

SAIL BOKARO STEEL PLANT
ENVIRONMENT CONTROL DEPARTMENT

Compliance to the conditions laid down by MoEF for issuing Modified Environmental Clearance for the proposed Modernization / Expansion of Bokaro Steel Plant from 4.5 MT Hot metal to 5.77 MT hot metal. (4MT crude steel to 4.606 MT crude steel)

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:

Online Stack Monitoring system has been installed in all Coke Oven Batteries in operation. Battery No.1 &2 have been rebuilt. These are equipped with all pollution control facilities i.e. Charging emission control system, Pushing emission control system. Battery No.5 & Battery No.6 have been hot repaired. Batt#4 has been cold repaired & Batt#3 has been taken for cold repair. Battery#7 is under rebuilding. Emission level in all working Coke oven Batteries are within stipulated norm of 50 mg/Nm³. In RMP Kiln 5, ESP has been revamped and working well and Online Stack Monitoring system has been installed. The refurbishing of all ESP's of remaining Kilns is in tendering process. Online Stack Monitoring system will be installed along with the revamping of the ESPs of RMP Kilns. Replacement of multi-cyclones in Sinter M/C by ESP's is under process. Battery cyclone # 6 has been successfully replaced by ESP # 6.

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 below stipulated norm.
- Emission in all stacks well below 50 mg/Nm³ stipulated norm.
- Fugitive Emission in all shops are within norm. .
- Coke Oven gas is being utilized fully and judiciously in BSL.
- Excess gas is being utilized in Power Plant. No quantity of gas is being flared.
- Rebuilding of Battery #7 has been started. Expected to be commissioned by May'2016.
- Cold Repair of Batt#4 completed. Cold repair of Batt#3 under progress , expected to be commissioned in May'2015.
- Hot complex repair of Battery #6 completed. Pushing started from 25th Nov'2015.
- Dry Fog dust suppression system have been installed in Coal Handling & Coke Sorting Plant of Coke ovens.

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:

Fugitive emission level in all shops of Bokaro Steel Plant is below standard norm. The fugitive emission level in different areas of the Plant is monitored regularly and its report is

sent to CPCB every month, including BF & SP. Though the fugitive emission level at different sections of SMS is within norm, BSL is going for the installation of secondary emission control system in SMS II for further reduction of dust level. The Work order is expected to be issued by Jan'2015.

- 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 are transported in railway wagons and products are also transported either by rails or by road. Even the granulated BF slag is transported through conveyer belt & trucks after properly covering it with tarpaulin/ plastic sheets.

- 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:

The new shops that will be coming up during modernization / expansion project are designed for zero discharge. The total quantity of effluent generated will be treated and recycled in the operation.

- 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 all three outfalls and sewage treatment plant will be treated and recycled for plant operation. SAIL/BSL is going for zero discharge from plant as well as Township. OF-1 & OF-2 plant effluent will be treated & recycled for plant operation. The project is under stage-1 approval. Technology for the treatment & Recycling of Township sewage has been freeze. The TS for the project is under preparation, However through in house efforts part recycling of Outfall-I,IIA & IIB is being done by Water Management Team of BSL. The Specific Water consumption for the period was 4.44 m³/Tcs. Total treated BOD plant water is being used for coke quenching.

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

Status:

The initiative for procurement of TOC Analyser for the installation of continuous (TOC) monitoring equipment at (ETP) BOD Plant outlet has been started. Quotation from the reputed firms have been received. Procurement Action is in process.

- 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:

At present BSL is having facility of (CHSGP) on line cast house slag granulation in BF 4 and BF 5, CHSGP#3 of BF-2 & CHSGP #6 of BF-3. CHSGP #4 of BF-2 & CHSGP#5 of BF-3 are expected to be commissioned by end of Jan'2015. CHSGP-1 & CHSGP-2 of BF#1 are expected to be commissioned along with the commissioning of BF#1 which is presently under capital repair. During April'2014 to Sept'2014 the BF Slag utilization including land filling was around 96.83%. After the commissioning of all CHSGP'S in BSL 100% BF Slag granulation would be achieved. Total BF slag granulated is being used for cement making in this plant As far as SMS slag is concerned its utilization in the period from April'2014 to September'2014 was 76.5 %. Total quantity of all other solid wastes such as, coke breeze, BF flue dust, lime dust, mill scales are being utilized in Sinter Plant for sinter making.

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

Status:

Total solid waste utilization during current financial year 2013-14 was 96.06%. However, after completion of modernization /expansion project total solid waste utilization is expected to be around 100%.

