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 Apr'2019 to Sep'2019.

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:

On-line Stack monitoring facility has been installed in all the major process stacks/ ducts. The real time data from all the stacks/ducts have been uplinked to CPCB and JSPCB server. 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.

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. 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:

After commissioning of all proposed modernization projects covered under EC , additional water requirement of 3600m3/hr. will be sourced from existing Tenughat dam , for which BSL has the permission .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. The test trial of the same is in progress. The ETP at OF-2 is expected to be commissioned by March'2020. Total ZLD system will be maintained in CRM-3 from December'2019.

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: Total quantity of waste water discharged through two outfalls will be treated and recycled back in cooling ponds for plant operation. The action plan for reducing water consumption has been submitted to the Ministry. ZLD System will be maintained in CRM-3 from December'2019. 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 Submitted to the Ministry.

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

Status: Not applicable (The clause is for 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 the Ministry..

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

Status:

- Total area of the plant = 13871.262 acre
- Plantation area= 4584.29 acre. Mass Trees Plantation Drive has been taken-up since the year 2017 and BSL has planted more than 3,21,350 nos of trees saplings till 30th September,2019 and it will continue further in the coming years.

% Plantation area= 33.04%

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 91.68%
e. BF slag utilization is around 100 %.
f. CDI facility is available in BF-2, BF-3, BF- 4 and BF- 5. BF-1 was equipped with CTI ,however the same is being replaced by CDI.
g. Average specific water consumption for the period April'2019 to September'2019 was 3.46 m^3/tcs which is well below CREP norm.
h. Phenol & ammonia content in BOD Plant effluent is below stipulated norm.

All pollution control equipment are 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 since March'2014.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 are within norm.
- All the roads are regularly maintained.
- Vehicular pollution monitoring of vehicles is done by authorized agency on regular basis as per requirement.
- In SP, ESP# 6 has been commissioned.
- Around 54879 new saplings have been planted during 2019-20.

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)
2016-17	100.416	38.679
2017-18	106.3363	196.631
2018-19	116.4375	61.645

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.

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.

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 prior to disposal. ETP outlet effluent quality report has been attached.

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.

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. 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.

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 Deptt. had informed the public by giving advertisement in two local daily 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 attached as annexure-9

ENCLOSURES:

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

STACK EMISSION

APR'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 scruber	Under Capital Repair							
BF-2	Chimney-2	50 mtr.	8.2mtrs.	Wet scruber	19.04.19	7041 T	284007	78.35	-	-	-	-
BF-3	Chimney-2	50 mtr.	8.2mtrs.	Wet scruber					-		-	-
BF-4	Chimney-3	50 mtr.	8.2mtrs.	Wet scruber	06.04.09	5350 T	278314	82.06	-	-	-	-
BF-5	Chimney-3	50 mtr.	8.2mtrs.	Wet scruber							-	-
BF Stoves-3	Chimney-3	70 mtr.	3.5mtrs.	-	12.04.19	2105 T	108735	21.92	80.34	42.16	-	0.62 %
BF Stoves-5	Chimney-5	70 mtr.	3.5mtrs.	-	24.04.19	3480 T	110740	20.16	76.17	41.70	-	0.56%
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's	23.04.19	11.04 T/hr	142475	56.25	80.15	-	-	-
Kiln-2	Stack – 1	80 mtr.	3.3mtrs	ESP's	15.04.19	11.11 T/hr	148709	146.32	75.15	-	-	-
Kiln -3	Stack - 2	80 mtr	3.3mtrs	ESP;s	Under Shutdown for its refurbishing					-	-	-
Kiln-4	Stack – 2	80 mtr.	3.3mtrs	ESP;s	Under Shutdown					-	-	-
Kiln-5	Stack – 3	80 mtr.	3.3mtrs	ESP's	29.04.19	11.25 T/hr	145302	136.72	88.86			
Kiln-6	Stack – 3	80 mtr.	3.3mtrs	ESP's	30.04.19	8.54 T/hr	141752	48.86	95.38	-	-	-

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

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	08.04.19	-	102972	22.51	-	-	-	-
Conv. – 2 (BL)	Stack – 1	100 m	4.3mtrs	Wet scrubber	08.04.19	-	248520	249.72	90.86	48.12		
Conv. – 3(NB)	Stack – 1	100 m	4.3mtrs	Wet scrubber	16.04.19	-	106250	30.15	-	-	-	-
Conv. – 3(BL)	Stack – 1	100m	4.3mtrs	Wet scrubber	16.04.19	-	249770	248.80	89.73	50.14	-	-
Conv. – 4(NL)	Stack – 1	100 m	4.3mtrs	Wet scrubber	Under Shutdown-							-
Conv. – 4 (BL)	Stack – 1	100 m	4.3mtrs	Wet scrubber							-	-
Conv. – 5(BL)	Stack – 1	100m	4.3mtrs	Wet scrubber	Under Modernization							
SMS-2/CCS	LF- 1	80m	1.25m	Bag filter	25.04.19		105625	22.66	-	-	-	-

