# SAIL BOKARO STEEL PLANT
# ENVIRONMENT CONTROL DEPARTMENT

**Compliance to the conditions laid down vide EC No.J-11011/99/2007-IA-II(I) dated 16th Oct'2008, issued to SAIL/ Bokaro Steel Plant for its 4MT Crude steel to 7MT Crude Steel expansion for the period from October'2019 to March'2020.**

## A. COMPLIANCE TO SPECIFIC CONDITIONS

***i. On-line stack monitoring facilities for all the stacks and sufficient air pollution control devices shall be provided to keep the emission levels below 100 mg/Nm3. In cement Plant, limit of PM emission shall be controlled within 50 mg/Nm3 by installing adequate air pollution control system.***

**Status:**

There are twenty eight Process stacks at SAIL/Bokaro Steel Plant On-line Continuous Stack emission monitoring System has been installed in twenty three Stacks. On-line Continuous Stack emission monitoring System in remaining five stacks will be installed along with the completion of Projects linked with them. The real time data of twenty one out of twenty three stacks have been uplinked to CPCB & JSPCB server. The remaining two stacks data will be uplinked after lock down period due to Covid-19 pandemic. Necessary emission control facilities have been installed in all stacks to maintain the emission level below stipulated standards. The emission level in all the stacks are within stipulated standards. SAIL/BSL does not own any cement plant.

***ii. All the standards prescribed for the coke oven Plants shall be followed as per the latest guidelines. Proper and full utilization of coke oven gases in power plant using waste heat recovery steam generators should be ensured and no flue gases shall be discharged into the air.***

**Status:**

- PLD, PLL and PLO in all batteries are maintained well below stipulated norms. The monitoring report has been attached.
- Emissions in all Coke oven stacks remain well below 50 mg/Nm3 of stipulated norm.
- Coke Oven gas is being utilized fully and judiciously as fuel in BSL.
- Excess gas is being utilized in Power Plant.
- All load based parameters prescribed as per March'2012 Notification for Coke ovens are also within stipulated standards.

***iii. Gaseous emission levels including secondary fugitive emissions from blast furnace and sinter plant shall be controlled within the latest permissible limits issued by the Ministry and regularly monitored. Guidelines / code of practice issued by the CPCB should be followed.***

**Status:**

Gaseous emission level including secondary fugitive emissions in Blast Furnace & Sinter Plant are within latest permissible limit. The fugitive emission level in different areas of the Plant, including BF & SP is being monitored regularly by ECD Lab and third party monitoring by MECON, reports are being submitted to CPCB on monthly basis.

***iv. Efforts shall be made to reduce impact of the transport of the raw materials and end products on the surrounding environment including agricultural land. All the raw materials including fly ash shall be transported in the closed containers only and shall not be overloaded. Vehicular emissions shall be regularly monitored.***

**Status:**

All the raw materials and Products are transported in railway wagons. Water sprinklers have been installed in the tippler area and Raw material stock yard to control fugitive emission during operation. The granulated BF slag is transported through conveyer belt & trucks after properly covering it with tarpaulin/ plastic sheets. Water sprinkling is done on the roads inside the plant on regular basis to prevent Air Pollution. The vehicular emission is regularly monitored inside the plant.

***v. Prior "Permission" for the drawal of the additional water required (3600 m3/hr) and shall be sourced from Tenughat for which BSL has permission. The entire quantity of water will be treated and recycled.***

**Status:**

SAIL/ Bokaro Steel Plant have been granted permission from Ministry of Water Resources of Jharkhand government for drawl of 23000$m^3$/hr. that also include the additional water required (3600 $m^3$/hr.).The effluent treatment plant at OF-1 has been commissioned. Discharge from OF-1is being treated and recycled back in to the Industrial make up .The construction work of ETP at OF-2 has been completed. Around 3000 $m^3$/hr. effluent is being treated and recycled back in the system out of total 3500 $m^3$/hr. generated. Total ZLD system will be maintained in CRM-3 from June'2020.

***vi. The company shall re-assess the additional water required and submit a detailed plan to minimize water consumption. "Zero" effluent discharge shall be strictly followed and no wastewater shall be discharged outside the premises.***

**Status:** The effluent treatment plant at OF-1 has been commissioned. Discharge from OF-1is being treated and recycled back in to the Industrial make up .The construction work of ETP at OF-2 has been completed. Around 3000 $m^3$/hr. effluent is being treated and recycled back in the system out of total 3500 $m^3$/hr. generated. Total ZLD system will be maintained in CRM-3 from June'2020. Discharge from Coke oven & By-product plant is treated at ETP and recycled & reused in Coke quenching. All the new projects will be commissioned with Zero Liquid discharge facility.

***vii. Continuous monitoring of Total Organic Compounds (TOC) shall be done at the outlet of ETP (BOD Plant).***

**Status:**

Continuous TOC monitoring system has been installed in ETP (BOD Plant) outlet.

***viii. All the blast furnace (BF) slag shall be granulated and used to cement manufacture. Flue dust from pellet plant sinter plant and SMS and sludge from BF shall be reused in sinter Plant. Coke breeze from coke oven plant shall be used in sinter and pellet plant. SMS slag shall be given for metal recovery or properly utilized. All the other solid waste including broken refractory mass shall be properly disposed off in environment-friendly manner.***

**Status:**

Total BF granulated slag is being used in Cement manufacturing. Total Flue dust, Mill Scale, Lime dust & Coke breeze are being utilized in Sinter Plant for sinter making. SMS slag is being processed for metal recovery in Slag processing plant being operated round the clock, the metal and slag are recycled back into the process through SP ,BF and SMS. Broken refractory mass is sold in secondary market through our Marketing department.

***ix. A time bound action plan shall be submitted to reduce solid waste, its proper utilization and disposal.***

**Status:**

Time bound action plan to reduce solid waste, its proper utilization and disposal has been Given below:

## Action Taken to Reduce Solid Waste Generation

| Sl. No. | Action Taken | Objective | Ultimate Impact |
|---|---|---|---|
| 1. | Increase of Imported coal in coal blend, charged in Coke oven Batteries for Coke Production | To Reduce ash content in Coke Produced | Reduction of BF Slag generation |
| 2. | Hydraulic Washing of Iron ore | To increase the concentration of Iron ore | Reduction of BF Slag generation |
| 3. | Use of Jaisalmer Lime Stone | To Reduce the ash content in lime stone charged for sinter making | Reduction of BF Slag generation |

## Time bound action plan for eco-friendly disposal of LD slag & BF Slag

| Area | Scheme / Project | Timeframe | Responsibility | Status as on date |
|---|---|---|---|---|
| LD slag in Sintering process. | To enhance the utilisation of0-5mm fraction of LD slag in Sinter base mix @32Kg/Tonne of Gross Sinter. Expected utilisation will go up by 58701 Tons Per annum w.r.t. last year. | By December'19 | CGM Sinter Plant, CGM RMHP &CGM Traffic | Presently 22 Kg/T of Gross sinter is being used in Sinter base mix |
| LD slag in Area development work | To enhance the LD slag consumption for area development work @ 12000/month | By January'20 | GM/ECD<br>Dy. Manager/ECD | Presently 9000T/Month is being consumed in area development. |
| Sale of Processed LD slag in secondary market | To increase the sale of LD slag in secondary market @ 60000T/Year | By March'20 | GM/ECD &GM I/C Marketing | During 2018-19 20000T of LD Slag was sold in secondary market |
| | To increase the sale of LD slag in secondary market to 100000T/Year | 2020-21 | GM/ECD &GM I/C Marketing | During 2018-19 20000T of LD Slag was sold in secondary market |
| | To increase the sale of LD slag in secondary market @ 130000T/Year | 2021-22 | GM/ECD &GM I/C Marketing | During 2018-19 20000T of LD Slag was sold in secondary market |
| Granulation of BF Slag | To increase the granulation of BF slag to 85% after commissioning of CHSGP-4 of BF#2 | 2019-20 | GM/ Blast furnace & GM Projects Iron Zone | During 2018-19 the BF slag granulation was 75% |
| | To increase the granulation of BF slag to 100% after commissioning of CHSGP-1& 2 of BF#1 | 2020-21 | CGM/Blast furnace & CGM Projects Iron Zone | During 2018-19 the BF slag granulation was 75% |
| Secondary sale of Air Cooled BF Slag | 1 Lakh Tonne | 2019-20 | GM I/C MRD & GM I/C Marketing | During 2018-19, 25000 T was sold. During 2019-20, around 85000 utilized for road making. |
| | 2 Lakh Tonne | 2020-21 | GM I/C MRD & GM I/C Marketing | - |
| | 3 Lakh Tonne | 2021-22 | GM I/C MRD & GM I/C Marketing | - |

***x. Efforts shall be made to use low grade lime, more fly ash and solid waste in the cement manufacturing.***

**Status:** Low grade lime and other solid wastes such as Flue dust,Mill Scale etc. are being used in Sinter Plant as M/s SAIL/Bokaro Steel Plant does not own any cement plant

***xi. Proper utilization of fly ash shall be ensured as per Fly ash Notification, 1999 and subsequent amendment in 2003.***

**Status:**

**Not applicable. (The condition is for power plant) ,**

BSL is not generating power and hence no fly ash is being generated by M/s SAIL/BSL , a separate entity. Power is generated by a separate company M/s BPSCL (JV of SAIL and DVC) which is operating with its own consent to operate, issued by Jharkhand State Pollution control Board, and separate EC ,issued by MoEF&CC .However in compliance to decision taken by EAC in its meeting held at 23.8.2019 a joint action plan has been prepared and got approved by SAIL and BPSCL board . Copy of the approved Joined action plan for eco-friendly disposal of old fly ash dump has been submitted to MoEF&CC, New Delhi.

***xii. As proposed, green belt should be developed in 33% area.***

**Status:**

**Existing Percentage Green cover:-**

A. **Total area acquired by SAIL/ BSL for Plant purpose=6973.68** Hectare (Including area earmarked for modernization purpose)
B. **Area earmarked for modernization=1199.99Ha**
C. **Total existing plant area=5773.69 Hectare**
D. **Existing Green cover =1923.99 Hectare**
E. **Existing percentage green cover=1923.99/5773.69x100=33.32**%

**Percentage green cover after Modernization:-**

A. Total area of the plant=6973.68 Hectare
B. Total Green cover=1923.99 Ha (existing) +475Ha (Plantation made in Garga basin)=2398.99 Ha
C. % Green Cover=2398.99/6973.68x100=34.40%

NB: The area 500Ha earmarked for SMS-III project is fully covered with dense vegetation & shrubs.

***xiii. All the recommendations made in the Charter on Corporate Responsibility for Environment Protection (CREP) for the Steel plants should be implemented.***

**Status:**

a. Fugitive emission (PLD, PLL & PLO) from Coke Oven Batteries are within norm.
b. Our all the batteries are either rebuilt or cold repaired, ahead of CREP schedule .Batt#7 has been recently commissioned after rebuilding. The rebuilding of Batt#8 is in progress. Battery#6 has been taken under shut down for rebuilding.
c. Fugitive emission in Steel melting shops of BSL is within norm.
d. LD slag utilization in the stipulated period was more than 94.57%
e. BF slag utilization is around 100 %.
f. CDI facility is available all Blast furnaces.
g. Average specific water consumption for the period Oct'2019 to March'2020 was 3.42 $m^3$/tcs which is well below CREP norm.
h. Phenol & ammonia content in BOD Plant effluent is below stipulated norm.
i. All pollution control equipment is being monitored closely and quarterly compliance reports are being sent to JSPCB & CPCB as per CREP guidelines. Third party monitoring is also being done by M/s MECON (MoEFCC recognized laboratory).

***xiv. The commitments made during public hearing shall be complied with. An action plan in this respect shall be submitted to the Ministry's Regional Office at Bhubaneswar.***

**Status:**

All commitments made during public hearing are being complied with

- Two number of Continuous Ambient Air Quality Monitoring Station has been installed & commissioned. Its data have been uplinked to CPCB & JSPCB server.
- Seven ambient air quality monitoring stations have been installed. All twelve Parameters as per the Notification are being monitored. The frequency of monitoring is bi-weekly.
- Stack emission level in all shops is below stipulated norm.
- Noise level at different locations of all shops remains within norm.
- All the roads are regularly maintained including Plant to Tupakadih.
- Vehicular pollution monitoring of vehicles is done by authorized agency on regular basis as per requirement.
- In SP, ESP# 6 has been commissioned. The refurbishing of ESP#2 is in progress.
- Around 74500 new saplings have been planted during 2019-20.
- Around 4860 saplings have been planted in. Sijna. Uritabatu and Bansgora villages through CSR
- Many Civic amenities such as Community centers have been developed in all sectors. Toilets have been constructed in Sector IV city centre, Sector I , Sector IX and Sector XII market places.
- Around 1870 saplings have been planted in the BSL Schools & other public schools in Bokaro steel city, during last three years
- SAIL/ BSL has allotted separate land for construction of 'Kamdhenu khatal'in sector VI area of BS. City. This khatal was constructed during 2009. Many khatals have been shifted there from sector area.
- Treated drinking water is being supplied by BSL in all sectors, Chas & Railway colony. Hand pumps have been installed in the neighbouring villages of the Bokaro Steel plant.
- BSL Township has Lagoon based STP of total capacity of 31.972 MLD. 3rd party monitoring of the discharge quality is also being regularly done through MoEF&CC accredited laboratory of M/s MECON. The treatment facility is working effectively and the discharge quality is well within the applicable standards, as stipulated by the MoEF&CC.