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

Status:

Low grade lime and other solid wastes such as SMS slag, BF flue dust, ESP lime dust, and Mill scale are being used in Sinter Plant. BSL has developed a Fly ash + LD slag brick. Its strength is meeting IS code. BSL has planned to utilize these bricks first in its own projects.

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

Status:

Fly Ash management at Bokaro is being done by M/S BPSCL(A joint venture power company) is under MOU with BCCL for back filling of Dhori Abandoned mines by Fly Ash. A work shop was organized jointly by M/s BPSCL & JSPCB for proper utilization of Fly Ash. As a proactive measure the use of Fly Ash Brick has been made mandatory in the construction work in both projects as well as works.

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

Status:

The existing plantations are being strengthened to increase density. Till date BSL has planted around (4191452) Forty one lakh ninety one thousand four hundred fifty two trees in and outside Bokaro Steel Plant. During 2014-15 42500 saplings were planted. At present total green cover is around 33%.

- 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. Cold repair of Batt #4 and Hot repair of Batt#5 & Batt#6 have been completed. Rebuilding of Batt #7 has been started. Cold repair of Batt#3 has also been started. Battery rebuilding at Bokaro is ahead of CREP schedule.
- c. Fugitive emission in SMS are of BSL are within norm.
- d. LD slag utilization in the stipulated period was more than 76.5%
- e. BF slag utilization is around 96.83% (including land filling). It is expected to be 100% after CHSGP installation in BF1, BF 2 and BF 3.
- f. CDI facility is available in BF-2, BF-3, BF- 4 and BF- 5.
CTI facility is available in BF 1
- g. The average specific water consumption for the period is 4.44 m³/tcs which is below CREP norm.
- h. Phenol & ammonia content in BOD Plant effluent is below stipulated norm.
All pollution control equipment are being monitored closely and compliance quarterly reports sent to CPCB as per CREP guidelines.

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 on 18.3.2008 are being complied with

- Continuous Ambient Air Quality Monitoring Station has been installed & commissioned. Its data signal has been uplinked to CPCB & JSPCB server.
- Seven ambient air quality monitoring stations have been installed. All twelve parameters as per new Notification are being monitored since March'2014.
- Stack emission level in all shops is below stipulated norm.
- Noise level at different locations in almost all the shops below norm.
- All the roads are regularly maintained.
- Proposal for vehicular pollution monitoring system has already been initiated.
- In SP ESP# 6 has been commissioned.
- Around 42500 new saplings have been planted during 2014-15 .
- Dry fog dust suppression system has been installed in Coal Handling and coke sorting plant of Coke Oven Department.

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 funds allocated for pollution control equipment are being utilized judiciously.

- Dry fog dust suppression system has been installed in BF 1, BF 2 & the same has been installed in Coal Handling Plant and Coke Sorting Plant of Coke Oven department.
- All ESP of RMP Kilns are to be revamped. ESP of Kiln-5 has already been revamped.
- Multi-cyclones in Sinter Plant are being replaced by Electro Static Precipitator.
- CHSGP in BF1, BF-2 and BF-3 are to be installed by July'2015.
- Zero discharge of plant effluent as well as sewage effluent is to be maintained.
- New shops that will come up after modernization will have zero discharge facility. Construction of ETP in CRM# 3 has already been started by M/s Voltas. Expected to be commissioned by Jan'2015.

- 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:

All the facilities have been provided to the construction workers.
Housing, Drinking water, toilets medical and other basic amenities are being provided.
A Crèche has been commissioned for the children of female contract labourer.

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.

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

Status:

BSL is committed to its expansion plan from 4 MT crude steel per annum to 4.606 MT crude steel per annum, for which Modified Environmental Clearance has been obtained. This environmental compliance report is pertaining to that Environmental Clearance. 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 and JSPCB. It is monitored regularly and its report is sent regularly to CPCB & JSPCB.

- 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 NO_x 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. It is monitored regularly for PM₁₀, PM_{2.5}, SO₂, NO₂, O₃, NH₃, B(a)P, CO, Pb, As & Ni since March'2014. This report is being sent to CPCB every month. Ambient Air Quality monitoring report of stipulated period has been enclosed. A Continuous Ambient Air Quality Station has 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 asphaltting or concreting of the roads shall be done to control fugitive emissions.***

Status:

Fugitive emissions from Coke Oven Batteries are monitored regularly. PLD, PLL and PLO level in all Coke Oven Batteries are well within stipulated norm. Its report is also regularly sent to CPCB every month. Water is regularly sprinkled to suppress fugitive emission at different dusty areas including coal stock piles. Work order is to be issued for installation of secondary dust emission control system at SMS-2. Dry fog dust suppression system has been commissioned in BF # 1, 2 and coke shorting & Coal handling plant in coke ovens. ESP based de dusting system has been installed in cast house of BF#2.