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	-	26.04.19	-	146305	28.11	260.14	142.21	-	1.80
Batt. # 2	Stack – 2	100 m.	3.5mtrs	-	10.04.19	-	147762	32.86	219.34	130.81	-	1.76
Batt # 3	Stack - 3	100 m	3.5 mtrs	-	20.04.19	-	145350	26.18	209.70	118.20	-	1.68
Batt. # 4	Stack – 4	100 m.	3.5 mtrs	-	05.04.19	-	146623	31.97	226.76	107.14	-	1.72
Batt. # 5	Stack – 5	100 m.	3.5mtrs	-	02.04.19	-	149252	48.42	200.72	88.34	-	1.98
Batt # 6	Stack - 6	100 m.	3.5 mts	Shut down for Rebuilding								
Batt. # 7	Stack – 7	100 m.	3.5mtrs	-	17.04.19	-	143572	22.42	242.15	90.16		1.88
Batt. # 8	Stack – 8	100 m.	3.5mtrs	Shut down for 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	22.04.19	-	396735	145.62	110.62	72.81	-	-
	Duct-B		3.5mtrs	Batt. cyclone	22.04.19	-	397180	146.08	-	-	-	-
SM-2	Duct-A		3.5mtrs	Batt. cyclone	13.04.19	-	401532	147.62	89.16	60.16	-	-
	Duct-B		3.5mtrs	Batt. cyclone	13.04.19	-	390732	120.96	-	-	-	-
SM-3	Duct-A		3.5mtrs	Batt. cyclone	29.04.19	-	395772	128.16	92.82	62.72	-	-
	Duct-B	100 m.*	3.5mtrs	Batt. cyclone	29.04.19		355629	42.81	-	-	-	-

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

MAY '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 scruber	Under Capital Repair							
BF-2	Chimney-2	50 mtr.	8.2mtrs.	Wet scruber	01.05.19	6468T	279621	76.82	-	-	-	-
BF-3	Chimney-2	50 mtr.	8.2mtrs.	Wet scruber					-		-	-
BF-4	Chimney-3	50 mtr.	8.2mtrs.	Wet scruber	17.05.19	6344 T	280555	81.08	-	-	-	-
BF-5	Chimney-3	50 mtr.	8.2mtrs.	Wet scruber							-	-
BF Stoves-2	Chimney-2	70 mtr.	3.5mtrs.	-	10.05.19	4056 T	107821	20.90	92.05	36.42	-	0.60%
BF Stoves-4	Chimney-4	70 mtr.	3.5mtrs.	-	25.05.19	2601 T	109007	22.94	84.30	40.90	-	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)**

- 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's	28.05.19	11.09 T/hr	143821	52.85	90.22	-	-	-
Kiln-2	Stack – 1	80 mtr.	3.3mtrs	ESP's	18.05.19	11.25 T/hr	149305	146.30	70.82	-	-	-
Kiln -3	Stack - 2	80 mtr	3.3mtrs	ESP;s	Shutdown					-	-	-
Kiln-4	Stack – 2	80 mtr.	3.3mtrs	ESP;s	04.05.19	11.05 T/hr	146230	129.86	101.40	-	-	-
Kiln-5	Stack – 3	80 mtr.	3.3 mtrs	ESP;s	11.05.19	11.05 T/hr	145807	136.55	87.70			
Kiln-6	Stack – 3	80 mtr.	3.3 mtrs	ESP;s	13.05.19	10.26 T/hr	140732	44.94	80.82	-	-	-

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	16.05.19	-	107520	26.50	-	-	-	-
Conv. – 2 (BL)	Stack – 1	100 m	4.3mtrs	Wet scrubber	16.05.19	-	246662	252.98	101.82	40.50		
Conv. – 3(NB)	Stack – 1	100 m	4.3mtrs	Wet scrubber	03.05.19	-	105776	22.86	-	-	-	-
Conv. – 3(BL)	Stack – 1	100m	4.3mtrs	Wet scrubber	03.05.19	-	248282	245.20	89.80	52.16	-	-
Conv. – 4(NL)	Stack – 1	100 m	4.3mtrs	Wet scrubber	Under Shutdown-							-
Conv. – 4 (BL)	Stack – 1	100 m	4.3mtrs	Wet scrubber							-	-
Conv. – 5(BL)	Stack – 1	100m	4.3mtrs	Wet scrubber	Under Shutdown under modernization Plan							
SMS-2/CCS	LF- 1	80m	1.25m	Bag filter	30.05.19	-	100782	24.51	-	-	-	-

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	-	24.05.19	-	149736	30.62	268.72	100.50	-	1.78
Batt. # 2	Stack – 2	100 m.	3.5mtrs	-	15.05.19	-	146420	28.90	224.06	69.86	-	1.96
Batt # 3	Stack - 3	100 m	3.5 mtrs	-	06.05.19	-	145872	26.98	212.30	109.80	-	1.68
Batt. # 4	Stack – 4	100 m.	3.5 mtrs	-	09.05.19	-	148307	30.52	223.08	80.72	-	1.70
Batt. # 5	Stack – 5	100 m.	3.5mtrs	-	02.05.19	-	152622	47.54	206.15	109.16	-	2.02
Batt # 6	Stack - 6	100 m.	3.5 mts	Shut down for Rebuilding								
Batt. # 7	Stack – 7	100 m.	3.5mtrs	-	22.05.19	-	142518	21.96	257.30	69.48	-	1.89
Batt. # 8	Stack – 8	100 m.	3.5mtrs	Shut down for 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	09.05.19	-	396251	146.32	104.15	58.61	-	-
	Duct-B		3.5mtrs	Batt. cyclone	09.05.19	-	398282	148.08	-	-	-	-
SM-2	Duct-A		3.5mtrs	Batt. cyclone	21.05.19	-	395350	146.52	103.16	47.96	-	-
	Duct-B		3.5mtrs	Batt. cyclone	21.05.19	-	390725	139.76	-	-	-	-
SM-3	Duct-A		3.5mtrs	Batt. cyclone	14.05.19	-	399727	140.24	82.74	56.22	-	-
	Duct-B	100 m.*	3.5mtrs	Batt. cyclone	14.05.19	-	358721	48.52	-	-	-	-