***xv. As proposed, Rs. 749.5 crores and Rs. 112.5 crores earmarked towards capital cost and recurring cost/annum for environment pollution control measures shall be judiciously utilized to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government. The funds so provided shall not be diverted for any other purpose.***

**Status:**

All the Capital funds allocated are being utilized on pollution control measures only. The annual allocation of recurring cost is being utilized on Pollution control measures only. The details of recurring expenditure & Capital expenditure during last three financial years are given below.

| Year | Recurring Expenditure (Crores) | Capital Expenditure ( Crores) |
|---|---|---|
| 2017-18 | 106.3363 | 196.631 |
| 2018-19 | 116.4375 | 61.645 |
| 2019-20 | 114.5321 | 42.628 |

***xvi. Provision shall be made for the housing of construction labour within the site with all the necessary infrastructure and facilities such as fuel for cooking, mobile, toilets, mobile STP, Safe drinking water, medical health care, creche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.***

***Status:***

The construction work at the project sites are carried out during the day time only. Construction workers do not stay inside the plant during night. Most of the construction workers are local/ displaced and belong to peripheral villages/localities and return to their residing places after performing their duties. Some of the construction workers, who are outsiders, have been given housing facility in camp-1 & camp-2 area of Bokaro Steel City. Permanent rest room, Drinking water facility, health care facility and toilets are available inside the plant. A crèche has been constructed for the children of female construction workers inside the plant.

**B. COMPLIANCE OF GENERAL CONDITIONS.**

***i. The project authorities must strictly adhere to the stipulations made by the Jharkhand State Pollution Control Board (JSPCB) and the State Government.***

**Status:**

Stipulations made by Jharkhand State Pollution Control Board are being complied and Progress report is regularly being sent to JSPCB. Compliance to the CTO conditions, Hazardous waste return, e-Waste Return, Biomedical Waste Return, Quarterly compliance report of PC equipment and Environment Statement are submitted to JSPCB, Ranchi as per the schedule.

***ii. No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment and Forests.***

**Status:**

No expansion or modification will be carried out without ministry's prior approval.

***iii. The gaseous emissions from various process units shall conform to the load/mass based standards notified by this Ministry on 19th May, 1993 and standards prescribed from time to time. The Jharkhand Pollution Control Board (JPCB)) may specify more stringent standards for the relevant parameters keeping in view the nature of the industry and its size and location. At no time, the emission level shall go beyond the prescribed standards. Interlocking facilities shall be provided so that process can be automatically stopped in case emission level exceeds the limit.***

**Status:**

Gaseous emissions from various process units are conforming to the norm stipulated by Ministry, CPCB and JSPCB. All the parameters are monitored as per March'2012 Notification. All load/mass based standards such as CO in Kg/TDCP, Pushing Emission & Quenching emission in g/TDCP are being monitored on regular basis and report submitted to CPCB on regular basis. All the load/mass based data are within stipulated standards.

***iv. At least four ambient air quality monitoring stations shall be established in the downward direction as well as where maximum ground level concentration of SPM, SO2 and NOx are anticipated in consultation with the JPCB.***
***Data on ambient air quality and stack emission shall be regularly submitted to this Ministry including its Regional Office at Bhubaneswar and the JPCB / CPCB once in six months.***

**Status:**

Seven Ambient Air Quality Monitoring Stations have been set up at different locations surrounding the Plant, which monitors $PM_{10}$, $PM_{2.5}$, $SO_2$, $NO_2$, $O_3$, $NH_3$, B(a)P,CO, Pb , As &Ni on bi-weekly basis. The data of Ambient Air Quality and stack emission are being regularly submitted to CPCB and JSPCB .Monitoring report of stipulated period has been enclosed. Two no. of Continuous Ambient Air Quality Monitoring Station have also been installed & uplinked to CPCB & JSPCB server.

***v. In-plant control measures for checking fugitive emissions from all the vulnerable sources shall be provided. Further, specific measures like water sprinkling around the coal stockpiles and asphalting or concreting of the roads shall be done to control fugitive emissions.***

**Status:**

Fugitive emissions from Coke Oven Batteries are being monitored on regular basis. PLD, PLL and PLO level in all Coke Oven Batteries are well within stipulated norm. The charging emission of all Coke oven batteries is also measured. The monitoring reports are being regularly sent to CPCB every month. Water is regularly sprinkled to suppress fugitive emission at different dusty areas including coal stock piles. One truck mounted water sprinkling system, dedicated to Coke oven area has been procured and being operated on regular basis. ESP based de-dusting system has been installed in cast house of BF#2. Permanent Water Sprinklers have been installed in Wagon Tippler area and Raw Material Handling Plant. All the roads inside the plant are asphalted.

***vi. Industrial wastewater shall be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May, 1993 and 31st December, 1993 or as amended from time to time. The treated wastewater shall be utilized for plantation purpose.***

**Status:**

Industrial waste water from Coke Oven, By Product Plant and CRM-III is collected and treated in ETP. All the pollutant level after treatment is well within stipulated norm. This water is being used for quenching of coke and in other processes. The effluents from all other plants are being treated and recycled. ZLD will be maintained in CRM-III by June'2020.

***vii. The overall noise levels in and around the plant area shall be kept well within the standards (85 dBA) by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels shall conform to the standards prescribed under EPA Rules, 1989 viz. 75 dBA(day time) and 70 dBA (night time).***

**Status:**

Noise levels in various areas are being monitored on regular basis. Noise level in all areas is below stipulated norm. The provision of snort valve in BF & acoustic enclosures in Oxygen plant are there to control the noise at source. Noise level is monitored regularly and reported to CPCB every month. Day and night time ambient noise level is also monitored at different locations. The same is also reported to CPCB on monthly basis.

***viii. Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.***

**Status:**

Health status of all the workers including contract labourer is regularly monitored by a dedicated Occupational Health Service Centre, situated inside the Plant. The health status record is regularly maintained by them. Total health checkup during 2018-19 was 9363 and

during 2019-20 till Oct'2019 it was 5211. A copy of health checkup record has been attached , as a sample, as annexure-7.

***ix. The company shall develop rain water harvesting structures to harvest the rain water for utilization in the lean season besides recharging the ground water table.***

**Status:**

SAIL/BSL has 12 Square Km area of water bodies with earthen base, due to which large amount water percolates to the ground, thus recharging the ground water table on continuous basis. The water table in neighbouring villages is very rich. A pond has also been constructed near Kundauri Basti with earthen base to retain rain water and to replenish the ground water table. Under Jal Shakti Aviyan, 9 (Nine) Water Bodies have been rejuvenated in Township Areas with total 1,530.0 Acres to recharge Ground Water through these earthen base water bodies. Roof Top Rain Water Harvesting Systems have been planned in 4 nos. of Township Buildings as well as four buildings inside the plant. All these are in tendering stage. A Roof Top Rain Water harvesting has been installed in Fire sub-station building opposite to Paryavaran Bhawan. The water storage pit has earthen base, hence this works as recharge Pit also. This water is also used in fire tenders.

***x. The project proponent shall also comply with all the environmental protection measures and safeguards recommended in the EIA/EMP report. Further, the company must undertake socio-economic development activities in the surrounding villages like community development programmes. Educational programmes, drinking water supply and health care etc. Suggestions made during the public hearing shall be implemented.***

**Status:**

All the Environmental protection measures and safe guards recommended in EIA/EMP report are being complied.

- Bokaro Steel has adopted seven villages in periphery of plant under CSR.
- All connecting roads have been constructed by BSL.
- School buildings have been constructed in each village.
- Health camps are arranged in each villages adopted by BSL, However there is Sarva Swasthya Kendra for free treatment of Non-entitled people and under privileged mass of society.
- Drinking water facility such as hand pumps has been installed.
- Community center building has been built by BSL. Sarva Swasthya kendra to take care the free medical facilities for under privileged class.
- Provision of kalayan vidyalaya with mid- day meals for poor children from in and around the town ship.
- Under Swachchh Bharat Abhiyan, Toilets have been constructed in these villages.
- Solar Street lighting systems are also being installed in the villages.
    - The Battery Cyclone#6 has already been replaced by ESP#6 to meet futurist emission norms. The Battery Cyclone#2 has been dismantled for installation of ESP#2. It was expected to be completed by April, 2020. It has been delayed owing to lock down imposed for Covid-19 pandemic. However, the Battery Cyclone#1,3,4&5 are working effectively, after systematic phase wise repair of battery cyclones, including changing of elements and casings and the PM emission through the stacks is meeting the emission standards.
    - The installation of facilities for use of converter gas has been completed. The operation of this facility is directly linked to human safety. HAZOP study was carried out by third party in order to figure out safety and protection measures for the facility. The recommendations of HAZOP study is in the process of compliance.

Subsequent to lifting of lock down due to Covid-19 pandemic the compliance job will be expedited and the facility will be in operation very soon.

***xi. The Regional Office of the Ministry at Bhubaneswar CPCB/JSPCB shall monitor the stipulated conditions. A six monthly compliance report and the monitored data along with statistical interpretation shall be submitted to them regularly.***

**Status:**

Six monthly compliance reports are being sent to RO, MoEF&CC as per EIA/EMP Notification 2006, on regular basis.

***xii. 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 JPCB 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 shall be forwarded to the Regional Office at Bhubaneswar.***

**Status:**

Project Department had informed the public by giving advertisement in two local daily newspapers, Prabhat Khabar & Hindustan on 20th Nov'2008 after getting the Environment Clearance from MoEF& CC.

***Xiii. 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.***

**Status:**

Regional office of Jharkhand State Pollution Control Board is being updated as and when required about the financial closure and final approval. The date of financial closure and Final approval of the projects under amended EC has been given below.

**The Status of Financial closure & Final Approval of the Projects**

| Sl.No. | Name of the Projects | Date of Financial closure | Date of final approval of the Projects |
|---|---|---|---|
| 1. | CRM-3 ( New CRM) | 07.12.2006 | 29.01.2008 |
| 2. | Revamping of Sinter M/C-1 | 07.12.2006 | 07.11.2011 |
| 3. | Sinter Plant-2 | 29.03.2011 | 11.04.2015 |
| 4. | Modernization of SMS-1 | 07.06.2013 | 30.05.2015 |
| 5. | Modernization of BF-2 | 03.08.2006 | 12.11.2007 |

***ENCLOSURES:***

**Name of the Steel Plant: BOKARO STEEL PLANT**
**Production Capacity: 4.606 MT**

## STACK EMISSION

**OCT'2019**

| Name of the Plant | Stack connected to (Name of the unit) | Height of the stack (m) | Diameter of the stack (m) | Pollution Control unit provided (Name) | Date & Time of the monitoring (duration) | Production fig. of the unit, during the period of monitoring | Flow rate of the flue gas ($NM^3/Hr$) | Parameters (whichever are applicable) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | | | |
| **Blast Furnace** (Space dedusting) & Stoves | | | | | | | | **Particulate matter (PM)** ($mg/Nm^3$) | **$SO_2$** ($mg/Nm^3$) | **$NO_x$** ($mg/Nm^3$) | **HC** | **CO** Kg/TDCP Vol./vol. |
| BF-1 | Chimney-1 | 50 mtr. | 8.2mtrs. | Wet scrubber | Under Capital Repair | | | | | | | |
| BF-2 | Chimney-2 | 50 mtr. | 8.2mtrs. | Wet scrubber | 08.10.19 | | 280790 | 80.15 | - | - | - | - |
| BF-3 | Chimney-2 | 50 mtr. | 8.2mtrs. | Wet scrubber | | | | | - | | - | - |
| BF-4 | Chimney-3 | 50 mtr. | 8.2mtrs. | Wet scrubber | 02.10.19 | | 278712 | 76.82 | - | - | - | - |
| BF-5 | Chimney-3 | 50 mtr. | 8.2mtrs. | Wet scrubber | | | | | | | - | - |
| BF Stoves-2 | Chimney-2 | 70 mtr. | 3.5mtrs. | - | 16.10.19 | | 110714 | 24.96 | 80.22 | 68.86 | - | 0.59% |
| BF Stoves-3 | Chimney-3 | 70 mtr. | 3.5mtrs. | - | 29.10.19 | | 113506 | 23.72 | 96.12 | 70.15 | - | 0.58% |
| **Standards : Charging side chimney- PM - 100 (Units: $mg/Nm^3$)** **BF Stoves – PM- 50 mg/Nm3, SO2- 250 mg/Nm3, NOX- 150 mg/Nm3 CO- 1% v/v (Max)** | | | | | | | | | | | | |
| • BF#1 is connected to chimney no-1 , BF#2&BF#3 are connected to chimney no-2 and BF#4&BF#5 are connected to chimney no-3 Each BF stove is connected to corresponding chimney No. | | | | | | | | | | | | |
| **Refractory Material plant** | | | | | | | | | | | | |
| Kiln-1 | Stack – 1 | 80 mtr. | 3.3mtrs | ESP | Under Shutdown | | | | | | | |
| Kiln-2 | Stack – 1 | 80 mtr. | 3.3mtrs | ESP | 22.10.19 | 11.14 T/hr | 149272 | 146.38 | 84.6 | | | |
| Kiln-3 | Stack - 2 | 80 mtr | 3.3mtrs | ESP | 09.10.19 | 10.71 T/hr | 146325 | 55.1 | 75.1 | | | |
| Kiln-4 | Stack – 2 | 80 mtr. | 3.3mtrs | ESP | Under Shutdown for refurbishing | | | | | | | |
| Kiln-5 | Stack – 3 | 80 mtr. | 3.3 mtrs | ESP | 12.10.19 | 9.14 T/hr | 149972 | 123.58 | 75.7 | | | |
| Kiln-6 | Stack – 3 | 80 mtr. | 3.3 mtrs | ESP | 18.10.19 | 10.74 T/hr | 146305 | 42.14 | 88.9 | - | - | - |

**Standards: PM - 150 , SO2 - , NOx - , CO - (Units: $mg/Nm^3$)**
Monitoring values for corresponding Kiln duct. Two Kilns through individual Ducts are connected to a common stack.