- 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 is collected and treated in ETP (BOD) Plant. All the pollutant level after treatment are well within stipulated norm. This water is being used for quenching of coke. The effluents from all other plants are being treated prior to disposal.

- 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 level in various areas are being monitored regularly. Noise level in almost all areas are below stipulated norm. The provision of snort valve in BF & acoustic enclosures in Oxygen plant are there the 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. It 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 Occupational Health Service Centre inside the Plant. The health status record is regularly maintained by them.

- 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:

A project for Rain Water Harvesting has been taken up in CRM#2 complex. Consultancy job for this project has been completed by M/S IIT Kharagpur. FR/TS has been prepared by Design Bureau. The project is expected to be commissioned by July'2015. The project division has been instructed for the inclusion of Rain Water Harvesting facility in all new upcoming building & structures.

- 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 eight villages near its 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 village adopted by BSL, However there is a Sarva Swasthya Kendra for free treatment of Non-entitled people..
- Drinking water facility such as hand pumps have 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.

- 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:

BSL is committed to send six monthly compliance reports are regularly sent to CPCB/JSPC regularly monitors the compliance of EC.

7

- 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 within seven days of getting the Environment Clearance from MoEF.

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.

ENCLOSURES:

SMS – 1												
(Process)												
Conv. – 1 (BL)	Stack – 1	100 m	4.3mtrs	Wet scruber								
Conv. – 2	Stack – 1	100 m	4.3mtrs	Wet scruber	03.04.14	-	258248	201.26	76.28	16.28	-	-
Conv. – 2(NB)	Stack – 1	100m	4.3mtrs	Wet scruber	03.04.14	-	138252	22.48	-	-	-	
Conv. – 3 (BL)	Stack – 1	100 m	4.3mtrs	Wet scruber	04.04.14	-	246964	208.68	63.28	27.28	-	
Conv. – 5 (BL)	Stack – 1	100 m	4.3mtrs	Wet scruber	24.04.14	-	248848	194.28	89.38	18.46	-	-
Conv. – 5(NB)	Stack – 1	100m	4.3mtrs	Wet scruber	08.04.14	-	261197	233.91	51.72	29.50	-	
SMS-2/CCS	LF-1	80m	1.25m	Bag filter	30.04.14	-	106628	19.36	-	-	-	-

Standards : 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/Nm³) All ducts are connected to a common stack

Coke Oven												
Batt. # 1	Stack – 1	100 m.	3.5mtrs	-	07.04.14	-	155204	26.11	239.84	51.43	-	
Batt. # 2	Stack – 2	100 m.	3.5mtrs		21.04.14	-	148296	28.56	196.48	60.23	-	
Batt. # 3	Stack – 3	100 m.	3.5mtrs	-	TAKEN UNDER SHUTDOWN FOR COLD REPAIR							-
Batt. # 4	Stack – 4	100 m.	3.5 mtrs	-	28.04.14	-	158242	31.21	160.15	55.73	-	
Batt. # 5	Stack – 5	100 m.	3.5mtrs	-	29.04.14	-	152928	46.28	252.56	68.28	-	
Batt # 6	Stack - 6	100 m.	3.5 mts		TAKEN UNDER SHUTDOWN FOR HOT REPAIR							
Batt. # 7	Stack – 7	100 m.	3.5mtrs		TAKEN UNDER SHUTDOWN FOR REBUILDING							-
Batt. # 8	Stack – 8	100 m.	3.5mtrs	-	03.04.14	-	156398	39.28	186.58	34.70	-	

Standards : PM - 50, SO2 - 800, NOx - 500, CO – 3.00 Kg/TDCP, HC - (Units: mg/Nm³)

Sinter Plant												
SM-1	Duct-A	100 m.*	3.5mtrs	Batt. cyclone	11.04.14	-	470796	171.23	128.12	36.72	-	-
	Duct-B		3.5mtrs	Batt. cyclone	11.04.14	-	455173	168.05	-	-	-	-
SM-2	Duct-A		3.5mtrs	Batt. cyclone	30.04.14	-	448126	159.16	151.85	28.63		-
	Duct-B		3.5mtrs	Batt. cyclone	30.04.14	-	437209	161.37	-	-	-	-
SM-3	Duct-A		3.5mtrs	Batt. cyclone	22.04.14	-	441360	157.88	89.60	26.46	-	-
	Duct-B		3.5mtrs	ESP-6	22.04.14	-	336224	34.11	86.7	-	-	-