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

JUNE'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 scruber	Under Capital Repair							
BF-2	Chimney-2	50 mtr.	8.2mtrs.	Wet scruber	17.06.19	5945T	280722	76.84	-	-	-	-
BF-3	Chimney-2	50 mtr.	8.2mtrs.	Wet scruber					-		-	-
BF-4	Chimney-3	50 mtr.	8.2mtrs.	Wet scruber	04.06.19	5591 T	279627	81.09	-	-	-	-
BF-5	Chimney-3	50 mtr.	8.2mtrs.	Wet scruber							-	-
BF Stoves-3	Chimney-3	70 mtr.	3.5mtrs.	-	20.06.19	2343 T	109421	26.55	94.82	44.67	-	0.61%
BF Stoves-5	Chimney-5	70 mtr.	3.5mtrs.	-	27.06.19	3084 T	100421	22.96	80.75	38.79	-	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's	16.06.19	11.06 T/hr	140821	64.68	104.84	-	-	-
Kiln-2	Stack – 1	80 mtr.	3.3mtrs	ESP's	08.06.19	10.76 T/hr	148320	138.62	86.32	-	-	-
Kiln -3	Stack - 2	80 mtr	3.3mtrs	ESP;s	Shutdown					-	-	-
Kiln-4	Stack – 2	80 mtr.	3.3mtrs	ESP;s	15.06.19	11.25 T/hr	147366	136.05	93.14	-	-	-
Kiln-5	Stack – 3	80 mtr.	3.3 mtrs	ESP;s	25.06.19	10.48 T/hr	143674	128.96	80.15			
Kiln-6	Stack – 3	80 mtr.	3.3 mtrs	ESP;s	29.06.19	11.14 T/hr	142006	36.72	76.12	-	-	-

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	22.06.19	-	100724	24.96	-	-	-	-
Conv. – 2 (BL)	Stack – 1	100 m	4.3mtrs	Wet scrubber	22.06.19	-	248224	236.52	105.80	48.06		
Conv. – 3(NB)	Stack – 1	100 m	4.3mtrs	Wet scrubber	10.06.19	-	105320	31.10	-	-	-	-
Conv. – 3(BL)	Stack – 1	100m	4.3mtrs	Wet scrubber	10.06.19	-	251362	252.65	95.30	50.42	-	-
Conv. – 4(NL)	Stack – 1	100 m	4.3mtrs	Wet scrubber	Under Shutdown-							-
Conv. – 4 (BL)	Stack – 1	100 m	4.3mtrs	Wet scrubber							-	-
Conv. – 5(BL)	Stack – 1	100m	4.3mtrs	Wet scrubber	Under Modernization							
SMS-2/CCS	LF- 2	80m	1.25m	Bag filter	28.06.19	-	105320	22.62	-	-	-	-

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	-	26.06.19	-	148314	30.06	262.66	96.52	-	1.62
Batt. # 2	Stack – 2	100 m.	3.5mtrs	-	12.06.19	-	150301	34.84	256.12	75.08	-	1.72
Batt # 3	Stack - 3	100 m	3.5 mtrs	-	01.06.19	-	147327	30.14	216.60	105.66	-	1.82
Batt. # 4	Stack – 4	100 m.	3.5 mtrs	-	18.06.19	-	144321	28.72	234.79	90.90	-	1.60
Batt. # 5	Stack – 5	100 m.	3.5mtrs	-	07.06.19	-	149532	44.46	204.16	101.70	-	2.65
Batt # 6	Stack - 6	100 m.	3.5 mts	Shut down for Rebuilding								
Batt. # 7	Stack – 7	100 m.	3.5mtrs	-	04.06.19	-	140521	22.82	259.14	92.25	-	1.54
Batt. # 8	Stack – 8	100 m.	3.5mtrs	Shut down for 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	25.06.19	-	394724	144.25	84.15	60.15	-	-
	Duct-B		3.5mtrs	Batt. cyclone	25.06.19	-	398062	145.06	-	-	-	-
SM-2	Duct-A		3.5mtrs	Batt. cyclone	21.06.19	-	394251	144.02	95.36	48.76	-	-
	Duct-B		3.5mtrs	Batt. cyclone	21.06.19	-	394062	139.82	-	-	-	-
SM-3	Duct-A		3.5mtrs	Batt. cyclone	07.06.19	-	398281	146.96	90.25	50.25	-	-
	Duct-B	100 m.*	3.5mtrs	Batt. cyclone	07.06.19	-	312606	46.85	-	-	-	-

