\text{ng}/\text{m}^3$ ) |
| APR-23        | 62.5   | 34.0  | 10.1  | 14.6  | 0.5                              | <10  | <20   | <5  | <1                                | <0.6                             | <0.1                               | <0.44                            |
| MAY-23        | 64.4   | 33.8  | 10.3  | 14.4  | 0.5                              | <10  | <20   | <5  | <1                                | <0.6                             | <0.1                               | <0.44                            |
| JUNE-23       | 64.5   | 34.1  | 11.0  | 15.0  | 0.5                              | <10  | <20   | <5  | <1                                | <0.6                             | <0.1                               | <0.44                            |
| JULY-23       | 54.9   | 28.1  | 8.3   | 12.6  | 0.4                              | <10  | <20   | <5  | <1                                | <0.6                             | <0.1                               | <0.44                            |
| AUG-23        | 63.4   | 34.0  | 10.1  | 14.6  | 0.5                              | <10  | <20   | <5  | <1                                | <0.6                             | <0.1                               | <0.44                            |
| SEPT-23       | 64.9   | 33.7  | 9.9   | 14.3  | 0.5                              | <10  | <20   | <5  | <1                                | <0.6                             | <0.1                               | <0.44                            |
| OCT-23        | 64.84  | 32.99   | 10.24   | 14.42   | 0.5                              | <10  | <20   | <5  | <1                                | <0.6                             | <0.1                               | <0.44                            |
| NOV-23        | 65.69  | 33.99   | 10.96   | 15.75   | 0.5                              | <10  | <20   | <5  | <1                                | <0.6                             | <0.1                               | <0.44                            |
| DEC-23        | 65.84  | 33.74   | 10.74   | 15.17   | 0.49                             | <10  | <20   | <5  | <1                                | <0.6                             | <0.1                               | <0.44                            |
| JAN-24        | 64.73  | 33.48   | 11.19   | 15.78   | 0.49                             | <10  | <20   | <5  | <1                                | <0.6                             | <0.1                               | <0.44                            |
| FEB-24        | 66.09  | 34.31   | 11.15   | 15.87   | 0.45                             | <10  | <20   | <5  | <1                                | <0.6                             | <0.1                               | <0.44                            |
| MAR-24        | 64.88  | 33.69   | 9.93  | 14.25   | 0.52                             | <10  | <20   | <5  | <1                                | <0.6                             | <0.1                               | <0.44                            |
| Average       | <b>63.89</b>                                     | <b>33.33</b>                                      | <b>10.33</b>                                    | <b>14.73</b>                                    | <b>0.49</b>                      | <10  | <20   | <5  | <1                                | <0.6                             | <0.1                               | <0.44                            |
| NAAQ Standard | 100  | 60  | 80  | 80  | 180                              | 4  | 400   | 5   | 1                                 | 20                               | 1                                  | 6                                |

Authorized Signatory



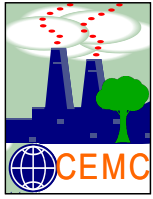
Environmental Studies (EIA & EMP), Monitoring, Forest Diversion Planning, DPR, Wildlife Management Plan, Hazardous & Safety Studies, RS& GIS, Baseline Survey, Hydrological & Geological Studies, Socio-economic Studies, DGPS & ETS Survey.

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

E-mail- cemc\_consultancy@yahoo.co.in, cemc122@gmail.com, website: www.cemc.in.

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

E-mail: cemclab@yahoo.in



# CENTRE FOR ENVOTECH AND MANAGEMENT CONSULTANCY PVT. LTD.

Annexure-I

An ISO 9001-2015 & OHSAS 45001:2018 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 & NABL Accredited Laboratory