| **SMS – 1** (Process unit) | | | | | **Date** | | **Flow rate ($NM^3$/Hr)** | **PM ($mg/Nm^3$)** | **$SO_2$ ($mg/Nm^3$)** | **$NO_x$ ($mg/Nm^3$)** | HC | CO |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conv. – 1( NB) | Stack – 1 | 100 m | 4.3mtrs | Wet scrubber | Under Capital Repair | | | | | | - | - |
| Conv. – 2( NB) | Stack – 1 | 100 m | 4.3mtrs | Wet scrubber | Under Shutdown | | | | | | | |
| Conv. – 2 (BL) | Stack – 1 | 100 m | 4.3mtrs | Wet scrubber | | | | | | | | |
| Conv. – 3(NB) | Stack – 1 | 100 m | 4.3mtrs | Wet scrubber | 24.10.19 | - | 107351 | 20.94 | - | - | - | - |
| Conv. – 3(BL) | Stack – 1 | 100m | 4.3mtrs | Wet scrubber | 24.10.19 | - | 253709 | 256.85 | 107.82 | 70.52 | - | - |
| Conv. – 4(NL) | Stack – 1 | 100 m | 4.3mtrs | Wet scrubber | Under Shutdown | | | | | | | - |
| SMS-2/CCS | LF- 2 | 80m | 1.25m | Bag filter | 28.10.19 | - | 114754 | 23.64 | - | - | - | - |

**Standard : PM - 300, SO2 - , NOx - , CO -** * Monitored in individual ducts(of dia 2.5 m each) from corresponding converters. SMS-2/CCS Stack -PM #50mg/Nm3 All ducts are connected to a common stack

**(Units: $mg/Nm^3$)**

| **Coke Oven** | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Batt. # 1 | Stack – 1 | 100 m. | 3.5mtrs | - | 04.10.19 | - | 149625 | 24.95 | 206.15 | 105.06 | - | 1.62 |
| Batt. # 2 | Stack – 2 | 100 m. | 3.5mtrs | - | 21.10.19 | - | 146321 | 29.74 | 256.95 | 96.80 | - | 1.72 |
| Batt # 3 | Stack - 3 | 100 m | 3.5 mtrs | - | 30.10.19 | - | 147724 | 31.92 | 214.76 | 81.95 | - | 1.88 |
| Batt. # 4 | Stack – 4 | 100 m. | 3.5 mtrs | - | 15.10.19 | - | 148351 | 30.90 | 296.06 | 112.98 | - | 1.96 |
| Batt. # 5 | Stack – 5 | 100 m. | 3.5mtrs | - | 07.10.19 | - | 159627 | 41.69 | 236.92 | 92.86 | - | 2.56 |
| Batt # 6 | Stack - 6 | 100 m. | 3.5 mts | Shut down for Rebuilding | | | | | | | | |
| Batt. # 7 | Stack – 7 | 100 m. | 3.5mtrs | - | 05.10.19 | - | 142372 | 23.68 | 282.16 | 78.54 | - | 1.48 |
| Batt. # 8 | Stack – 8 | 100 m. | 3.5mtrs | Under Rebuilding | | | | | | | | |

**Standard: PM - 50, SO2 - 800, NOx - 500, CO – 3.00 Kg/TDCP, HC - (Units: $mg/Nm^3$)**

| **Sinter Plant** | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SM-1 | Duct-A | 100 m.* | 3.5mtrs | Batt. cyclone | 14.10.19 | - | 394722 | 137.32 | 92.86 | 58.14 | - | - |
| | Duct-B | | 3.5mtrs | Batt. cyclone | 14.10.19 | - | 395724 | 146.94 | - | - | - | - |
| SM-2 | Duct-A | | 3.5mtrs | Batt. cyclone | 03.10.19 | - | 397514 | 145.72 | 101.82 | 60.70 | - | - |
| | Duct-B | | 3.5mtrs | Batt. cyclone | 03.10.19 | - | 399735 | 147.07 | - | - | - | - |
| SM-3 | Duct-A | | 3.5mtrs | Batt. cyclone | 26.10.19 | - | 380706 | 146.78 | 95.06 | 72.76 | - | - |
| | Duct-B | 100 m.* | 3.5mtrs | Batt. cyclone | 26.10.19 | - | 330667 | 66.94 | - | - | - | - |

**Standard: PM - 150 , SO2 - , NOx - (Units: $mg/Nm^3$)** * All three Sinter M/c Exhaust are connected to a common single stack of 100m height

**NOV'2019**

| Name of the Plant | Stack connected to (Name of the unit) | Height of the stack (m) | Diameter of the stack (m) | Pollution Control unit provided (Name) | Date & Time of the monitoring (duration) | Production fig. of the unit, during the period of monitoring | Flow rate of the flue gas ($NM^3/Hr$) | Parameters (whichever are applicable) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | | | |
| **Blast Furnace** (Space De-dusting) & Stoves | | | | | | | | **Particulate matter (PM)** ($mg/Nm^3$) | **$SO_2$** ($mg/Nm^3$) | **$NO_x$** ($mg/Nm^3$) | **HC** | **CO** Kg/TDCP Vol./vol. |
| BF-1 | Chimney-1 | 50 mtr. | 8.2mtrs. | Wet scrubber | Under Capital Repair | | | | | | | |
| BF-2 | Chimney-2 | 50 mtr. | 8.2mtrs. | Wet scrubber | 04.11.19 | 6506 T | 282701 | 80.92 | - | - | - | - |
| BF-3 | Chimney-2 | 50 mtr. | 8.2mtrs. | Wet scrubber | | | | | | | | |
| BF-4 | Chimney-3 | 50 mtr. | 8.2mtrs. | Wet scrubber | | | | | | | | |
| BF-5 | Chimney-3 | 50 mtr. | 8.2mtrs. | Wet scrubber | 12.11.19 | 3410 T | 279624 | 78.81 | - | - | - | - |
| BF Stoves-2 | Chimney-2 | 70 mtr. | 3.5mtrs. | - | 26.11.19 | 4226 T | 109232 | 20.08 | 86.92 | 57.81 | - | 0.58% |
| BF Stoves-5 | Chimney-5 | 70 mtr. | 3.5mtrs. | - | 19.11.19 | 3500 T | 106775 | 18.84 | 101.72 | 69.25 | - | 0.59% |
| **Standards : Charging side chimney- PM - 100 (Units: $mg/Nm^3$)** **BF Stoves – PM- 50 mg/Nm3, SO2- 250 mg/Nm3, NOX- 150 mg/Nm3 CO- 1% v/v (Max)**<br>• BF#1 is connected to chimney no-1 , BF#2&BF#3 are connected to chimney no-2 and BF#4&BF#5 are connected to chimney no-3<br>Each BF stove is connected to corresponding chimney No. | | | | | | | | | | | | |
| **Refractory Material plant** | | | | | | | | | | | | |
| Kiln-1 | Stack – 1 | 80 mtr. | 3.3mtrs | ESP | 18.11.19 | 11.19 | 140378 | 64.80 | 84.78 | | | |
| Kiln-2 | Stack – 1 | 80 mtr. | 3.3mtrs | ESP | **Under Shutdown** | | | | | | | |
| Kiln-3 | Stack - 2 | 80 mtr | 3.3mtrs | ESP | 25.11.19 | 11.25 | 149535 | 45.25 | 96.05 | | | |
| Kiln-4 | Stack – 2 | 80 mtr. | 3.3mtrs | ESP | Under Shutdown | | | | | | | |
| Kiln-5 | Stack – 3 | 80 mtr. | 3.3 mtrs | ESP | 06.11.19 | 11.25 | 152708 | 136.48 | 80.96 | | | |
| Kiln-6 | Stack – 3 | 80 mtr. | 3.3 mtrs | ESP | 02.11.19 | 11.08 | 145772 | 40.36 | 66.92 | - | - | - |

**Standards: PM - 150, SO2 - , NOx - , CO - (Units: $mg/Nm^3$)**

Monitoring values for corresponding Kiln duct. Two Kilns through individual Ducts are connected to a common stack.

| **SMS – 1** (Process unit) | | | | | **Date** | | **Flow rate ($NM^3$/Hr)** | **PM ($mg/Nm^3$)** | **$SO_2$ ($mg/Nm^3$)** | **$NO_x$ ($mg/Nm^3$)** | HC | CO |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conv. – 1( NB) | Stack – 1 | 100 m | 4.3mtrs | Wet scrubber | Under Capital Repair | | | | | | - | - |
| Conv. – 2( NB) | Stack – 1 | 100 m | 4.3mtrs | Wet scrubber | Under Shutdown | | | | | | | |
| Conv. – 2 (BL) | Stack – 1 | 100 m | 4.3mtrs | Wet scrubber | | | | | | | | |
| Conv. – 3(NB) | Stack – 1 | 100 m | 4.3mtrs | Wet scrubber | 11.11.19 | - | 108754 | 25.70 | - | - | - | - |
| Conv. – 3(BL) | Stack – 1 | 100m | 4.3mtrs | Wet scrubber | 11.11.19 | - | 260080 | 256.14 | 90.52 | 65.15 | - | - |
| Conv. – 4(NL) | Stack – 1 | 100 m | 4.3mtrs | Wet scrubber | Under Shutdown | | | | | | | - |
| Conv. – 5 (NB) | Stack – 1 | 100 m | 4.3mtrs | Wet scrubber | | Under Modernization | | | | | - | - |
| Conv. – 5(BL) | Stack – 1 | 100m | 4.3mtrs | Wet scrubber | | | | | | | | |
| SMS-2/CCS | LF- 1 | 80m | 1.25m | Bag filter | 28.11.19 | - | 105672 | 20.25 | - | - | - | - |

**Standard : PM - 300, SO2 - , NOx - , CO -** * Monitored in individual ducts(of dia 2.5 m each) from corresponding converters. SMS-2/CCS Stack -PM #50mg/Nm3
**(Units: $mg/Nm^3$)** All ducts are connected to a common stack

| **Coke Oven** | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Batt. # 1 | Stack – 1 | 100 m. | 3.5mtrs | - | 23.11.19 | - | 146700 | 28.57 | 249.17 | 88.20 | - | 1.48 |
| Batt. # 2 | Stack – 2 | 100 m. | 3.5mtrs | - | 01.11.19 | - | 144322 | 27.33 | 256.86 | 94.67 | - | 1.62 |
| Batt # 3 | Stack - 3 | 100 m | 3.5 mtrs | - | 20.11.19 | - | 142556 | 36.11 | 210.95 | 80.46 | - | 1.70 |
| Batt. # 4 | Stack – 4 | 100 m. | 3.5 mtrs | - | 08.11.19 | - | 149782 | 29.96 | 241.06 | 99.95 | - | 1.44 |
| Batt. # 5 | Stack – 5 | 100 m. | 3.5mtrs | - | 29.11.19 | - | 150606 | 45.91 | 236.10 | 105.16 | - | 1.88 |
| Batt # 6 | Stack - 6 | 100 m. | 3.5 mts | Shutdown for Rebuilding | | | | | | | | |
| Batt. # 7 | Stack – 7 | 100 m. | 3.5mtrs | - | 15.11.19 | - | 145360 | 21.66 | 242.94 | 78.36 | - | 1.56 |
| Batt. # 8 | Stack – 8 | 100 m. | 3.5mtrs | Under Rebuilding | | | | | | | | |

**Standard: PM - 50, SO2 - 800, NOx - 500, CO – 3.00 Kg/TDCP, HC - (Units: $mg/Nm^3$)**

| **Sinter Plant** | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SM-1 | Duct-A | 100 m.* | 3.5mtrs | Batt. cyclone | 05.11.19 | - | 396712 | 141.70 | 80.72 | 60.81 | - | - |
| | Duct-B | | 3.5mtrs | Batt. cyclone | | - | Under Shutdown | | | | - | - |
| SM-2 | Duct-A | | 3.5mtrs | Batt. cyclone | 09.11.19 | - | 394351 | 130.64 | | | - | - |
| | Duct-B | | 3.5mtrs | Batt. cyclone | 09.11.19 | - | 198706 | 142.12 | - | - | - | - |
| SM-3 | Duct-A | | 3.5mtrs | Batt. cyclone | 13.11.19 | - | 405542 | 146.52 | 102.94 | 66.52 | - | - |
| | Duct-B | 100 m.* | 3.5mtrs | Batt. cyclone | 13.11.19 | - | 310664 | 65.14 | - | - | - | - |

**Standard: PM - 150 , SO2 - , NOx - (Units: $mg/Nm^3$)** * All three Sinter M/c Exhaust are connected to a common single stack of 100m height

**DEC'2019**

| Name of the Plant | Stack connected to (Name of the unit) | Height of the stack (m) | Diameter of the stack (m) | Pollution Control unit provided (Name) | Date & Time of the monitoring (duration) | Production fig. of the unit, during the period of monitoring | Flow rate of the flue gas ($NM^3/Hr$) | Parameters (whichever are applicable) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | | | |
| **Blast Furnace** (Space dedusting) & Stoves | | | | | | | | **Particulate matter (PM)** ($mg/Nm^3$) | **$SO_2$** ($mg/Nm^3$) | **$NO_x$** ($mg/Nm^3$) | **HC** | **CO** Kg/TDCP Vol./vol. |
| BF-1 | Chimney-1 | 50 mtr. | 8.2mtrs. | Wet scrubber | Under Capital Repair | | | | | | | |
| BF-2 | Chimney-2 | 50 mtr. | 8.2mtrs. | Wet scrubber | 19.12.19 | 4180 T | 280102 | 76.76 | | - | - | - |
| BF-3 | Chimney-2 | 50 mtr. | 8.2mtrs. | Wet scrubber | | | | | | | | |
| BF-4 | Chimney-3 | 50 mtr. | 8.2mtrs. | Wet scrubber | 06.12.19 | 7077 T | 282760 | 79.95 | | | | |
| BF-5 | Chimney-3 | 50 mtr. | 8.2mtrs. | Wet scrubber | | | | | | - | - | - |
| BF Stoves-2 | Chimney-2 | 70 mtr. | 3.5mtrs. | - | 12.12.19 | 4201 T | 108323 | 21.14 | 90.16 | 59.05 | - | 0.57% |
| BF Stoves-5 | Chimney-5 | 70 mtr. | 3.5mtrs. | - | 24.12.19 | 3016 T | 105736 | 22.44 | 84.15 | 50.48 | - | 0.58% |
| **Standards : Charging side chimney- PM - 100 (Units: $mg/Nm^3$)** **BF Stoves – PM- 50 mg/Nm3, SO2- 250 mg/Nm3, NOX- 150 mg/Nm3 CO- 1% v/v (Max)**<br>• BF#1 is connected to chimney no-1 , BF#2&BF#3 are connected to chimney no-2 and BF#4&BF#5 are connected to chimney no-3<br>Each BF stove is connected to corresponding chimney No. | | | | | | | | | | | | |
| **Refractory Material plant** | | | | | | | | | | | | |
| Kiln-1 | Stack – 1 | 80 mtr. | 3.3mtrs | ESP | 09.12.19 | 11.25 T/hr | 138750 | 54.64 | 90.70 | | | |
| Kiln-2 | Stack – 1 | 80 mtr. | 3.3mtrs | ESP | Under Shutdown | | | | | | | |
| Kiln-3 | Stack - 2 | 80 mtr | 3.3mtrs | ESP | 13.12.19 | 11.25 T/hr | 149608 | 56.07 | | | | |
| Kiln-4 | Stack – 2 | 80 mtr. | 3.3mtrs | ESP | Under Shutdown | | | | | | | |
| Kiln-5 | Stack – 3 | 80 mtr. | 3.3 mtrs | ESP | 16.12.19 | 11.25 T/hr | 148722 | 129.96 | 77.84 | | | |
| Kiln-6 | Stack – 3 | 80 mtr. | 3.3 mtrs | ESP | Under Shutdown | | | | | | | |