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

JULY'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	05.07.19	7064 T	276351	76.59	-	-	-	-
BF-3	Chimney-2	50 mtr.	8.2mtrs.	Wet scrubber					-		-	-
BF-4	Chimney-3	50 mtr.	8.2mtrs.	Wet scrubber	19.07.19	5568 T	278709	75.92	-	-	-	-
BF-5	Chimney-3	50 mtr.	8.2mtrs.	Wet scrubber							-	-
BF Stoves-2	Chimney-2	70 mtr.	3.5mtrs.	-	12.07.19	4109 T	108521	24.24	80.34	38.19	-	0.56%
BF Stoves-4	Chimney-4	70 mtr.	3.5mtrs.	-	25.07.19	2392 T	109704	23.96	76.52	45.64	-	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	02.07.19		142005	56.86	90.24	-	-	-
Kiln-2	Stack – 1	80 mtr.	3.3mtrs	ESP	**Under Shutdown-**							
Kiln -3	Stack - 2	80 mtr	3.3mtrs	ESP	19.07.19		144232	46.54	94.52	-	-	-
Kiln-4	Stack – 2	80 mtr.	3.3mtrs	ESP	05.07.19		143907	116.87	80.66	-	-	-
Kiln-5	Stack – 3	80 mtr.	3.3 mtrs	ESP	26.07.19		146511	128.42	78.48			
Kiln-6	Stack – 3	80 mtr.	3.3 mtrs	ESP	03.07.19		143554	50.80	92.14	-	-	-

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	29.07.19	-	102664	27.14	-	-	-	-
Conv. – 2 (BL)	Stack – 1	100 m	4.3mtrs	Wet scrubber	29.07.19	-	252644	258.61	99.66	40.32		
Conv. – 3(NB)	Stack – 1	100 m	4.3mtrs	Wet scrubber	18.07.19	-	101878	22.06	-	-	-	-
Conv. – 3(BL)	Stack – 1	100m	4.3mtrs	Wet scrubber	18.07.19	-	249729	249.58	88.34	44.52	-	-
Conv. – 4(NL)	Stack – 1	100 m	4.3mtrs	Wet scrubber	Under Shutdown-							-
Conv. – 4 (BL)	Stack – 1	100 m	4.3mtrs	Wet scrubber							-	-
Conv. – 5(BL)	Stack – 1	100m	4.3mtrs	Wet scrubber	Under Shutdown under for modernization							
SMS-2/CCS	LF- 1	80m	1.25m	Bag filter	15.07.19	-	109606	23.09	-	-	-	-

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	-	24.07.19	-	146960	29.12	256.14	94.62	-	1.56
Batt. # 2	Stack – 2	100 m.	3.5mtrs	-	08.07.19	-	149516	33.54	201.66	81.96	-	1.72
Batt # 3	Stack - 3	100 m	3.5 mtrs	-	13.07.19	-	146707	28.82	215.95	103.04	-	2.32
Batt. # 4	Stack – 4	100 m.	3.5 mtrs	-	23.07.19	-	145332	26.82	224.46	114.68	-	2.48
Batt. # 5	Stack – 5	100 m.	3.5mtrs	-	04.07.19	-	151774	47.36	196.72	80.44	-	2.56
Batt # 6	Stack - 6	100 m.	3.5 mts	Shut down for Rebuilding								
Batt. # 7	Stack – 7	100 m.	3.5mtrs	-	10.07.19	-	142416	23.15	259.32	88.78	-	1.50
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	30.07.19	-	397614	145.62	90.10	46.25	-	-
	Duct-B		3.5mtrs	Batt. cyclone	30.07.19	-	399717	147.20	-	-	-	-
SM-2	Duct-A		3.5mtrs	Batt. cyclone	06.07.19	-	395006	144.36	87.84	40.96	-	-
	Duct-B		3.5mtrs	Batt. cyclone	06.07.19	-	396935	148.31	-	-	-	-
SM-3	Duct-A		3.5mtrs	Batt. cyclone	20.07.19	-	390742	142.91	102.14	44.67	-	-
	Duct-B	100 m.*	3.5mtrs	Batt. cyclone	20.07.19	-	420466	62.80	-	-	-	-

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

AUG'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	09.08.19	6069 T	280160	74.30	-	-	-	-
BF-3	Chimney-2	50 mtr.	8.2mtrs.	Wet scrubber					-		-	-
BF-4	Chimney-3	50 mtr.	8.2mtrs.	Wet scrubber	16.08.19	5106 T	179625	72.95	-	-	-	-
BF-5	Chimney-3	50 mtr.	8.2mtrs.	Wet scrubber							-	-
BF Stoves-2	Chimney-2	70 mtr.	3.5mtrs.	-	12.08.19	2662 T	108362	22.14	86.76	60.12	-	0.56%
BF Stoves-4	Chimney-4	70 mtr.	3.5mtrs.	-	24.08.19	1908 T	109704	24.94	92.06	70.82	-	0.60%

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	08.08.19	11.25 T/hr	149008	146.25	102.97			
Kiln -3	Stack - 2	80 mtr	3.3mtrs	ESP	Under Shutdown							
Kiln-4	Stack – 2	80 mtr.	3.3mtrs	ESP	15.08.19	11.16 T/hr	143595	126.70	92.44	-	-	-
Kiln-5	Stack – 3	80 mtr.	3.3 mtrs	ESP	21.08.19	09.71 T/hr	146720	122.36	88.90			
Kiln-6	Stack – 3	80 mtr.	3.3 mtrs	ESP	20.08.19	11.00 T/hr	143440	54.80	79.14	-	-	-

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	07.08.19	-	100672	26.86	-	-	-	-
Conv. – 2 (BL)	Stack – 1	100 m	4.3mtrs	Wet scrubber	07.08.19	-	254731	251.66	90.16	44.21		
Conv. – 3(NB)	Stack – 1	100 m	4.3mtrs	Wet scrubber	19.08.19	-	105267	29.08	-	-	-	-
Conv. – 3(BL)	Stack – 1	100m	4.3mtrs	Wet scrubber	19.08.19	-	249729	248.51	98.32	42.68	-	-
Conv. – 4(NL)	Stack – 1	100 m	4.3mtrs	Wet scrubber	Under Shutdown-							-
Conv. – 4 (BL)	Stack – 1	100 m	4.3mtrs	Wet scrubber							-	-
Conv. – 5(BL)	Stack – 1	100m	4.3mtrs	Wet scrubber	Under Shutdown under for modernization							
SMS-2/CCS	LF- 2	80m	1.25m	Bag filter	28.08.19	-	109120	24.68	-	-	-	-