Ref: CEMC-21092024St

Date: 21.09.2024

## STATIONARY EMISSION MONITORING REPORT (2023-2024)

1. Name of Industry : M/s TATA STEEL LTD, (Ferro Alloys Plant), Gopalpur  
2. Monitoring Instrument : Vayubodhan Stack Sampler VSS 2  
3. Stack attached to : GCP-I

| MONTH  | TEMP(k) | VEL(m/sec) | PM(mg/Nm3) | SO2(mg/Nm3) | NOX(mg/Nm3) |
|--------|---------|------------|------------|-------------|-------------|
| Apr-23 | 351     | 11.8       | 30.5       | 32.2        | 24.8        |
| May-23 | 357     | 11.5       | 32.4       | 36.2        | 25.6        |
| Jun-23 | 363     | 15.2       | 34.8       | 40          | 28.8        |
| Jul-23 | 273     | 0          | 0          | 0           | 0           |
| Aug-23 | 352     | 11.8       | 34.8       | 31.2        | 25.8        |
| Sep-23 | 355     | 12.2       | 33.6       | 32.8        | 26.2        |
| Oct-23 | 358     | 13.8       | 34.2       | 33.8        | 27.4        |
| Nov-23 | 362     | 14.1       | 36.5       | 32.5        | 26.9        |
| Dec-23 | 362     | 14.2       | 38.6       | 28.8        | 22.4        |
| Jan-24 | 368     | 15.9       | 37.5       | 29.4        | 21.1        |
| Feb-24 | 371     | 14.8       | 34.9       | 27.5        | 20.6        |
| Mar-24 | 355     | 12.2       | 35.2       | 30.6        | 24.8        |
| Avg.   | 352.25  | 12.29      | 31.92      | 29.58       | 22.87       |

Authorized Signatory

Seal of Laboratory

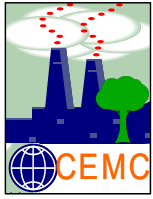


Environmental Studies (EIA & EMP), Monitoring, Forest Diversion Planning, DPR, Wildlife Management Plan, Hazardous & Safety Studies, RS& GIS, Baseline Survey, Hydrological & Geological Studies, Socio-economic Studies, DGPS & ETS Survey.

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

E-mail- cemc\_consultancy@yahoo.co.in, cemc122@gmail.com, website: www.cemc.in.

Laboratory At: Plot No. 800/1274, Johal, Pahal, Bhubaneswar-752101, Odisha, India, Mobile: 7752014842  
E-mail: cemclab@yahoo.in



# CENTRE FOR ENVOTECH AND MANAGEMENT CONSULTANCY PVT. LTD.

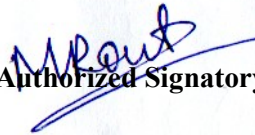
Annexure-I

An ISO 9001-2015 & OHSAS 45001:2018 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 & NABL Accredited Laboratory

## STATIONARY EMISSION MONITORING REPORT (2023-2024)

1. Name of Industry : M/s TATA STEEL LTD, (Ferro Alloys Plant), Gopalpur  
2. Monitoring Instrument : Vayubodhan Stach Sampler VSS 2  
3. Stack Attached to : GCP-II

| MONTH  | TEMP(k)       | VEL(m/sec)   | PM(mg/Nm3)   | SO2(mg/Nm3)  | NOX(mg/Nm3)  |
|--------|---------------|--------------|--------------|--------------|--------------|
| Apr-23 | 362           | 11.4         | 35.4         | 40           | 30.2         |
| May-23 | 368           | 12.1         | 34.4         | 41.8         | 29.6         |
| Jun-23 | 374           | 11.5         | 36.6         | 42.8         | 30.2         |
| Jul-23 | 370           | 12.2         | 32.2         | 43.8         | 32.6         |
| Aug-23 | 368           | 11.6         | 36.2         | 41           | 30.8         |
| Sep-23 | 370           | 11.2         | 37           | 42.8         | 32.4         |
| Oct-23 | 366           | 11           | 36.8         | 41.6         | 33.2         |
| Nov-23 | 369           | 11.1         | 37.9         | 42.6         | 34.7         |
| Dec-23 | 370           | 10.48        | 39.8         | 30.4         | 26.2         |
| Jan-24 | 377           | 11.54        | 40.65        | 28.9         | 27.1         |
| Feb-24 | 387           | 12.15        | 38.96        | 27.6         | 32.4         |
| Mar-24 | 370           | 11.2         | 39.6         | 36.4         | 30.2         |
| Avg.   | <b>370.92</b> | <b>11.46</b> | <b>37.13</b> | <b>38.31</b> | <b>30.80</b> |