**Standards: PM - 150 , SO2 - , NOx - , CO - (Units: $mg/Nm^3$)**

Monitoring values for corresponding Kiln duct. Two Kilns through individual Ducts are connected to a common stack.

| **SMS – 1** (Process unit) | | | | | **Date** | | **Flow rate ($NM^3$/Hr)** | **PM ($mg/Nm^3$)** | **$SO_2$ ($mg/Nm^3$)** | **$NO_x$ ($mg/Nm^3$)** | HC | CO |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conv. – 1( NB) | Stack – 1 | 100 m | 4.3mtrs | Wet scrubber | Under Capital Repair | | | | | | - | - |
| Conv. – 2( NB) | Stack – 1 | 100 m | 4.3mtrs | Wet scrubber | Under Shutdown for campaign repair | | | | | | | |
| Conv. – 2 (BL) | Stack – 1 | 100 m | 4.3mtrs | Wet scrubber | | | | | | | | |
| Conv. – 3(NB) | Stack – 1 | 100 m | 4.3mtrs | Wet scrubber | 11.12.19 | - | 109721 | 23.50 | - | - | - | - |
| Conv. – 3(BL) | Stack – 1 | 100m | 4.3mtrs | Wet scrubber | 11.12.19 | - | 252626 | 249.51 | 72.81 | 39.52 | - | - |
| Conv. – 4(NL) | Stack – 1 | 100 m | 4.3mtrs | Wet scrubber | Under Shutdown | | | | | | | - |
| Conv. – 5 (NB) | Stack – 1 | 100 m | 4.3mtrs | Wet scrubber | | Under Modernization | | | | | - | - |
| Conv. – 5(BL) | Stack – 1 | 100m | 4.3mtrs | Wet scrubber | | | | | | | | |
| SMS-2/CCS | LF- 2 | 80m | 1.25m | Bag filter | 26.12.19 | - | 110735 | 21.97 | - | - | - | - |

**Standard : PM - 300, SO2 - , NOx - , CO -** * Monitored in individual ducts(of dia 2.5 m each) from corresponding converters. SMS-2/CCS Stack -PM #50mg/Nm3 All ducts are connected to a common stack

**(Units: $mg/Nm^3$)**

| **Coke Oven** | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Batt. # 1 | Stack – 1 | 100 m. | 3.5mtrs | - | 27.12.19 | - | 148316 | 28.96 | 246.51 | 92.14 | - | 1.52 |
| Batt. # 2 | Stack – 2 | 100 m. | 3.5mtrs | - | 18.12.19 | - | 145208 | 30.16 | 252.70 | 85.10 | - | 1.48 |
| Batt # 3 | Stack - 3 | 100 m | 3.5 mtrs | - | 23.12.19 | - | 142116 | 32.64 | 237.15 | 65.79 | - | 1.39 |
| Batt. # 4 | Stack – 4 | 100 m. | 3.5 mtrs | - | 10.12.19 | - | 140772 | 27.56 | 225.36 | 108.17 | - | 1.47 |
| Batt. # 5 | Stack – 5 | 100 m. | 3.5mtrs | - | 07.12.19 | - | 150.734 | 45.96 | 226.80 | 95.90 | - | 1.68 |
| Batt # 6 | Stack - 6 | 100 m. | 3.5 mts | Shutdown for Rebuilding | | | | | | | | |
| Batt. # 7 | Stack – 7 | 100 m. | 3.5mtrs | - | 05.12.19 | - | 148356 | 22.96 | 252.11 | 69.30 | - | 1.44 |
| Batt. # 8 | Stack – 8 | 100 m. | 3.5mtrs | Under Rebuilding | | | | | | | | |

**Standard: PM - 50, SO2 - 800, NOx - 500, CO – 3.00 Kg/TDCP, HC - (Units: $mg/Nm^3$)**

| **Sinter Plant** | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SM-1 | Duct-A | 100 m.* | 3.5mtrs | Batt. cyclone | 02.12.19 | - | 390725 | 136.72 | 90.12 | 51.06 | - | - |
| | Duct-B | | 3.5mtrs | Batt. cyclone | | - | Under Shutdown | | | | - | - |
| SM-2 | Duct-A | | 3.5mtrs | Batt. cyclone | 31.12.19 | - | 389728 | 141.72 | 86.15 | 48.34 | - | - |
| | Duct-B | | 3.5mtrs | Batt. cyclone | 31.12.19 | - | 394125 | 146.06 | - | - | - | - |
| SM-3 | Duct-A | | 3.5mtrs | Batt. cyclone | 04.12.19 | - | 394714 | 139.52 | 92.70 | 52.82 | - | - |
| | Duct-B | 100 m.* | 3.5mtrs | Batt. cyclone | 04.12.19 | - | 320704 | 58.81 | - | - | - | - |

**Standard: PM - 150 , SO2 - , NOx - (Units: $mg/Nm^3$)** * All three Sinter M/c Exhaust are connected to a common single stack of 100m height

**JAN'2020**

| Name of the Plant | Stack connected to (Name of the unit) | Height of the stack (m) | Diameter of the stack (m) | Pollution Control unit provided (Name) | Date & Time of the monitoring (duration) | Production fig. of the unit, during the period of monitoring | Flow rate of the flue gas ($NM^3/Hr$) | Parameters (whichever are applicable) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | | | |
| **Blast Furnace** (Space dedusting) & Stoves | | | | | | | | **Particulate matter (PM)** ($mg/Nm^3$) | **$SO_2$** ($mg/Nm^3$) | **$NO_x$** ($mg/Nm^3$) | **HC** | **CO** Kg/TDCP Vol./vol. |
| BF-1 | Chimney-1 | 50 mtr. | 8.2mtrs. | Wet scrubber | Under Capital Repair | | | | | | | |
| BF-2 | Chimney-2 | 50 mtr. | 8.2mtrs. | Wet scrubber | 09.01.2020 | 7070 T | 288720 | 76.82 | - | - | - | - |
| BF-3 | Chimney-2 | 50 mtr. | 8.2mtrs. | Wet scrubber | | | | | | | | |
| BF-4 | Chimney-3 | 50 mtr. | 8.2mtrs. | Wet scrubber | Under Capital Repair | | | | | | | |
| BF-5 | Chimney-3 | 50 mtr. | 8.2mtrs. | Wet scrubber | 29.01.2020 | 2750 T | 270760 | 78.81 | - | - | - | - |
| BF Stoves-5 | Chimney-5 | 70 mtr. | 3.5mtrs. | - | 13.01.2020 | 3290 T | 106301 | 25.36 | 89.35 | 66.15 | - | 0.30% |
| BF Stoves-3 | Chimney-3 | 70 mtr. | 3.5mtrs. | - | 24.01.2020 | 3481 T | 108390 | 23.08 | 72.10 | 58.70 | - | 0.28% |
| **Standards : Charging side chimney- PM - 100 (Units: $mg/Nm^3$)** **BF Stoves – PM- 50 mg/Nm3, SO2- 250 mg/Nm3, NOX- 150 mg/Nm3 CO- 1% v/v (Max)**<br>• BF#1 is connected to chimney no-1 , BF#2&BF#3 are connected to chimney no-2 and BF#4&BF#5 are connected to chimney no-3<br>Each BF stove is connected to corresponding chimney No. | | | | | | | | | | | | |
| **Refractory Material plant** | | | | | | | | | | | | |
| Kiln-1 | Stack – 1 | 80 mtr. | 3.3mtrs | ESP | 15.01.2020 | 11.25 T/hr | 140527 | 48.86 | 129.85 | | | |
| Kiln-2 | Stack – 1 | 80 mtr. | 3.3mtrs | ESP | 08.01.2020 | 11.25 T/hr | 144562 | 124.62 | 107.91 | | | |
| Kiln-3 | Stack - 2 | 80 mtr | 3.3mtrs | ESP | Under Shutdown | | | | | | | |
| Kiln-4 | Stack – 2 | 80 mtr. | 3.3mtrs | ESP | 27.01.2020 | 11.25 T/hr | 143520 | 59.89 | 108.06 | | | |
| Kiln-5 | Stack – 3 | 80 mtr. | 3.3 mtrs | ESP | 16.12.2020 | 10.91 T/hr | 148722 | 134.32 | 135.66 | | | |
| Kiln-6 | Stack – 3 | 80 mtr. | 3.3 mtrs | ESP | 21.01.2020 | 10.83 T/hr | 144226 | 41.62 | 90.86 | | | |

**Standards: PM - 150, SO2 - , NOx - , CO - (Units: $mg/Nm^3$)**

Monitoring values for corresponding Kiln duct. Two Kilns through individual Ducts are connected to a common stack.

| **SMS – 1** (Process unit) | | | | | **Date** | | **Flow rate ($NM^3/Hr$)** | **PM ($mg/Nm^3$)** | **$SO_2$ ($mg/Nm^3$)** | **$NO_x$ ($mg/Nm^3$)** | HC | CO |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conv. – 1( NB) | Stack – 1 | 100 m | 4.3mtrs | Wet scrubber | Under Capital Repair | | | | | | - | - |
| Conv. – 2( NB) | Stack – 1 | 100 m | 4.3mtrs | Wet scrubber | Under Shutdown for campaign repair | | | | | | | |
| Conv. – 2 (BL) | Stack – 1 | 100 m | 4.3mtrs | Wet scrubber | | | | | | | | |
| Conv. – 3(NB) | Stack – 1 | 100 m | 4.3mtrs | Wet scrubber | 19.01.2020 | - | 107520 | 22.40 | - | - | - | - |
| Conv. – 3(BL) | Stack – 1 | 100m | 4.3mtrs | Wet scrubber | 19.01.2020 | - | 258776 | 245.35 | 88.12 | 36.52 | - | - |
| Conv. – 4(NL) | Stack – 1 | 100 m | 4.3mtrs | Wet scrubber | Under Shutdown | | | | | | | - |
| Conv. – 5 (NB) | Stack – 1 | 100 m | 4.3mtrs | Wet scrubber | | Under Stabilization | | | | | - | - |
| Conv. – 5(BL) | Stack – 1 | 100m | 4.3mtrs | Wet scrubber | | | | | | | | |
| SMS-2/CCS | LF- 1 | 80m | 1.25m | Bag filter | 30.01.2020 | - | 110735 | 23.96 | - | - | - | - |

**Standard : PM - 300, SO2 - , NOx - , CO -** * Monitored in individual ducts(of dia 2.5 m each) from corresponding converters. SMS-2/CCS Stack -PM #50mg/Nm3
**(Units: $mg/Nm^3$)** All ducts are connected to a common stack

| **Coke Oven** | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Batt. # 1 | Stack – 1 | 100 m. | 3.5mtrs | - | 23.01.2020 | - | 142708 | 36.71 | 216.80 | 90.36 | - | 1.4 |
| Batt. # 2 | Stack – 2 | 100 m. | 3.5mtrs | - | 18.01.2020 | - | 145360 | 32.86 | 236.30 | 90.34 | - | 1.3 |
| Batt # 3 | Stack - 3 | 100 m | 3.5 mtrs | - | 06.01.2020 | - | 147083 | 31.09 | 201.17 | 80.73 | - | 1.1 |
| Batt. # 4 | Stack – 4 | 100 m. | 3.5 mtrs | - | 01.01.2020 | - | 154362 | 28.80 | 228.10 | 105.86 | - | 1.3 |
| Batt. # 5 | Stack – 5 | 100 m. | 3.5mtrs | - | 31.01.2020 | - | 156722 | 46.48 | 240.52 | 96.14 | - | 1.4 |
| Batt # 6 | Stack - 6 | 100 m. | 3.5 mts | Shutdown for Rebuilding | | | | | | | | |
| Batt. # 7 | Stack – 7 | 100 m. | 3.5mtrs | - | 20.01.2020 | - | 141006 | 22.14 | 180.72 | 80.35 | - | 1.2 |
| Batt. # 8 | Stack – 8 | 100 m. | 3.5mtrs | Under Rebuilding | | | | | | | | |

**Standard: PM - 50, SO2 - 800, NOx - 500, CO – 3.00 Kg/TDCP, HC - (Units: $mg/Nm^3$)**

| **Sinter Plant** | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SM-1 | Duct-A | 100 m.* | 3.5mtrs | Batt. cyclone | Under Shutdown | | | | | | - | - |
| | Duct-B | | 3.5mtrs | Batt. cyclone | Under Shutdown for installation of ESP | | | | | | - | - |
| SM-2 | Duct-A | | 3.5mtrs | Batt. cyclone | 28.01.20 | - | 396702 | 145.32 | 99.62 | 50.30 | - | - |
| | Duct-B | | 3.5mtrs | Batt. cyclone | 28.01.20 | - | 398120 | 147.52 | 95.45 | 52.67 | - | - |
| SM-3 | Duct-A | | 3.5mtrs | Batt. cyclone | 16.01.20 | - | 398774 | 144.31 | 89.14 | 52.74 | - | - |
| | Duct-B | 100 m.* | 3.5mtrs | Batt. cyclone | 16.01.20 | - | 325301 | 58.52 | 92.43 | 53.29 | - | - |