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	-	10.08.19	-	145732	27.54	286.62	102.71	-	1.62
Batt. # 2	Stack – 2	100 m.	3.5mtrs	-	23.08.19	-	143267	29.86	236.50	81.74	-	1.70
Batt # 3	Stack - 3	100 m	3.5 mtrs	-	02.08.19	-	146566	28.58	210.32	115.35	-	2.08
Batt. # 4	Stack – 4	100 m.	3.5 mtrs	-	31.08.19	-	148336	32.72	206.77	102.94	-	2.34
Batt. # 5	Stack – 5	100 m.	3.5mtrs	-	17.08.19	-	149730	46.40	218.50	116.26	-	2.55
Batt # 6	Stack - 6	100 m.	3.5 mts	Shut down for Rebuilding								
Batt. # 7	Stack – 7	100 m.	3.5mtrs	-	06.08.19	-	141765	22.66	259.19	70.86	-	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	14.08.19	-	387906	142.16	100.44	52.62	-	-
	Duct-B		3.5mtrs	Batt. cyclone	14.08.19	-	394301	148.72	-	-	-	-
SM-2	Duct-A		3.5mtrs	Batt. cyclone	05.08.19	-	390736	146.30	92.68	44.81	-	-
	Duct-B		3.5mtrs	Batt. cyclone	05.08.19	-	399082	147.66	-	-	-	-
SM-3	Duct-A		3.5mtrs	Batt. cyclone	27.08.19	-	392624	132.60	94.36	46.35	-	-
	Duct-B	100 m.*	3.5mtrs	Batt. cyclone	27.08.19	-	324604	66.32	-	-	-	-

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

SEP'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	10.09.19	6249 T	284304	76.92	-	-	-	-
BF-3	Chimney-2	50 mtr.	8.2mtrs.	Wet scrubber					-		-	-
BF-4	Chimney-3	50 mtr.	8.2mtrs.	Wet scrubber	18.09.19	3982 T	275352	66.08	-	-	-	-
BF-5	Chimney-3	50 mtr.	8.2mtrs.	Wet scrubber							-	-
BF Stoves-3	Chimney-3	70 mtr.	3.5mtrs.	-	30.09.19	3226 T	112872	23.96	90.82	74.81	-	0.58%
BF Stoves-5	Chimney-5	70 mtr.	3.5mtrs.	-	26.09.19	3274 T	109560	21.88	108.07	80.14	-	0.56%

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	02.09.19	10.77T/hr.	149272	146.38	104.06	-	-	-
Kiln-3	Stack - 2	80 mtr	3.3mtrs	ESP	Under Shutdown							
Kiln-4	Stack – 2	80 mtr.	3.3mtrs	ESP	Under Shutdown							
Kiln-5	Stack – 3	80 mtr.	3.3 mtrs	ESP	16.09.19	11.25T/hr.	150696	131.66	92.96	-	-	-
Kiln-6	Stack – 3	80 mtr.	3.3 mtrs	ESP	25.09.19	11.25T/hr.	144711	28.32	80.54	-	-	-

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	12.09.19	-	100575	23.60	-	-	-	-
Conv. – 3(BL)	Stack – 1	100m	4.3mtrs	Wet scrubber	12.09.19	-	252750	248.72	114.08	69.12	-	-
Conv. – 4(NL)	Stack – 1	100 m	4.3mtrs	Wet scrubber	Under Shutdown							-
Conv. – 4 (BL)	Stack – 1	100 m	4.3mtrs	Wet scrubber							-	-
Conv. – 5(BL)	Stack – 1	100m	4.3mtrs	Wet scrubber	Under Modernization							
SMS-2/CCS	LF- 1	80m	1.25m	Bag filter	28.09.19	-	112620	27.60	-	-	-	-

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	-	14.09.19	-	148720	29.04	205.66	116.72	-	1.68
Batt. # 2	Stack – 2	100 m.	3.5mtrs	-	03.09.19	-	150326	37.94	284.72	102.96	-	1.80
Batt # 3	Stack - 3	100 m	3.5 mtrs	-	19.09.19	-	147009	32.08	216.72	96.70	-	1.74
Batt. # 4	Stack – 4	100 m.	3.5 mtrs	-	24.09.19	-	145522	28.32	332.96	114.72	-	1.46
Batt. # 5	Stack – 5	100 m.	3.5mtrs	-	11.09.19	-	152106	46.84	246.72	100.88	-	1.94
Batt # 6	Stack - 6	100 m.	3.5 mts	Shut down for Rebuilding								
Batt. # 7	Stack – 7	100 m.	3.5mtrs	-	06.09.19	-	142664	26.06	249.62	92.14	-	1.52
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	13.09.19	-	388712	140.82	112.88	48.32	-	-
	Duct-B		3.5mtrs	Batt. cyclone	13.09.19	-	394306	144.76	-	-	-	-
SM-2	Duct-A		3.5mtrs	Batt. cyclone	23.09.19	-	396575	146.20	96.14	60.52	-	-
	Duct-B		3.5mtrs	Batt. cyclone	23.09.19	-	398354	148.74	-	-	-	-
SM-3	Duct-A		3.5mtrs	Batt. cyclone	07.09.19	-	386779	131.25	88.48	52.65	-	-
	Duct-B	100 m.*	3.5mtrs	Batt. cyclone	07.09.19	-	380554	60.64	-	-	-	-