  
Authorized Signatory



Seal of Laboratory

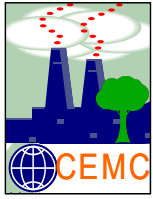
Environmental Studies (EIA & EMP), Monitoring, Forest Diversion Planning, DPR, Wildlife Management Plan, Hazardous & Safety Studies, RS& GIS, Baseline Survey, Hydrological & Geological Studies, Socio-economic Studies, DGPS & ETS Survey.

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

E-mail- cemc\_consultancy@yahoo.co.in, cemc122@gmail.com, website: www.cemc.in.

Laboratory At: Plot No. 800/1274, Johal, Pahal, Bhubaneswar-752101, Odisha, India, Mobile: 7752014842  
E-mail: cemclab@yahoo.in





# CENTRE FOR ENVOTECH AND MANAGEMENT CONSULTANCY PVT. LTD.

Annexure-I

An ISO 9001-2015 & OHSAS 45001:2018 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 & NABL Accredited Laboratory

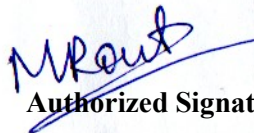
Ref: CEMC-21092024FE

Date: 21.09.2024

## FUGITIVE EMISSION MONITORING REPORT (2023-2024)

|                           |   |  |
|---------------------------|---|--|
| 1. Name of Industry       | : | M/s. TATA Steel Mining Ltd, (Ferro Alloys Plant), Gopalpur |
| 2. Monitoring Instruments | : | RDS (APM 460 BL)   |
| 3. Sample Collected By    | : | CEMCPL Representative                                      |

| Sampling Location | RMHS ( Raw Material Handling Site ) | FPHS ( Fine Product Handling Site ) | Bin Building                     |
|-------------------|-------------------------------------|-------------------------------------|----------------------------------|
|                   | SPM ( $\mu\text{g}/\text{m}^3$ )    | SPM ( $\mu\text{g}/\text{m}^3$ )    | SPM ( $\mu\text{g}/\text{m}^3$ ) |
| Apr-23            | 744                                 | 666                                 | 642                              |
| May-23            | 762                                 | 670                                 | 654                              |
| Jun-23            | 792                                 | 706                                 | 668                              |
| Jul-23            | 764                                 | 678                                 | 641                              |
| Aug-23            | 748                                 | 668                                 | 652                              |
| Sep-23            | 756                                 | 672                                 | 661                              |
| Oct-23            | 778                                 | 684                                 | 692                              |
| Nov-23            | 788                                 | 674                                 | 701                              |
| Dec-23            | 766                                 | 689                                 | 712                              |
| Jan-24            | 784                                 | 698                                 | 701                              |
| Feb-24            | 775                                 | 674                                 | 705                              |
| Mar-24            | 755                                 | 670                                 | 660                              |
| AVG               | 767.67                              | 679.08                              | 674.08                           |

  
Authorized Signatory



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.

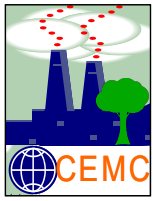
Regd. Office: Plot No.-522/3458, Near Utkal Hyundai, Opposite Apex College, Pahal, Bhubaneswar-752101, Odisha, India, Mobile: 9861032826

E-mail- cemc\_consultancy@yahoo.co.in, cemc122@gmail.com, website: www.cemc.in.