**Standard: PM - 150 , SO2 - , NOx - (Units: $mg/Nm^3$)** * All three Sinter M/c Exhaust are connected to a common single stack of 100m height

| **Mill zone** | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CRM | HDGL | 60m | 3.0mtrs | - | 14.01.20 | - | | 29.62 | 78.52 | 62.82 | - | - |

**Standard: PM-150$mg/Nm^3$**

**FEB'2020**

| Name of the Plant | Stack connected to (Name of the unit) | Height of the stack (m) | Diameter of the stack (m) | Pollution Control unit provided (Name) | Date & Time of the monitoring (duration) | Production fig. of the unit, during the period of monitoring | Flow rate of the flue gas ($NM^3/Hr$) | Parameters (whichever are applicable) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | | | |
| **Blast Furnace** (Space dedusting) & Stoves | | | | | | | | **Particulate matter (PM)** ($mg/Nm^3$) | **$SO_2$** ($mg/Nm^3$) | **$NO_x$** ($mg/Nm^3$) | **HC** | **CO** Kg/TDCP Vol./vol. |
| BF-1 | Chimney-1 | 50 mtr. | 8.2mtrs. | Wet scrubber | 01.02.2020 | 3008 | 281260 | 62.34 | - | - | - | - |
| BF-2 | Chimney-2 | 50 mtr. | 8.2mtrs. | Wet scrubber | 21.02.2020 | 4189 | 278865 | 74.30 | - | - | - | - |
| BF-3 | Chimney-2 | 50 mtr. | 8.2mtrs. | Wet scrubber | - | - | - | - | - | - | - | - |
| BF-4 | Chimney-3 | 50 mtr. | 8.2mtrs. | Wet scrubber | Under Capital Repair | | | | | | | |
| BF-5 | Chimney-3 | 50 mtr. | 8.2mtrs. | Wet scrubber | 07.02.2020 | 3090 | 272862 | 80.65 | - | - | - | - |
| BF Stoves-1 | Chimney-1 | 70 mtr. | 3.5mtrs. | - | 14.02.2020 | 3317 | 109562 | 21.08 | 72.18 | 51.08 | - | 0.26% |
| BF Stoves-2 | Chimney-2 | 70 mtr. | 3.5mtrs. | - | 18.02.2020 | 4077 | 110008 | 23.64 | 80.64 | 48.34 | - | 0.25% |
| **Standards : Charging side chimney- PM - 100 (Units: $mg/Nm^3$)** **BF Stoves – PM- 50 mg/Nm3, SO2- 250 mg/Nm3, NOX- 150 mg/Nm3 CO- 1% v/v (Max)**<br>• BF#1 is connected to chimney no-1 , BF#2&BF#3 are connected to chimney no-2 and BF#4&BF#5 are connected to chimney no-3<br>Each BF stove is connected to corresponding chimney No. | | | | | | | | | | | | |
| **Refractory Material plant** | | | | | | | | | | | | |
| Kiln-1 | Stack – 1 | 80 mtr. | 3.3mtrs | ESP | Under Shutdown | | | | | | | |
| Kiln-2 | Stack – 1 | 80 mtr. | 3.3mtrs | ESP | 04.02.2020 | 11.25 T/hr | 148770 | 133.09 | 105.32 | - | - | - |
| Kiln-3 | Stack - 2 | 80 mtr | 3.3mtrs | ESP | 27.02.2020 | 11.25 T/hr | 142796 | 77.26 | 118.70 | - | - | - |
| Kiln-4 | Stack – 2 | 80 mtr. | 3.3mtrs | ESP | 22.02.2020 | 11.05 T/hr | 141674 | 48.95 | 90.80 | - | - | - |
| Kiln-5 | Stack – 3 | 80 mtr. | 3.3 mtrs | ESP | 16.02.2020 | 11.25 T/hr | 148532 | 138.95 | 87.48 | - | - | - |
| Kiln-6 | Stack – 3 | 80 mtr. | 3.3 mtrs | ESP | 20.02.2020 | 10.21 T/hr | 177955 | 26.62 | 107.91 | - | - | - |

**Standards: PM - 150 , SO2 - , NOx - , CO - (Units: $mg/Nm^3$)**

Monitoring values for corresponding Kiln duct. Two Kilns through individual Ducts are connected to a common stack.

| **SMS – 1** (Process unit) | | | | | **Date** | | **Flow rate ($NM^3$/Hr)** | **PM ($mg/Nm^3$)** | **$SO_2$ ($mg/Nm^3$)** | **$NO_x$ ($mg/Nm^3$)** | HC | CO |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conv. – 1( NB) | Stack – 1 | 100 m | 4.3mtrs | Wet scrubber | Under Capital Repair | | | | | | - | - |
| Conv. – 2( NB) | Stack – 1 | 100 m | 4.3mtrs | Wet scrubber | Under Shutdown for campaign repair | | | | | | | |
| Conv. – 2 (BL) | Stack – 1 | 100 m | 4.3mtrs | Wet scrubber | | | | | | | | |
| Conv. – 3(NB) | Stack – 1 | 100 m | 4.3mtrs | Wet scrubber | 19.02.2020 | - | 108720 | 24.96 | - | - | - | - |
| Conv. – 3(BL) | Stack – 1 | 100m | 4.3mtrs | Wet scrubber | 19.02.2020 | - | 254728 | 238.08 | 92.16 | 46.30 | - | - |
| Conv. – 4(NL) | Stack – 1 | 100 m | 4.3mtrs | Wet scrubber | Under Shutdown | | | | | | | - |
| Conv. – 5 (NB) | Stack – 1 | 100 m | 4.3mtrs | Wet scrubber | | Under Stabilization | | | | | - | - |
| Conv. – 5(BL) | Stack – 1 | 100m | 4.3mtrs | Wet scrubber | | | | | | | | |
| SMS-2/CCS | LF- 2 | 80m | 1.25m | Bag filter | 28.02.2020 | - | 106252 | 21.90 | 78.64 | 40.50 | - | - |

**Standard : PM - 300, SO2 - , NOx - , CO -**

* Monitored in individual ducts(of diameter 2.5 m each) from corresponding converters. SMS-2/CCS Stack -PM #50mg/Nm3

**(Units: $mg/Nm^3$)** All ducts are connected to a common stack

| **Coke Oven** | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Batt. # 1 | Stack – 1 | 100 m. | 3.5mtrs | - | 13.02.2020 | - | 145946 | 36.21 | 220.58 | 81.8 | - | 1.35 |
| Batt. # 2 | Stack – 2 | 100 m. | 3.5mtrs | - | 08.02.2020 | - | 147950 | 30.12 | 215.25 | 59.6 | - | 1.22 |
| Batt # 3 | Stack - 3 | 100 m | 3.5 mtrs | - | 06.02.2020 | - | 144008 | 28.62 | 205.62 | 70.6 | - | 1.52 |
| Batt. # 4 | Stack – 4 | 100 m. | 3.5 mtrs | - | 26.02.2020 | - | 148526 | 31.88 | 224.80 | 82.5 | - | 1.38 |
| Batt. # 5 | Stack – 5 | 100 m. | 3.5mtrs | - | 05.02.2020 | - | 157126 | 45.13 | 237.41 | 62.4 | - | 1.86 |
| Batt # 6 | Stack - 6 | 100 m. | 3.5 mts | Shutdown for Rebuilding | | | | | | | | |
| Batt. # 7 | Stack – 7 | 100 m. | 3.5mtrs | - | 24.02.2020 | - | 146310 | 24.74 | 259.35 | 58.6 | - | 1.27 |
| Batt. # 8 | Stack – 8 | 100 m. | 3.5mtrs | Under Rebuilding | | | | | | | | |

**Standard: PM - 50, SO2 - 800, NOx - 500, CO – 3.00 Kg/TDCP, HC - (Units: $mg/Nm^3$)**

| **Sinter Plant** | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SM-1 | Duct-A | 100 m.* | 3.5mtrs | Batt. cyclone | Under Shutdown | | | | | | - | - |
| | Duct-B | | 3.5mtrs | Batt. cyclone | Under Shutdown for installation of ESP | | | | | | - | - |
| SM-2 | Duct-A | | 3.5mtrs | Batt. cyclone | 17.02.2020 | - | 392524 | 138.06 | 80.24 | 44.30 | - | - |
| | Duct-B | | 3.5mtrs | Batt. cyclone | 17.02.2020 | - | 399620 | 144.82 | 78.10 | 40.55 | - | - |
| SM-3 | Duct-A | | 3.5mtrs | Batt. cyclone | 03.02.2020 | - | 390715 | 144.80 | 92.72 | 36.5 | - | - |
| | Duct-B | 100 m.* | 3.5mtrs | Batt. cyclone | 03.02.2020 | - | 310505 | 38.96 | 80.72 | 42.08 | - | - |

**Standard: PM - 150 , SO2 - , NOx - (Units: $mg/Nm^3$)** * All three Sinter M/c Exhaust are connected to a common single stack of 100m height

| **Mill zone** | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CRM | CAL | 60m | 3.0mtrs | - | 29.02.2020 | - | | 31.43 | 54.03 | 30.94 | - | - |

**Standard: PM-150$mg/Nm^3$**

**MAR'2020**

| Name of the Plant | Stack connected to (Name of the unit) | Height of the stack (m) | Diameter of the stack (m) | Pollution Control unit provided (Name) | Date & Time of the monitoring (duration) | Production fig. of the unit, during the period of monitoring | Flow rate of the flue gas ($NM^3/Hr$) | Parameters (whichever are applicable) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | | | |
| **Blast Furnace** (Space dedusting) & Stoves | | | | | | | | **Particulate matter (PM)** ($mg/Nm^3$) | **$SO_2$** ($mg/Nm^3$) | **$NO_x$** ($mg/Nm^3$) | **HC** | **CO** Kg/TDCP Vol./vol. |
| BF-1 | Chimney-1 | 50 mtr. | 8.2mtrs. | Wet scrubber | 14.03.2020 | 3588 T | 279621 | 66.39 | - | - | - | - |
| BF-2 | Chimney-2 | 50 mtr. | 8.2mtrs. | Wet scrubber | 06.03.2020 | 6632 T | 270352 | 72.14 | - | - | - | - |
| BF-3 | Chimney-2 | 50 mtr. | 8.2mtrs. | Wet scrubber | Under Capital Repair | | | | | | | |
| BF-4 | Chimney-3 | 50 mtr. | 8.2mtrs. | Wet scrubber | | | | | | | | |
| BF-5 | Chimney-3 | 50 mtr. | 8.2mtrs. | Wet scrubber | 20.03.2020 | 1016 T | 257342 | 69.06 | - | - | - | - |
| BF Stoves-2 | Chimney-2 | 70 mtr. | 3.5mtrs. | - | 26.03.2020 | 3781 T | 107305 | 24.35 | 80.14 | 50.72 | - | 0.28% |
| BF Stoves-5 | Chimney-5 | 70 mtr. | 3.5mtrs. | - | 23.03.2020 | 2828 T | 101442 | 21.96 | 72.64 | 44.14 | - | 0.26% |
| **Standards : Charging side chimney- PM - 100 (Units: $mg/Nm^3$)** **BF Stoves – PM- 50 mg/Nm3, SO2- 250 mg/Nm3, NOX- 150 mg/Nm3 CO- 1% v/v (Max)**<br>• BF#1 is connected to chimney no-1 , BF#2&BF#3 are connected to chimney no-2 and BF#4&BF#5 are connected to chimney no-3<br>Each BF stove is connected to corresponding chimney No. | | | | | | | | | | | | |
| **Refractory Material plant** | | | | | | | | | | | | |
| Kiln-1 | Stack – 1 | 80 mtr. | 3.3mtrs | ESP | 25.03.20 | 11.25T/hr | 143605 | 34.64 | 129.67 | - | - | - |
| Kiln-2 | Stack – 1 | 80 mtr. | 3.3mtrs | ESP | 02.03.20 | 9.38T/hr | 145332 | 143.42 | 89.06 | - | - | -- |
| Kiln-3 | Stack - 2 | 80 mtr | 3.3mtrs | ESP | 19.03.20 | 11.25T/hr | 148352 | 44.06 | 95.36 | - | - | - |
| Kiln-4 | Stack – 2 | 80 mtr. | 3.3mtrs | ESP | 06.03.20 | 11.25T/hr | 147321 | 50.52 | 80.14 | - | - | - |
| Kiln-5 | Stack – 3 | 80 mtr. | 3.3 mtrs | ESP | Under Shutdown for refurbishing | | | | | | | |
| Kiln-6 | Stack – 3 | 80 mtr. | 3.3 mtrs | ESP | 28.03.20 | 11.25T/hr | 144778 | 88.70 | 68.25 | - | - | - |

**Standards: PM - 150 , SO2 - , NOx - , CO - (Units: $mg/Nm^3$)**

Monitoring values for corresponding Kiln duct. Two Kilns through individual Ducts are connected to a common stack.