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

APR'2019

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

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				1.98-3.98	0.24-0.60	0.90-2.89	34-47							
Battery No. 2				5.61-7.60	0.36-0.84	1.26-2.89	40-48							
Battery No. 3				4.70-6.33	0.36-0.60	1.80-3.07	34-49							
Battery No. 4				4.88-5.43	0.24-0.60	1.80-3.07	41-47							
Battery No. 5				8.14-9.54	0.62-0.84	3.34-3.92	44-49							
Battery No. 6				**Under Shutdown for Rebuilding**										
Battery No. 7				0.90-1.44	0.12-0.24	0.72-0.90	38-46							
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

MAY '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				2.71-4.52	0.36-0.60	1.08-2.17	41-47							
Battery No. 2				3.07-7.06	0.48-0.72	1.44-2.53	42-48							
Battery No. 3				3.07-6.87	0.36-0.72	1.80-2.44	38-45							
Battery No. 4				2.89-4.34	0.36-0.60	1.62-2.53	39-50							
Battery No. 5				8.15-9.78	0.72-0.96	3.26-3.80	46-49							
Battery No. 6				**Under Shutdown for Rebuilding**										
Battery No. 7				0.90-2.16	0.12-0.24	0.0-0.90	39-46							
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

JUNE'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				1.80-4.70	0.48-0.60	0.90-2.53	40-48							
Battery No. 2				4.52-7.78	0.60-0.84	1.26-3.25	41-47							
Battery No. 3				3.25-7.42	0.48-0.72	1.80-2.71	38-48							
Battery No. 4				2.53-5.79	0.36-0.60	1.80-3.26	40-47							
Battery No. 5				8.15-9.78	0.72-0.82	3.04-3.80	42-49							
Battery No. 6				**Under Shutdown for Rebuilding**										
Battery No. 7				1.08-1.26	0.12-0.24	0.36-0.90	36-48							
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

JULY'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				3.62-5.07	0.24-0.60	1.44-2.53	35-48							
Battery No. 2				4.16-7.24	0.48-0.72	1.62-3.26	32-48							
Battery No. 3				2.89-6.15	0.48-0.72	1.62-3.62	40-47							
Battery No. 4				5.79-6.51	0.60-0.96	2.35-3.14	39-49							
Battery No. 5				7.76-9.42	0.72-0.96	3.06-3.86	42-48							
Battery No. 6				**Under Shutdown for Rebuilding**										
Battery No. 7				0.72-1.98	0.00-0.36	0.00-0.54	30-46							
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

AUG'2019

Plant/Bat. No.	Date of commissioning		Cur-rent 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 quenchin g gm/ tonne	Status of compliance
	Initial	After rebuil ding						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				***3.61-5.25***	***0.30-0.48***	***0.72-2.53***	***38-47***							
Battery No. 2				***4.34-7.34***	***0.48-0.84***	***1.61-3.44***	***42-48***							
Battery No. 3				***6.12-8.51***	***0.72-0.84***	***2.89-3.62***	***36-46***							
Battery No. 4				***4.88-6.51***	***0.48-0.72***	***2.89-3.07***	***42-46***							
Battery No. 5				***8.12-9.74***	***0.84-0.96***	***2.89-3.82***	***44-50***							
Battery No. 6				***Under Shutdown for Rebuilding***										
Battery No. 7				***0.72-2.35***	***0.0-0.12***	***0.0-0.36***	***32-46***							
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

SEP'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				2.53-3.62	0.36-0.48	1.26-2.71	42-48							
Battery No. 2				5.25-6.70	0.48-0.85	2.38-2.89	34-48							
Battery No. 3				6.24-7.78	0.48-0.60	2.62-3.07	36-46							
Battery No. 4				5.79-6.70	0.48-0.72	2.14-3.62	39-47							
Battery No. 5				7.12-9.14	0.48-0.84	3.06-3.78	43-49							
Battery No. 6				**Under Shutdown for Rebuilding**										
Battery No. 7				1.62-1.98	0.00-0.24	0.54-1.62	30-46							
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

APR ’2019

S. No	Location of the Station	Ambient air quality is monitored on bi-weekly basis. Average value of the month is reported	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.		93	55	24	32	28	38	0.023	2.12	1.59	0.20	2.5	1.124
2	Garga Dam		70	38	11	22	17	29	0.026	1.28	1.34	0.18	3.7	0.483
3	Sector-12		82	41	17	31	28	33	0.021	1.16	1.81	0.19	3.6	0.995
4	Sector-9		91	52	21	34	24	37	0.018	1.44	1.70	0.21	3.8	1.071
5	Bokaro Nivas		84	48	26	29	27	40	0.020	1.30	1.16	0.16	2.9	0.980
6	CISF (SGP)		92	45	28	30	24	41	0.016	1.25	1.25	0.14	2.6	1.122
7	Air Strip		84	47	20	29	29	31	0.020	2.0	1.50	0.16	4.4	1.009
8	CAAQMS at Main gate		83.37	30.93	28.19	45.48	-	10.09	-	3.32	-	-	-	0.92
9	CAAQMS at TA building		82.54	33.22	33.01	24.64	-	23.71	-	1.63	-	-	-	1.41