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

E-mail: cemclab@yahoo.in





# CENTRE FOR ENVOTECH AND MANAGEMENT CONSULTANCY PVT. LTD.

Annexure-I

An ISO 9001-2015 & OHSAS 45001:2018 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 & NABL Accredited Laboratory

Ref: CEMC-21092024EW

Date: 21.09.2024

## EFFLUENT WATER QUALITY MONITORING TEST REPORT(2023-2024)

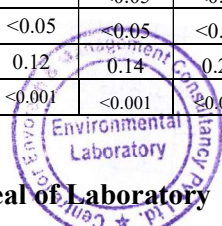
Name & Address of the Client : M/s. TATA Steel Ltd, (Ferro Alloys Plant), Gopalpur  
 Sampling Period : April-2023 to March-2024  
 Sampling by : CEMCPL Representative  
 Sample Location : Stage-III- Treated Water

### ANALYSIS RESULT

| PARAMETERS                      | APR-23    | MA Y-23   | JUN -23   | JUL-23    | AUG -23   | SEP-23    | OCT -23   | NOV -23   | DEC-23    | JAN-24    | FEB-24    | MAR -24   | AVG       |
|---------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Colour in Hazen                 | <5        | <5        | <5        | <5        | <5        | <5        | <5        | <5        | <5        | <5        | <5        | <5        | <5        |
| Odour                           | Odourless | Odourless | Odourless | Odourless | Odourless | Odourless | Odourless | Odourless | Odourless | Odourless | Odourless | Odourless | Odourless |
| pH                              | 6.4       | 6         | 12.8      | 13.6      | 9.4       | 10.8      | 11.2      | 9.3       | 13.8      | 14.1      | 13.6      | 12.4      | 11.12     |
| TSS in mg/l                     | 27.6      | 27.8      | 30.8      | 28.8      | 29.8      | 30.4      | 31.1      | 32.2      | 31.1      | 25.6      | 26.8      | 30.4      | 29.37     |
| Cu in mg/l                      | 7.71      | 7.74      | 7.62      | 8.14      | 7.62      | 8.44      | 8.32      | 8.36      | 8.12      | 8.05      | 8.11      | 8.41      | 8.05      |
| F in mg/l                       | 0.36      | 0.4       | 0.5       | 0.26      | 0.32      | 0.3       | 0.5       | 0.6       | 0.6       | 0.2       | 0.2       | 0.3       | 0.38      |
| Total Residual Chlorine in mg/l | <0.03     | <0.03     | <0.03     | <0.03     | <0.03     | <0.03     | <0.03     | <0.03     | <0.03     | <0.03     | <0.03     | <0.03     | <0.03     |
| Fe in mg/l                      | <0.05     | <0.05     | <0.05     | <0.05     | <0.05     | <0.05     | <0.05     | <0.05     | <0.05     | <0.05     | <0.05     | <0.05     | <0.05     |
| Mn in mg/l                      | 0.26      | 0.24      | 0.22      | 0.18      | 0.28      | 0.22      | 0.28      | 0.31      | 0.24      | 0.26      | 0.24      | 0.22      | 0.25      |
| NO3 in mg/l                     | <0.001    | <0.001    | <0.001    | <0.001    | <0.001    | <0.001    | <0.001    | <0.001    | <0.001    | <0.001    | <0.001    | <0.001    | <0.001    |
| C6H5OH in mg/l                  | <0.01     | <0.01     | <0.01     | <0.01     | <0.01     | <0.01     | <0.01     | <0.01     | <0.01     | <0.01     | <0.01     | <0.01     | <0.01     |
| Se in mg/l                      | <0.01     | <0.01     | <0.01     | <0.01     | <0.01     | <0.01     | <0.01     | <0.01     | <0.01     | <0.01     | <0.01     | <0.01     | <0.01     |
| Cd in mg/l                      | <0.01     | <0.01     | <0.01     | <0.01     | <0.01     | <0.01     | <0.01     | <0.01     | <0.01     | <0.01     | <0.01     | <0.01     | <0.01     |
| CN in mg/l                      | ND        | ND        | ND        | ND        | ND        | ND        | ND        | ND        | ND        | ND        | ND        | ND        | ND        |
| Pb in mg/l                      | <0.07     | <0.07     | <0.07     | <0.07     | <0.07     | <0.07     | <0.07     | <0.07     | <0.07     | <0.07     | <0.07     | <0.07     | <0.07     |