| **SMS – 1** (Process unit) | | | | | **Date** | | **Flow rate ($NM^3$/Hr)** | **PM ($mg/Nm^3$)** | **$SO_2$ ($mg/Nm^3$)** | **$NO_x$ ($mg/Nm^3$)** | HC | CO |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conv. – 1( NB) | Stack – 1 | 100 m | 4.3mtrs | Wet scrubber | Under Capital Repair | | | | | | - | - |
| Conv. – 2( NB) | Stack – 1 | 100 m | 4.3mtrs | Wet scrubber | Under Shutdown for campaign repair | | | | | | | |
| Conv. – 2 (BL) | Stack – 1 | 100 m | 4.3mtrs | Wet scrubber | | | | | | | | |
| Conv. – 3(NB) | Stack – 1 | 100 m | 4.3mtrs | Wet scrubber | 17.03.20 | - | 102709 | 21.96 | - | - | - | - |
| Conv. – 3(BL) | Stack – 1 | 100m | 4.3mtrs | Wet scrubber | 17.03.20 | - | 249770 | 246.04 | 104.04 | 52.56 | - | - |
| Conv. – 4(NL) | Stack – 1 | 100 m | 4.3mtrs | Wet scrubber | Under Shutdown | | | | | | | - |
| Conv. – 5 (NB) | Stack – 1 | 100 m | 4.3mtrs | Wet scrubber | | Under Stabilization | | | | | - | - |
| Conv. – 5(BL) | Stack – 1 | 100m | 4.3mtrs | Wet scrubber | | | | | | | | |
| SMS-2/CCS | LF- 1 | 80m | 1.25m | Bag filter | 24.03.20 | - | 105672 | 22.94 | 64.34 | 38.05 | - | - |

**Standard : PM - 300, SO2 - , NOx - , CO -** * Monitored in individual ducts(of dia 2.5 m each) from corresponding converters. SMS-2/CCS Stack -PM #50mg/Nm3
**(Units: $mg/Nm^3$)** All ducts are connected to a common stack

| **Coke Oven** | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Batt. # 1 | Stack – 1 | 100 m. | 3.5mtrs | - | 07.03.20 | - | 142414 | 32.61 | 239.5 | 59.8 | - | 1.31 |
| Batt. # 2 | Stack – 2 | 100 m. | 3.5mtrs | - | 09.03.20 | - | 144456 | 30.60 | 265.8 | 61.2 | - | 1.17 |
| Batt # 3 | Stack - 3 | 100 m | 3.5 mtrs | - | 27.03.20 | - | 143705 | 25.52 | 205.8 | 68.27 | - | 1.80 |
| Batt. # 4 | Stack – 4 | 100 m. | 3.5 mtrs | - | 04.03.20 | - | 147414 | 34.03 | 259.7 | 84.2 | - | 2.26 |
| Batt. # 5 | Stack – 5 | 100 m. | 3.5mtrs | - | 19.03.20 | - | 145460 | 46.0 | 259.6 | 72.4 | - | 1.34 |
| Batt # 6 | Stack - 6 | 100 m. | 3.5 mts | Shutdown for Rebuilding | | | | | | | | |
| Batt. # 7 | Stack – 7 | 100 m. | 3.5mtrs | - | 21.03.20 | - | 143768 | 24.92 | 250.5 | 74.8 | - | 1.23 |
| Batt. # 8 | Stack – 8 | 100 m. | 3.5mtrs | Under Rebuilding | | | | | | | | |

**Standard: PM - 50, SO2 - 800, NOx - 500, CO – 3.00 Kg/TDCP, HC - (Units: $mg/Nm^3$)**

| **Sinter Plant** | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SM-1 | Duct-A | 100 m.* | 3.5mtrs | Batt. cyclone | Under Shutdown | | | | | | - | - |
| | Duct-B | | 3.5mtrs | Batt. cyclone | Under Shutdown for installation of ESP | | | | | | - | - |
| SM-2 | Duct-A | | 3.5mtrs | Batt. cyclone | 18.03.20 | - | 3944342 | 140.90 | 84.20 | 58.12 | - | - |
| | Duct-B | | 3.5mtrs | Batt. cyclone | 18.03.20 | - | 396704 | 139.14 | 96.15 | 60.64 | - | - |
| SM-3 | Duct-A | | 3.5mtrs | Batt. cyclone | 10.03.20 | - | 398372 | 142.66 | 102.34 | 48.30 | - | - |
| | Duct-B | 100 m.* | 3.5mtrs | Batt. cyclone | 10.03.20 | - | 324351 | 62.74 | 78.54 | 50.14 | - | - |

**Standard: PM - 150 , SO2 - , NOx - (Units: $mg/Nm^3$)** * All three Sinter M/c Exhaust are connected to a common single stack of 100m height

| **Mill zone** | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S. Mill | Soaking pit | | 3.0mtrs | - | 11.03.20 | - | 105324 | 32.62 | 50.14 | 26.86 | - | - |

**Standard: PM-150mg/$Nm^3$**

# Status of compliances to the Fugitive emission standards of coke oven batteries in (Bokaro Steel plant)

**OCT'2019**

| Plant/Bat. No. | Date of commissioning | | Current age in year | PLD (%) | PLL (%) | PLO (%) | Charge-ing emission (sec/ charge.) (TC) | Stack emission ($mg/Nm^3$) | | | SPM emission charging ($mg/-Nm^3$) | SPM emission push-ing ($mg/Nm^3$) | PM for quenching gm/ tonne | Status of compliance |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Initial | After rebuilding | | | | | | PM | $SO_2$ | NOx | | | | |
| ***EP (Act) Norm (at green field site)*** | | | | *5* | *1* | *4* | *16* | *50* | *800* | *500* | *25* | *5* | *50* | |
| ***(Rebuild battery)*** | | | | *10* | *1* | *4* | *50* | *50* | *800* | *500* | *25* | *5* | *50* | |
| ***(Existing battery)*** | | | | ***10*** | ***1*** | ***4*** | ***75*** | ***50*** | ***800*** | ***500*** | *25* | - | - | |
| ***Battery No. 1*** | | | | 3.25-3.62 | 0.48-0.60 | 1.08-2.53 | 40-47 | | | | | 1.62 | 26.54 | |
| ***Battery No. 2*** | | | | 5.23-7.97 | 0.36-0.84 | 1.62-3.07 | 35-46 | | | | | 1.85 | 22.35 | |
| **Battery No. 3** | | | | 3.43-7.06 | 0.48-0.84 | 1.26-2.71 | 41-46 | | | | | 2.05 | 33.57 | |
| **Battery No. 4** | | | | 2.35-6.70 | 0.48-0.60 | 1.08-3.72 | 38-48 | | | | | 1.95 | 29.56 | |
| **Battery No. 5** | | | | 7.79-9.81 | 0.60-0.96 | 2.87-3.92 | 42-49 | | | | | 2.98 | 38.28 | |
| **Battery No. 6** | | | | **Under Shutdown for Rebuilding** | | | | | | | | | | |
| **Battery No. 7** | | | | 1.08-1.62 | 0.12-0.36 | 0.00-1.26 | 38-45 | | | | | 1.21 | 22.53 | |
| **Battery No. 8** | | | | **Under Shutdown for Rebuilding** | | | | | | | | | | |

**Coke oven& Mixed gas used for heating:**

* Data provided under Stack emission status at section : A of this format

SC – Stamp Charge
NC –Non Compliance
C - Compliance
TC- Top charge

NB: Batt#7& Batt#8 have been shut down for rebuilding

**NOV '2019**

| Plant/Bat. No. | Date of commissioning | | Cur - rentage in year | PLD (%) | PLL (%) | PLO (%) | Charge-ing emission (sec/ charge.) (TC) | Stack emission ($mg/Nm^3$) | | | SPM emission charging ($mg/-Nm^3$) | SPM emission push-ing ($mg/Nm^3$) | PM for quenching gm/ tonne | Status of compliance |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Initial | After rebuilding | | | | | | PM | $SO_2$ | NOx | | | | |
| ***EP (Act) Norm (at green field site)*** | | | | *5* | *1* | *4* | *16* | *50* | *800* | *500* | *25* | *5* | *50* | |
| ***(Rebuild battery)*** | | | | *10* | *1* | *4* | *50* | *50* | *800* | *500* | *25* | *5* | *50* | |
| ***(Existing battery)*** | | | | ***10*** | ***1*** | ***4*** | ***75*** | ***50*** | ***800*** | ***500*** | *25* | - | - | |
| ***Battery No. 1*** | | | | 1.98-3.25 | 0.36-0.48 | 0.54-1.80 | 36-48 | | | | | 2.68 | 26.34 | |
| ***Battery No. 2*** | | | | 2.89-5.25 | 0.48-0.60 | 1.26-2.89 | 39-48 | | | | | 2.83 | 25.95 | |
| **Battery No. 3** | | | | 2.71-5.61 | 0.36-0.84 | 1.26-3.24 | 30-47 | | | | | 3.05 | 32.51 | |
| **Battery No. 4** | | | | 2.53-4.52 | 0.48-0.06 | 1.12-2.35 | 34-47 | | | | | 2.64 | 29.67 | |
| **Battery No. 5** | | | | 7.14-9.54 | 0.60-0.98 | 2.62-3.76 | 41-49 | | | | | 3.69 | 35.24 | |
| **Battery No. 6** | | | | **Under Shutdown for Rebuilding** | | | | | | | | | | |
| **Battery No. 7** | | | | 0.72-1.44 | 0.12-0.24 | 0-0.72 | 36-44 | | | | | 1.86 | 19.25 | |
| **Battery No. 8** | | | | **Under Shutdown for Rebuilding** | | | | | | | | | | |

**Coke oven& Mixed gas used for heating:**

* Data provided under Stack emission status at section: A of this format

SC – Stamp Charge
NC –Non Compliance
C - Compliance
TC- Top charge

NB: Batt # 7 & Batt # 8 have been shut down for rebuilding

**DEC'2019**

| Plant/Bat. No. | Date of commissioning | | Current age in year | PLD (%) | PLL (%) | PLO (%) | Charge-ing emission (sec/ charge.) (TC) | Stack emission ($mg/Nm^3$) | | | SPM emission charging ($mg/-Nm^3$) | SPM emission push-ing (g/ TDCP) | PM for quenching g/ TDCP | Status of compliance |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Initial | After rebuilding | | | | | | PM | $SO_2$ | NOx | | | | |
| ***EP (Act) Norm (at green field site)*** | | | | *5* | *1* | *4* | *16* | *50* | *800* | *500* | *25* | *5* | *50* | |
| ***(Rebuild battery)*** | | | | *10* | *1* | *4* | *50* | *50* | *800* | *500* | *25* | *5* | *50* | |
| ***(Existing battery)*** | | | | ***10*** | ***1*** | ***4*** | ***75*** | ***50*** | ***800*** | ***500*** | *25* | - | - | |
| ***Battery No. 1*** | | | | 1.44-2.72 | 6.12-0.48 | 1.08-1.54 | 32-48 | | | | | *1.85* | *27.82* | |
| ***Battery No. 2*** | | | | 2.17-4.34 | 0.24-0.60 | 0.72-3.26 | 38-48 | | | | | *2.18* | *31.42* | |
| **Battery No. 3** | | | | 2.96-3.80 | 0.48-0.84 | 1.98-3.26 | 43-47 | | | | | 1.98 | 36.28 | |
| **Battery No. 4** | | | | 3.07-5.25 | 0.36-0.60 | 1.62-2.89 | 36-46 | | | | | 3.02 | 31.52 | |
| **Battery No. 5** | | | | 7.15-9.30 | 0.60-0.96 | 2.86-3.84 | 42-49 | | | | | 4.52 | 40.38 | |
| **Battery No. 6** | | | | **Under Shutdown for Rebuilding** | | | | | | | | | | |
| **Battery No. 7** | | | | 1.08-2.17 | 0.12-0.24 | 0.00-1.08 | 36-47 | | | | | 1.35 | 19.26 | |
| **Battery No. 8** | | | | **Under Shutdown for Rebuilding** | | | | | | | | | | |

**Coke oven& Mixed gas used for heating:**

* Data provided under Stack emission status at section: A of this format

SC – Stamp Charge
NC –Non Compliance
C - Compliance
TC- Top charge

NB: Batt # 7 & Batt # 8 have been shut down for rebuilding

**JAN'2020**

| Plant/Bat. No. | Date of commissioning | | Current age in year | PLD (%) | PLL (%) | PLO (%) | Charge-ing emission (sec/ charge.) (TC) | Stack emission ($mg/Nm^3$) | | | SPM emission charging ($mg/-Nm^3$) | SPM emission push-ing (g/ TDCP) | PM for quenching g/ TDCP | Status of compliance |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Initial | After rebuilding | | | | | | PM | $SO_2$ | NOx | | | | |
| ***EP (Act) Norm (at green field site)*** | | | | *5* | *1* | *4* | *16* | *50* | *800* | *500* | *25* | *5* | *50* | |
| ***(Rebuild battery)*** | | | | *10* | *1* | *4* | *50* | *50* | *800* | *500* | *25* | *5* | *50* | |
| ***(Existing battery)*** | | | | ***10*** | ***1*** | ***4*** | ***75*** | ***50*** | ***800*** | ***500*** | *25* | - | - | |
| ***Battery No. 1*** | | | | 1.08-3.61 | 0.36-0.60 | 0.90-1.99 | 32-40 | | | | | *1.85* | *27.82* | |
| ***Battery No. 2*** | | | | 1.99-4.88 | 0.48-0.84 | 1.08-3.07 | 30-38 | | | | | *2.18* | *31.42* | |
| **Battery No. 3** | | | | 3.07-7.24 | 0.36-0.84 | 1.26-2.88 | 29-39 | | | | | 1.98 | 36.28 | |
| **Battery No. 4** | | | | 3.07-5.97 | 0.24-0.60 | 1.26-3.33 | 32-42 | | | | | 3.02 | 31.52 | |
| **Battery No. 5** | | | | 7.78-9.25 | 0.60-0.96 | 3.12-3.87 | 32-48 | | | | | 4.52 | 40.38 | |
| **Battery No. 6** | | | | **Under Shutdown for Rebuilding** | | | | | | | | | | |
| **Battery No. 7** | | | | 1.08-1.98 | 0.24-0.36 | 0.00-1.28 | 36-39 | | | | | 1.35 | 19.26 | |
| **Battery No. 8** | | | | **Under Shutdown for Rebuilding** | | | | | | | | | | |