MAY ’2019

S. No	Location of the Station	Ambient air quality is monitored on bi-weekly basis. Average value of the month is reported	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	36	11.6	30.0	17.9	42	0.027	0.98	1.70	0.18	13.55	1.04
2	Garga Dam		81	40	16.2	34.5	15.2	33	0.018	0.70	1.05	0.11	8.12	1.24
3	Sector-12		67	31	7.2	23.6	16.4	39	0.010	0.90	1.52	0.12	6.35	0.92
4	Sector-9		78	36	20.6	30.6	20.1	33	0.012	0.79	1.22	0.14	4.90	0.95
5	Bokaro Nivas		88	35	8.7	25.8	20.3	32	0.028	0.89	1.40	0.16	5.84	0.87
6	CISF (SGP)		82	37	10.9	28.6	20.4	35	0.005	1.02	1.72	0.20	5.88	0.95
7	Air Strip		76	36	22.4	36.7	25.2	30	0.015	0.82	1.05	0.13	5.95	1.20
8	CAAQMS at Main gate		57.09	16.29	25.63	57.56	66.67	5.63	-	1.68	-	-	-	0.48
9	CAAQMS at TA building		68.4	40.24	6.0	3.9	7.14	30.22	-	1.1	-	-	-	1.94

JUNE'2019

S. No	Location of the Station	Ambient air quality is monitored on bi-weekly basis. Average value of the month is reported	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		68	33	11.2	28.2	16.2	40	0.024	2.04	1.84	0.22	12.42	1.04
2	Garga Dam		72	29	8.90	17.0	19.2	34	0.01	1.24	1.24	0.20	3.49	0.85
3	Sector-12		66	28	8.20	22.4	14.2	32	0.02	1.34	1.44	0.23	6.20	0.92
4	Sector-9		86	35	16.6	23.6	32.3	26.8	0.05	1.44	1.04	0.24	5.63	1.01
5	Bokaro Nivas		75	32	11.0	27.1	31.9	31.7	0.04	2.54	1.34	0.22	2.95	0.63
6	CISF (SGP)		76	26	12.8	22.2	12.4	32	0.004	1.64	1.54	0.24	4.81	0.92
7	Air Strip		78	32	14.2	24.8	13.8	36	0.012	2.64	1.64	0.20	5.28	0.98
8	CAAQMS at Main gate		84.8	43.12	32.34	8.73	28	12.27	-	4.32	-	-	-	0.58
9	CAAQMS at TA building		58.78	17.23	13.83	7.87	9.3	32.8	-	1.1	-	-	-	0.43

JULY'2019

S. No	Location of the Station	Ambient air quality is monitored on bi-weekly basis. Average value of the month is reported	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		72	34	46.2	40.5	18.1	52	0.026	2.16	1.72	0.20	6.92	0.94
2	Garga Dam		70	30	33.5	38.6	20.6	34	0.022	1.04	1.60	0.18	4.92	0.74
3	Sector-12		81	35	20.6	41.7	34.5	36	0.014	1.24	1.44	0.16	5.12	1.04
4	Sector-9		80	33	24.7	48.2	36.5	28	0.016	1.07	1.36	0.17	4.96	1.04
5	Bokaro Nivas		74	29	23.9	30.5	20.5	27	0.010	1.08	1.41	0.14	2.66	0.68
6	CISF (SGP)		86	41	30.7	34.2	35.0	30	0.024	1.44	1.52	0.15	3.38	1.20
7	Air Strip		78	40	29.2	28.5	22.2	36	0.020	1.06	1.21	0.16	2.94	0.84
8	CAAQMS at Main gate		59.62	25.7	25.4	25.7	59.62	3.4	-	1.3	-	-	-	0.93
9	CAAQMS at TA building		49.72	14.39	67.22	7.83	4.34	16.18	-	1.1	-	-	-	0.42

AUG'2019

S. No	Location of the Station	Ambient air quality is monitored on bi-weekly basis. Average value of the month is reported	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		89	43	22.4	33.4	25.0	30.8	0.049	1.02	1.62	0.18	6.31	0.97
2	Garga Dam		76	40	24.1	36.1	23.4	26.1	0.040	0.94	1.34	0.16	5.92	0.48
3	Sector-12		78	39	14.9	27.8	19.1	26.4	0.047	0.90	1.14	0.14	5.94	0.40
4	Sector-9		91	48	18.3	31.1	21.7	35.2	0.048	0.78	1.30	0.15	6.60	0.34
5	Bokaro Nivas		80	42	16.5	30.2	20.2	30.4	0.039	0.80	1.44	0.14	5.64	0.52
6	CISF (SGP)		83	41	17.5	24.2	15.9	19.8	0.050	0.98	1.36	0.17	9.24	0.41
7	Air Strip		76	37	16.5	27.1	18.4	24.2	0.077	0.70	1.24	0.12	7.96	0.97
8	CAAQMS at Main gate		49.55	12.87	15.81	49.95	65.43	7.44	-	0.49	-	-	-	0.34
9	CAAQMS at TA building		78.24	16.31	55.18	8.41	17.75	11.43	-	1.1	-	-	-	0.49