| Hg in mg/l                      | <0.05     | <0.05     | <0.05     | <0.05     | <0.05     | <0.05     | <0.05     | <0.05     | <0.05     | <0.05     | <0.05     | <0.05     | <0.05     |
| Ni in mg/l                      | <0.05     | <0.05     | <0.05     | <0.05     | <0.05     | <0.05     | <0.05     | <0.05     | <0.05     | <0.05     | <0.05     | <0.05     | <0.05     |
| As in mg/l                      | 5.8       | 6.2       | 6         | 5.8       | 5.7       | 5.4       | 5.1       | 5.5       | 5         | 4.9       | 4.5       | 5         | 5.41      |
| Cr in mg/l                      | <1        | <1        | <1        | <1        | <1        | <1        | <1        | <1        | <1        | <1        | <1        | <1        | <1        |
| Zn in mg/l                      | 3.4       | 3         | 4.2       | 4         | 3.6       | 3.4       | 4.2       | 4.6       | 5         | 6         | 12        | 16        | 5.78      |
| Cr+ in mg/l                     | 10        | 12        | 18        | 20        | 12        | 10        | 15        | 20        | 20        | 18        | 40        | 50        | 20.4      |
| V in mg/l                       | 3.1       | 3         | 4.2       | 3.6       | 3.1       | 3.6       | 3.8       | 3.5       | 4.4       | 4.6       | 4.3       | 3.6       | 3.73      |
| Temp in °C                      | ND        | ND        | ND        | ND        | ND        | ND        | ND        | ND        | ND        | ND        | ND        | ND        | ND        |
| DO in mg/l                      | ND        | ND        | ND        | ND        | ND        | ND        | ND        | ND        | ND        | ND        | ND        | ND        | ND        |
| BOD in mg/l                     | 0.16      | 0.12      | 0.14      | 0.14      | 0.16      | 0.18      | 0.22      | 0.24      | 0.32      | 0.41      | 0.4       | 0.18      | 0.22      |
| COD in mg/l                     | <0.05     | <0.05     | <0.05     | <0.05     | <0.05     | <0.05     | <0.05     | <0.05     | <0.05     | <0.05     | <0.05     | <0.05     | <0.05     |
| O & G in mg/l                   | <850      | <850      | <850      | <850      | <850      | <850      | <850      | <850      | <850      | <850      | <850      | <850      | <850      |
| N in mg/l                       | 95%       | 95%       | 95%       | 95%       | 95%       | 95%       | 95%       | 92%       | 95%       | 95%       | 95%       | 95%       | 95%       |
| TKN in mg/l                     | <0.01     | <0.01     | <0.01     | <0.01     | <0.01     | <0.01     | <0.01     | <0.01     | <0.01     | <0.01     | <0.01     | <0.01     | <0.01     |
| S in mg/l                       | 4.2       | 4         | 4.8       | 3.8       | 4.2       | 4.8       | 4.4       | 4.6       | 5.2       | 5.6       | 5.1       | 4.8       | 4.63      |
| Bio-assay Test in %             | <0.05     | <0.05     | <0.05     | <0.05     | <0.05     | <0.05     | <0.05     | <0.05     | <0.05     | <0.05     | <0.05     | <0.05     | <0.05     |
| Free Ammonia in mg/l            | <0.05     | <0.05     | <0.05     | <0.05     | <0.05     | <0.05     | <0.05     | <0.05     | <0.05     | <0.05     | <0.05     | <0.05     | <0.05     |
| Dissolved Phosphate in mg/l     | 0.15      | 0.12      | 0.18      | 0.14      | 0.15      | 0.12      | 0.14      | 0.21      | 0.16      | 0.18      | 0.16      | 0.12      | 0.15      |
| Particle Size of SS in mg/l     | <0.001    | <0.001    | <0.001    | <0.001    | <0.001    | <0.001    | <0.001    | <0.001    | <0.001    | <0.001    | <0.001    | <0.001    | <0.001    |

Authorized Signatory

Seal of Laboratory



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

E-mail- cemc\_consultancy@yahoo.co.in, cemc122@gmail.com, website: www.cemc.in.

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

E-mail: cemclab@yahoo.in