**Coke oven& Mixed gas used for heating:**

* Data provided under Stack emission status at section: A of this format

SC – Stamp Charge
NC –Non Compliance
C - Compliance
TC- Top charge

NB: Batt # 6 & Batt # 8 have been shut down for rebuilding

**FEB'2020**

| Plant/Bat. No. | Date of commissioning | | Current-age in year | PLD (%) | PLL (%) | PLO (%) | Charge-ing emission (sec/ charge.) (TC) | Stack emission ($mg/Nm^3$) | | | SPM emission charging ($mg/-Nm^3$) | SPM emission push-ing (g/ TDCP) | PM for quenching g/ TDCP | Status of compliance |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Initial | After rebuilding | | | | | | PM | $SO_2$ | NOx | | | | |
| ***EP (Act) Norm (at green field site)*** | | | | *5* | *1* | *4* | *16* | *50* | *800* | *500* | *25* | *5* | *50* | |
| ***(Rebuild battery)*** | | | | *10* | *1* | *4* | *50* | *50* | *800* | *500* | *25* | *5* | *50* | |
| ***(Existing battery)*** | | | | ***10*** | ***1*** | ***4*** | ***75*** | ***50*** | ***800*** | ***500*** | *25* | - | - | |
| ***Battery No. 1*** | | | | 1.44-3.80 | 0.36-0.48 | 1.26-2.17 | 38-46 | | | | | *1.85* | *27.82* | |
| ***Battery No. 2*** | | | | 3.80-6.69 | 0.48-0.72 | 1.44-2.89 | 40-45 | | | | | *2.18* | *31.42* | |
| **Battery No. 3** | | | | 5.79-8.69 | 0.36-0.84 | 1.44-3.88 | 36-46 | | | | | 1.98 | 36.28 | |
| **Battery No. 4** | | | | 2.93-7.06 | 0.48-0.60 | 1.65-3.42 | 30-44 | | | | | 3.02 | 31.52 | |
| **Battery No. 5** | | | | 7.78-9.67 | 0.36-0.78 | 3.17-3.79 | 36-46 | | | | | 4.52 | 40.38 | |
| **Battery No. 6** | | | | **Under Shutdown for Rebuilding** | | | | | | | | | | |
| **Battery No. 7** | | | | 2.16-3.20 | 0.00-0.36 | 0.00-1.48 | 30-42 | | | | | 1.35 | 19.26 | |
| **Battery No. 8** | | | | **Under Shutdown for Rebuilding** | | | | | | | | | | |

**Coke oven& Mixed gas used for heating:**

* Data provided under Stack emission status at section: A of this format

SC – Stamp Charge
NC –Non Compliance
C - Compliance
TC- Top charge

NB: Batt # 6 & Batt # 8 have been shut down for rebuilding

**MAR'2020**

| Plant/Bat. No. | Date of commissioning | | Current age in year | PLD (%) | PLL (%) | PLO (%) | Charge-ing emission (sec/ charge.) (TC) | Stack emission ($mg/Nm^3$) | | | SPM emission charging ($mg/-Nm^3$) | SPM emission push-ing (g/ TDCP) | PM for quenching g/ TDCP | Status of compliance |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Initial | After rebuilding | | | | | | PM | $SO_2$ | NOx | | | | |
| ***EP (Act) Norm (at green field site)*** | | | | *5* | *1* | *4* | *16* | *50* | *800* | *500* | *25* | *5* | *50* | |
| ***(Rebuild battery)*** | | | | *10* | *1* | *4* | *50* | *50* | *800* | *500* | *25* | *5* | *50* | |
| ***(Existing battery)*** | | | | ***10*** | ***1*** | ***4*** | ***75*** | ***50*** | ***800*** | ***500*** | *25* | - | - | |
| ***Battery No. 1*** | | | | 1.62-2.89 | 0.48-0.60 | 1.44-2.17 | 36-46 | | | | | *1.85* | *29.16* | |
| ***Battery No. 2*** | | | | 3.80-8.14 | 0.60-0.72 | 2.16-2.35 | 38-46 | | | | | *1.95* | *30.52* | |
| **Battery No. 3** | | | | 4.88-6.57 | 0.60-0.96 | 2.53-3.51 | 40-47 | | | | | 2.65 | 34.14 | |
| **Battery No. 4** | | | | 2.89-4.22 | 0.24-0.73 | 1.98-2.96 | 30-44 | | | | | 2.15 | 28.72 | |
| **Battery No. 5** | | | | 7.88-9.52 | 0.60-0.84 | 3.25-3.82 | 40-48 | | | | | 3.12 | 39.66 | |
| **Battery No. 6** | | | | **Under Shutdown for Rebuilding** | | | | | | | | | | |
| **Battery No. 7** | | | | 0.54-1.80 | 0.00-0.75 | 0.00-0.90 | 32-42 | | | | | 1.54 | 20.68 | |
| **Battery No. 8** | | | | **Under Shutdown for Rebuilding** | | | | | | | | | | |

**Coke oven& Mixed gas used for heating:**

* Data provided under Stack emission status at section: A of this format

SC – Stamp Charge
NC –Non Compliance
C - Compliance
TC- Top charge

NB: Batt # 6 & Batt # 8 have been shut down for rebuilding

# Ambient Air Quality

**Ambient Air Quality (AAQ)** (All Ambient Air Quality Monitoring Station)

**Standards : $PM_{10}$ - 100, $PM_{2.5}$ -60, $SO_2$ - 80, $NO_2$ – 80, $NH_3$ – 400 , $O_3$-100, Pb -1.0 , $C_6H_6$ – 5.0 , (Units: micro gram/meter$^3$), As - 6.0, B(a)P - 1.0 , Ni – 20.0 (units – Nano gram/meter$^3$ ) , CO – 2.0 mg/m$^3$**

**OCT'2019** **Ambient air quality is monitored on bi-weekly basis. Average value of the month is reported**

| S. No | Location of the Station | | Parameters (as applicable) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | $PM_{10}$ | $PM_{2.5}$ | $SO_2$ | $NO_2$ | $NH_3$ | $O_3$ | Pb | $C_6H_6$ | As | B(a)P | Ni | CO |
| 1 | B.S. City Rly. Stn | | 95 | 42 | 15 | 19 | 17 | 27.5 | 0.026 | 1.00 | 1.46 | 0.18 | 2.49 | 1.02 |
| 2 | Garga Dam | | 78 | 34 | 26 | 26 | 19 | 26.1 | 0.017 | 0.62 | 1.26 | 0.09 | 1.30 | 0.92 |
| 3 | Sector-12 | | 74 | 30 | 14 | 21 | 14 | 25.8 | 0.074 | 0.90 | 1.30 | 0.10 | 1.21 | 1.44 |
| 4 | Sector-9 | | 69 | 31 | 16 | 25 | 18 | 28.8 | 0.030 | 0.82 | 1.20 | 0.08 | 1.40 | 0.91 |
| 5 | Bokaro Nivas | | 76 | 26 | 23 | 29 | 15 | 25.2 | 0.015 | 0.72 | 0.98 | 0.11 | 1.31 | 0.46 |
| 6 | CISF (SGP) | | 71 | 38 | 18 | 25 | 18 | 29.1 | 0.071 | 0.95 | 1.38 | 0.14 | 1.32 | 0.57 |
| 7 | Air Strip | | 80 | 36 | 28 | 28 | 22 | 30.4 | 0.079 | 0.82 | 0.94 | 0.12 | 1.26 | 0.88 |
| 8 | CAAQMS at Main gate | | 57.17 | 5.08 | 19.3 | 49.24 | 64.89 | 13.51 | - | 4.26 | - | - | - | 0.28 |
| 9 | CAAQMS at TA building | | 97.56 | 27.23 | 16.29 | 16.83 | 17.79 | 18.62 | - | 1.97 | - | - | - | 1.9 |

**NOV '2019**

| S. No | Location of the Station | Date | Parameters (as applicable) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | $PM_{10}$ | $PM_{2.5}$ | $SO_2$ | $NO_2$ | $NH_3$ | $O_3$ | Pb | $C_6H_6$ | As | B(a)P | Ni | CO |
| 1 | B.S. City Rly. Stn | | 94 | 48 | 28 | 39 | 25 | 27 | 0.031 | 1.02 | 1.54 | 0.18 | 11.34 | 1.41 |
| 2 | Garga Dam | | 80 | 42 | 20 | 32 | 22 | 24 | 0.026 | 1.04 | 1.36 | 0.16 | 10.28 | 1.36 |
| 3 | Sector-12 | | 82 | 41 | 19 | 32 | 23 | 28 | 0.024 | 0.96 | 1.81 | 0.16 | 3.43 | 1.62 |
| 4 | Sector-9 | | 96 | 52 | 24 | 34 | 19 | 32 | 0.054 | 0.86 | 1.72 | 0.17 | 12.78 | 1.66 |
| 5 | Bokaro Nivas | | 71 | 38 | 16 | 25 | 17 | 21 | 0.013 | 0.92 | 1.65 | 0.15 | 5.92 | 0.52 |
| 6 | CISF (SGP) | | 87 | 45 | 18 | 29 | 21 | 22 | 0.031 | 0.98 | 1.52 | 0.20 | 6.16 | 0.59 |
| 7 | Air Strip | | 82 | 46 | 26 | 34 | 18 | 25 | 0.022 | 0.91 | 1.22 | 0.22 | 5.46 | 1.46 |
| 8 | CAAQMS at Main gate | 27.11.19 | 83.96 | 29.69 | 14.84 | 37.64 | 33.73 | 14.56 | - | 3.56 | - | - | - | 0.300 |
| 9 | CAAQMS at TA building | 09.11.19 | 82.17 | 15.68 | 16.89 | 15.84 | 19.91 | 14.91 | - | 1.30 | - | - | - | 1.87 |

**DEC'2019**

| S. No | Location of the Station | Date | Parameters (as applicable) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | $PM_{10}$ | $PM_{2.5}$ | $SO_2$ | $NO_2$ | $NH_3$ | $O_3$ | Pb | $C_6H_6$ | As | B(a)P | Ni | CO |
| 1 | B.S. City Rly. Stn | | 88 | 49 | 52 | 38 | 26 | 36 | 0.042 | 1.12 | 1.24 | 0.20 | 10.06 | 1.30 |
| 2 | Garga Dam | | 76 | 42 | 38 | 40 | 20 | 30 | 0.036 | 0.96 | 1.14 | 0.14 | 9.62 | 0.96 |
| 3 | Sector-12 | | 87 | 46 | 40 | 42 | 26 | 34 | 0.036 | 0.86 | 1.08 | 0.08 | 4.96 | 0.88 |
| 4 | Sector-9 | | 90 | 48 | 34 | 43 | 25 | 35 | 0.026 | 0.78 | 1.24 | 0.10 | 10.81 | 0.72 |
| 5 | Bokaro Nivas | | 80 | 36 | 29 | 36 | 24 | 28 | 0.036 | 0.80 | 1.20 | 0.11 | 9.96 | 0.95 |
| 6 | CISF (SGP) | | 93 | 51 | 30 | 39 | 20 | 30 | 0.020 | 0.96 | 1.18 | 0.19 | 5.16 | 1.26 |
| 7 | Air Strip | | 84 | 47 | 34 | 44 | 19 | 27 | 0.034 | 0.88 | 1.16 | 0.14 | 7.14 | 1.08 |
| 8 | CAAQMS at Main gate | 29.12.19 | 97.27 | 52.79 | 13.58 | 17.05 | 19.92 | 11.94 | - | 1.1 | - | - | - | 1.34 |
| 9 | CAAQMS at TA building | 06.12.19 | 56.50 | 29.48 | 14.12 | 39.19 | 53.24 | 22.25 | - | 4.21 | - | - | - | 0.15 |

**JAN'2020**

| S. No | Location of the Station | Date | Parameters (as applicable) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | $PM_{10}$ | $PM_{2.5}$ | $SO_2$ | $NO_2$ | $NH_3$ | $O_3$ | Pb | $C_6H_6$ | As | B(a)P | Ni | CO |
| 1 | B.S. City Rly. Stn | | 71 | 39 | 19 | 15 | 32 | 39 | 0.032 | 1.30 | 1.36 | 0.21 | 10.36 | 1.20 |
| 2 | Garga Dam | | 74 | 40 | 32 | 30 | 36 | 30 | 0.026 | 0.96 | 1.12 | 0.16 | 8.88 | 0.90 |
| 3 | Sector-12 | | 82 | 45 | 34 | 40 | 41 | 36 | 0.034 | 0.87 | 1.08 | 0.15 | 5.95 | 0.85 |
| 4 | Sector-9 | | 81 | 41 | 30 | 36 | 45 | 35 | 0.036 | 0.90 | 0.98 | 0.14 | 4.80 | 0.90 |
| 5 | Bokaro Nivas | | 79 | 39 | 33 | 40 | 38 | 34 | 0.028 | 0.72 | 1.06 | 0.09 | 4.81 | 0.74 |
| 6 | CISF (SGP) | | 88 | 49 | 28 | 38 | 39 | 37 | 0.030 | 0.90 | 1.20 | 0.12 | 7.52 | 1.30 |
| 7 | Air Strip | | 89 | 48 | 29 | 42 | 43 | 37 | 0.034 | 0.58 | 1.14 | 0.08 | 6.80 | 0.80 |
| 8 | CAAQMS at Main gate | 17.01.20 | 85.46 | 29.36 | 15.96 | 39.01 | 53.47 | 11.15 | - | 4.22 | - | - | - | 0.47 |
| 9 | CAAQMS at TA building | 14.01.20 | 96.39 | 53.35 | 12.63 | 17.07 | 19.82 | 10.08 | - | 1.77 | - | - | - | 1.10 |