SEP'2019

S. No	Location of the Station	Ambient air quality is monitored on bi-weekly basis. Average value of the month is reported	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		82	39	24	36	27	17.6	0.054	0.98	1.50	0.20	7.14	1.28
2	Garga Dam		62	33	14	19	16	15.4	0.032	0.62	1.12	0.14	5.92	0.56
3	Sector-12		67	35	17	29	22	24.2	0.040	0.70	1.26	0.12	6.81	1.53
4	Sector-9		87	42	21	32	17	26.4	0.038	0.59	1.40	0.10	5.90	0.96
5	Bokaro Nivas		81	38	28	36	18	20.6	0.040	0.64	1.08	0.12	4.88	0.88
6	CISF (SGP)		77	36	15	22	19	19.8	0.050	0.82	1.42	0.14	6.52	0.61
7	Air Strip		87	42	20	18	20	19.2	0.048	0.74	1.30	0.09	4.74	0.94
8	CAAQMS at Main gate		51.56	17.05	15.49	50.52	63.67	7.94	-	1.36	-	-	-	0.36
9	CAAQMS at TA building		36.86	13.64	26.52	16.58	19.93	8.23	-	1.10	-	-	-	0.65

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.

APR '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
06.04.19	OF - 1	27.1	7.34	19	0.083	0.051	12.7	72	2.04	0.40	350
	OF – 2	26.8	7.62	28	0.022	0.012	10.3	42	2.29	0.38	350
	OF - 3	Abandoned									

MAY '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
21.05.19	OF - 1	32.6	7.40	24	0.021	0.012	11.50	95	4.25	0.64	250
	OF – 2	31.8	7.52	27	0.018	0.008	6.50	72	1.25	1.20	400
	OF - 3	Abandoned									

JUNE'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
07.06.19	OF - 1	29.6	7.72	28	0.036	0.018	10.5	110	3.86	0.64	250
	OF – 2	30.0	6.92	31	0.022	0.010	7.5	65	2.52	0.72	350
	OF - 3	Abandoned									

JULY'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	
19.07.19	OF - 1	29.6	6.89	24	0.086	0.018	9.54	90	4.52	0.64	250
	OF – 2	30.5	7.30	21	0.024	0.012	11.72	98	3.52	0.82	400
	OF - 3	Abandoned									

AUG'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	
21.08.19	OF - 1	28.3	6.9	34	0.082	0.017	9.6	71	5.26	0.48	250
	OF – 2	27.8	7.6	23	0.012	0.006	8.4	65	4.05	0.58	400
	OF - 3	Abandoned									

SEP'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	
25.09.19	OF - 1	26.9	7.3	30	0.160	0.036	7.2	58	3.28	0.84	250
	OF – 2	26.2	7.1	28	0.042	0.024	6.1	46	1.24	0.92	400
	OF - 3	Abandoned									

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.

APR '2019

Date	Time of Monitoring	Name of the STP	Quantity of the Effluent	**Temp. ^{0}C**	**pH**	**TSS**	**BOD**	**COD**	**Remarks**
12.04.19	12.20 pm	BGH	-	30.4	6.98	20	10.7	73	
	11.30 am	Dhandabra	-	30.3	7.84	19	13.7	89	
	11.00 am	Sector -6	-	32.8	7.62	22	10.4	73	
	10.35 am	Camp-2	-	31.7	7.50	17	15.5	102	
	10.15 am	Sector-12	-	30.9	7.35	21	12.9	92	

MAY '2019

Date	Time of Monitoring	Name of the STP	Quantity of the Effluent	**Temp. ^{0}C**	**pH**	**TSS**	**BOD**	**COD**	**Remarks**
10.05.19	12.20 pm	BGH	-	30.7	6.96	15	11.2	85	
	11.30 am	Dhandabra	-	30.1	7.09	20	10.5	94	
	11.00 am	Sector -6	-	30.5	6.78	19	8.75	84	
	10.35 am	Camp-2	-	31.2	7.39	21	15.5	132	
	10.15 am	Sector-12	-	31.8	7.29	22	10.6	75	

JUNE'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**
25.06.19	12.20 pm	BGH	-	30.0	6.83	16	10.2	94	250	
	11.30 am	Dhandabra	-	31.3	7.30	15	9.6	82	460	
	11.00 am	Sector -6	-	29.9	6.90	17	11.6	100	580	
	10.35 am	Camp-2	-	30.2	7.34	20	12.0	70	660	
	10.15 am	Sector-12	-	30.8	7.67	19	10.5	65	530	

JULY'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**
16.07.19	12.20 pm	BGH	-	30.1	7.02	18	9.6	105	280
	11.30 am	Dhandabra	-	30.5	6.83	13	10.0	90	440
	11.00 am	Sector -6	-	31.5	7.50	14	11.3	96	540
	10.35 am	Camp-2	-	29.2	7.14	15	10.2	125	550
	10.15 am	Sector-12	-	30.5	7.23	17	8.8	89	470

AUG'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**
22.08.19	12.20 pm	BGH	-	28.1	7.32	17	10.5	56	310
	11.30 am	Dhandabra	-	29.4	7.06	14	11.2	89	380
	11.00 am	Sector -6	-	27.5	6.92	16	13.2	70	420
	10.35 am	Camp-2	-	28.0	7.14	25	19.5	82	510
	10.15 am	Sector-12	-	28.6	7.52	16	12.3	85	390

SEP'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**
19.09.19	12.20 pm	BGH	-	25.8	7.12	16	11.2	75	330
	11.30 am	Dhandabra	-	26.2	7.32	14	10.8	70	360
	11.00 am	Sector -6	-	26.4	7.46	18	10.6	88	410
	10.35 am	Camp-2	-	25.8	6.86	19	15.5	115	390
	10.15 am	Sector-12	-	26.6	7.36	17	12.8	84	380