**FEB'2020**

| S. No | Location of the Station | Date | Parameters (as applicable) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | $PM_{10}$ | $PM_{2.5}$ | $SO_2$ | $NO_2$ | $NH_3$ | $O_3$ | Pb | $C_6H_6$ | As | B(a)P | Ni | CO |
| 1 | B.S. City Rly. Stn | | 95 | 43 | 19 | 28 | 18 | 31 | 0.005 | 0.92 | 1.80 | 0.18 | 1.39 | 1.47 |
| 2 | Garga Dam | | 80 | 40 | 18 | 30 | 16 | 34 | 0.008 | 0.72 | 1.23 | 0.11 | 1.82 | 0.9 |
| 3 | Sector-12 | | 81 | 38 | 16 | 23 | 14 | 27 | 0.009 | 0.90 | 1.32 | 0.12 | 2.04 | 1.36 |
| 4 | Sector-9 | | 89 | 42 | 20 | 36 | 15 | 40 | 0.012 | 1.24 | 1.40 | 0.08 | 1.92 | 0.84 |
| 5 | Bokaro Nivas | | 72 | 31 | 21 | 25 | 16 | 22 | 0.075 | 0.82 | 1.48 | 0.10 | 7.34 | 0.63 |
| 6 | CISF (SGP) | | 78 | 35 | 14 | 27 | 22 | 25 | 0.060 | 1.02 | 1.60 | 0.17 | 5.75 | 0.78 |
| 7 | Air Strip | | 84 | 36 | 19 | 32 | 23 | 32 | 0.015 | 1.06 | 1.38 | 0.10 | 1.88 | 0.99 |
| 8 | CAAQMS at Main gate | 04.02.2020 | 84.19 | 29.38 | 15.77 | 39.89 | 54.15 | 15.62 | - | 4.33 | - | - | - | 0.23 |
| 9 | CAAQMS at TA building | 28.02.2020 | 57.29 | 36.6 | 7.17 | 16.1 | 19.94 | 16.98 | - | 1.43 | - | - | - | 0.51 |

**MAR'2020**

| S. No | Location of the Station | Date | Parameters (as applicable) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | $PM_{10}$ | $PM_{2.5}$ | $SO_2$ | $NO_2$ | $NH_3$ | $O_3$ | Pb | $C_6H_6$ | As | B(a)P | Ni | CO |
| 1 | B.S. City Rly. Stn | | 88 | 46 | 40 | 43 | 41 | 30 | 0.010 | 1.04 | 1.72 | 0.22 | 1.42 | 1.23 |
| 2 | Garga Dam | | 79 | 40 | 36 | 40 | 36 | 28 | 0.020 | 0.68 | 1.24 | 0.10 | 1.70 | 0.89 |
| 3 | Sector-12 | | 84 | 38 | 34 | 42 | 33 | 26 | 0.012 | 0.70 | 1.43 | 0.08 | 1.06 | 0.94 |
| 4 | Sector-9 | | 83 | 39 | 38 | 41 | 30 | 32 | 0.008 | 0.72 | 1.23 | 0.09 | 1.24 | 0.78 |
| 5 | Bokaro Nivas | | 76 | 40 | 30 | 36 | 28 | 28 | 0.009 | 0.66 | 1.40 | 0.11 | 1.36 | 0.84 |
| 6 | CISF (SGP) | | 90 | 44 | 38 | 40 | 36 | 30 | 0.020 | 0.98 | 1.62 | 0.18 | 1.40 | 1.06 |
| 7 | Air Strip | | 87 | 43 | 35 | 45 | 38 | 38 | 0.024 | 0.90 | 1.08 | 0.12 | 1.28 | 1.00 |
| 8 | CAAQMS at Main gate | 12.03.20 | 59.24 | 29.61 | 16.59 | 54.3 | 19.89 | 8.72 | - | 4.21 | - | - | - | 0.41 |
| 9 | CAAQMS at TA building | 19.03.20 | 90.06 | 46.87 | 20.52 | 16.45 | 19.98 | 24.72 | - | 1.92 | - | - | - | 0.59 |

# Water Pollution Status

**Water Consumption 3.86 $m^3$ /Tonne of Crude Steel produced**

**Effluent discharged to: (Name of the river / drain / land etc.): Damodar River**
**Quality of various effluent streams at the Boundary line of the plant**
**Standards : Temp.- Upto 40$^0$C, pH -6.0-8.50, TSS- 100, Phenol- 1.0, Cyanide- 0.20, BOD- 30, COD- 250, Amm. Nitrogen- 50, O&G- 10.0**

**Note:- Outfall-1 (COBPP, Sinter Plant, TPP, BF, RMP), Outfall-2:(SMS-1, SMS-2 &CCS, Rolling Mills)Outfall-3; Due to huge excavation work in new CRM-3 area, this outfall cease to exist.**

## OCT'2019

| Date of Monitoring | Name of the stream | Parameters (mg/l, except pH and temp.) | | | | | | | | Flow rate m3/hr |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Temp. $^0$C | pH | TSS | Phenol | Cyanide | BOD | COD | Amm. Nitrogen | O&G | |
| 09.10.19 | OF - 1 | 26.7 | 6.5 | 34 | 0.092 | 0.036 | 8.00 | 94 | 6.56 | 0.81 | 250 |
| | OF – 2 | 26.1 | 7.4 | 32 | 0.044 | 0.014 | 6.82 | 85 | 1.82 | 0.72 | 350 |
| | OF - 3 | Abandoned | | | | | | | | | |

## NOV '2019

| Date of Monitoring | Name of the stream | Parameters (mg/l, except pH and temp.) | | | | | | | | Flow rate m3/hr |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Temp. $^0$C | pH | TSS | Phenol | Cyanide | BOD | COD | Amm. Nitrogen | O&G | |
| 13.11.19 | OF - 1 | 22.0 | 7.0 | 20 | 0.089 | 0.017 | 7.62 | 60 | 4.12 | 0.48 | 250 |
| | OF – 2 | 21.8 | 6.8 | 26 | 0.042 | 0.008 | 10.14 | 56 | 3.06 | 0.62 | 350 |
| | OF - 3 | Abandoned | | | | | | | | | |

## DEC'2019

| Date of Monitoring | Name of the stream | Parameters (mg/l, except pH and temp.) | | | | | | | | Flow rate m3/hr |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Temp. $^0$C | pH | TSS | Phenol | Cyanide | BOD | COD | Amm. Nitrogen | O&G | |
| 10.12.19 | OF - 1 | 20.4 | 7.8 | 26 | 0.062 | 0.023 | 6.78 | 49 | 5.96 | 0.72 | 250 |
| | OF – 2 | 21.8 | 6.7 | 30 | 0.015 | 0.009 | 6.92 | 58 | 1.86 | 0.44 | 350 |
| | OF - 3 | Abandoned | | | | | | | | | |

**JAN'2020**

| Date of Monitoring | Name of the stream | Parameters (mg/l, except pH and temp.) | | | | | | | | | Flow rate m3/hr |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Temp. $^0$C | pH | TSS | Phenol | Cyanide | BOD | COD | Amm. Nitrogen | O&G | |
| 07.01.2020 | OF - 1 | 19.1 | 7.2 | 24 | 0.056 | 0.024 | 10.12 | 68 | 6.78 | 0.62 | 250 |
| | OF – 2 | 18.8 | 7.4 | 26 | 0.042 | 0.008 | 8.86 | 38 | 3.96 | 0.48 | 350 |

**FEB'2020**

| Date of Monitoring | Name of the stream | Parameters (mg/l, except pH and temp.) | | | | | | | | | Flow rate m3/hr |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Temp. $^0$C | pH | TSS | Phenol | Cyanide | BOD | COD | Amm. Nitrogen | O&G | |
| 15.02.2020 | OF - 1 | 18.8 | 7.5 | 25 | 0.207 | 0.024 | 8.5 | 58 | 6.15 | 0.86 | 250 |
| | OF – 2 | 19.2 | 7.44 | 24 | 0.026 | 0.016 | 6.5 | 42 | 2.23 | 0.54 | 350 |

**MAR'2020**

| Date of Monitoring | Name of the stream | Parameters (mg/l, except pH and temp.) | | | | | | | | | Flow rate m3/hr |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Temp. $^0$C | pH | TSS | Phenol | Cyanide | BOD | COD | Amm. Nitrogen | O&G | |
| 11.03.2020 | OF - 1 | 27.1 | 7.1 | 23 | 0.040 | 0.019 | 9.23 | 68 | 5.95 | 0.58 | 250 |
| | OF – 2 | 26.8 | 6.6 | 20 | 0.032 | 0.012 | 7.30 | 45 | 0.98 | 0.48 | 350 |

# Status of Sewage Treatment Plant (STP)

**Standards : Temp.- Upto 40$^0$C, pH -6.0-8.5, TSS- 100, Phenol- 1.0, Cyanide- 0.20, BOD- 30, COD- 250.**

## OCT'2019

| Date | Time of Monitoring | Name of the STP | Quantity of the Effluent | **Temp. $^0$C** | **pH** | **TSS** | **BOD** | **COD** | **Fecal Coliform(FC),MPN /100ml** | **Remarks** |
|---|---|---|---|---|---|---|---|---|---|---|
| 19.10.19 | 12.20 pm | BGH | - | 26.0 | 6.90 | 18 | 10.5 | 73 | 240 | |
| | 11.30 am | Dhandabra | - | 24.8 | 7.70 | 16 | 12.6 | 90 | 290 | |
| | 11.00 am | Sector -6 | - | 25.7 | 7.68 | 16 | 10.5 | 96 | 350 | |
| | 10.35 am | Camp-2 | - | 26.3 | 7.56 | 19 | 19.7 | 156 | 380 | |
| | 10.15 am | Sector-12 | - | 25.2 | 7.32 | 15 | 13.2 | 100 | 310 | |

## NOV '2019

| Date | Time of Monitoring | Name of the STP | Quantity of the Effluent | **Temp. $^0$C** | **pH** | **TSS** | **BOD** | **COD** | **Fecal Coliform(FC),MPN /100ml** | **Remarks** |
|---|---|---|---|---|---|---|---|---|---|---|
| 21.11.19 | 12.20 pm | BGH | - | 19.3 | 7.50 | 19 | 9.5 | 95 | 250 | |
| | 11.30 am | Dhandabra | - | 19.6 | 7.50 | 22 | 12.4 | 63 | 280 | |
| | 11.00 am | Sector -6 | - | 19.7 | 7.30 | 35 | 10.6 | 54 | 300 | |
| | 10.35 am | Camp-2 | - | 20.7 | 7.63 | 38 | 11.4 | 43 | 270 | |
| | 10.15 am | Sector-12 | - | 21.1 | 7.54 | 47 | 10.0 | 40 | 310 | |

## DEC'2019

| Date | Time of Monitoring | Name of the STP | Quantity of the Effluent | **Temp. $^0$C** | **pH** | **TSS** | **BOD** | **COD** | **Fecal Coliform(FC),MPN /100ml** | **Remarks** |
|---|---|---|---|---|---|---|---|---|---|---|
| 17.12.19 | 12.20 pm | BGH | - | 21.0 | 7.32 | 18 | 8.6 | 80 | 240 | |
| | 11.30 am | Dhandabra | - | 20.8 | 7.12 | 16 | 10.2 | 78 | 270 | |
| | 11.00 am | Sector -6 | - | 21.6 | 7.86 | 24 | 11.4 | 75 | 310 | |
| | 10.35 am | Camp-2 | - | 21.8 | 7.52 | 23 | 14.52 | 60 | 240 | |
| | 10.15 am | Sector-12 | - | 20.8 | 7.14 | 27 | 10.5 | 56 | 290 | |

**JAN'2020**

| Date | Time of Monitoring | Name of the STP | Quantity of the Effluent | **Temp. $^0$C** | **pH** | **TSS** | **BOD** | **COD** | **Fecal Coliform(FC),MPN /100ml** | **Remarks** |
|---|---|---|---|---|---|---|---|---|---|---|
| 24.01.2020 | 12.20 pm | BGH | - | 18.1 | 6.41 | 19 | 11.5 | 70 | 250 | |
| | 11.30 am | Dhandabra | - | 19.0 | 7.12 | 20 | 12.3 | 75 | 280 | |
| | 11.00 am | Sector -6 | - | 19.2 | 6.65 | 15 | 10.5 | 65 | 290 | |
| | 10.35 am | Camp-2 | - | 18.6 | 7.72 | 23 | 16.2 | 102 | 300 | |
| | 10.15 am | Sector-12 | - | 18.7 | 6.12 | 15 | 11.4 | 85 | 330 | |

**FEB'2020**

| Date | Time of Monitoring | Name of the STP | Quantity of the Effluent | **Temp. $^0$C** | **pH** | **TSS** | **BOD** | **COD** | **Fecal Coliform(FC),MPN /100ml** | **Remarks** |
|---|---|---|---|---|---|---|---|---|---|---|
| 21.02.2020 | 12.20 pm | BGH | - | 27.0 | 6.84 | 19 | 12.0 | 72 | 240 | |
| | 11.30 am | Dhandabra | - | 27.1 | 7.00 | 17 | 13.8 | 82 | 310 | |
| | 11.00 am | Sector -6 | - | 27.2 | 6.96 | 20 | 10.6 | 61 | 300 | |
| | 10.35 am | Camp-2 | - | 27.3 | 7.22 | 21 | 15.9 | 115 | 280 | |
| | 10.15 am | Sector-12 | - | 26.6 | 7.30 | 16 | 11.5 | 82 | 270 | |

**MAR'2020**

| Date | Time of Monitoring | Name of the STP | Quantity of the Effluent | **Temp. $^0$C** | **pH** | **TSS** | **BOD** | **COD** | **Fecal Coliform(FC),MPN /100ml** | **Remarks** |
|---|---|---|---|---|---|---|---|---|---|---|
| 12.03.20 | 12.20 pm | BGH | - | 27.0 | 6.92 | 17 | 10.6 | 64 | 210 | |
| | 11.30 am | Dhandabra | - | 26.8 | 7.06 | 20 | 12.1 | 51 | 290 | |
| | 11.00 am | Sector -6 | - | 27.5 | 7.11 | 18 | 11.6 | 60 | 280 | |
| | 10.35 am | Camp-2 | - | 27.3 | 7.29 | 15 | 14.2 | 90 | 260 | |
| | 10.15 am | Sector-12 | - | 27.4 | 6.90 | 16 | 13.5 | 86 | 320 | |