Standards : PM - 150 , SO2 - , NOx - (Units: mg/Nm³)

* All three Sinter M/c Exhaust are connected to a common single stack of 100m height

SMS – 1 (Process)												
Conv. – 1 (BL)	Stack – 1	100 m	4.3mtrs	Wet scruber								
Conv. – 2 (NB)	Stack – 1	100 m	4.3mtrs	Wet scruber	03.05.14		246962	242.41	88.24	34.05	-	-
Conv. – 3(BL)	Stack – 1	100m	4.3mtrs	Wet scruber		-						
Conv. – 4 (BL)	Stack – 1	100 m	4.3mtrs	Wet scruber	19.05.14	-	243162	256.32	78.25	40.16		
Conv. – 4 (NB)	Stack – 1	100 m	4.3mtrs	Wet scruber	19.05.14	-	108206	21.86	-	-		-
Conv. – 5(BL)	Stack – 1	100m	4.3mtrs	Wet scruber	08.05.14	-	259488	184.53	99.40	31.47		
SMS-2/CCS	LF-1	80m	1.25m	Bag filter	28.05.14	-	116211	19.50	-	-	-	-

Coke Oven												
Batt. # 1	Stack – 1	100 m.	3.5mtrs	-	16.05.14	-	155159	30.19	198.80	62.03	-	2.42
Batt. # 2	Stack – 2	100 m.	3.5mtrs		02.05.14	-	150665	26.12	202.16	70.25	-	2.36
Batt. # 3	Stack – 3	100 m.	3.5mtrs	-	TAKEN UNDER SHUTDOWN FOR COLD REPAIR							-
Batt. # 4	Stack – 4	100 m.	3.5 mtrs	-	12.05.14	-	148126	33.72	186.23	65.09	-	2.49
Batt. # 5	Stack – 5	100 m.	3.5mtrs	-	26.05.14	-	153059	36.43	173.13	43.73	-	2.68
Batt # 6	Stack - 6	100 m.	3.5 mts	TAKEN UNDER SHUTDOWN FOR HOT REPAIR								
Batt. # 7	Stack – 7	100 m.	3.5mtrs	TAKEN UNDER SHUTDOWN FOR REBUILDING								-
Batt. # 8	Stack – 8	100 m.	3.5mtrs	-	21.05.14	-	150721	46.55	198.36	52.61	-	2.76

Standards : PM - 50, SO₂ - 800, NO_x - 500, CO – 3.00 Kg/TDCP, HC -

(Units: mg/Nm³)

Sinter Plant												
SM-1	Duct-A	100 m.*	3.5mtrs	Batt. cyclone	06.05.14	-	412623	170.01	120.86	45.14	-	-
	Duct-B		3.5mtrs	Batt. cyclone	06.05.14	-	421061	165.32	-	-	-	-
SM-2	Duct-A		3.5mtrs	Batt. cyclone	07.05.14	-	438126	168.80	98.92	36.44		-
	Duct-B		3.5mtrs	Batt. cyclone	07.05.14	-	425017	172.62	-	-	-	-
SM-3	Duct-A		3.5mtrs	Batt. cyclone	22.05.14	-	443029	158.73	105.62	339.93	-	-
	Duct-B		3.5mtrs	ESP-6	22.05.14	-	335416	32.66	-	-	-	-

Standards : PM - 150 , SO₂ - , NO_x -

(Units: mg/Nm³)

* All three Sinter M/c Exhaust are connected to a common single stack of 100m height

JUNE'2014

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
								9				
Blast Furnace (Space dedusting) & Stoves								Particulate matter (PM)	SO₂	NO_x	HC	CO
								(mg/Nm ³)	(mg/Nm ³)	(mg/Nm ³)		Kg/TDCP
BF-1	Chimney-1	50 mtr.	8.2mtrs.	Wet scruber	-	-	-	-				
BF-2	Chimney-2	50 mtr.	8.2mtrs.	Wet scruber	07.06.13	6915T	251265	78.26	-	-	-	-
BF-3	Chimney-2	50 mtr.	8.2mtrs.	Wet scruber							-	-
BF-4	Chimney-3	50 mtr.	8.2mtrs.	Wet scruber	20.06.14	5556T	260285	81.96	-	-		
BF-5	Chimney-3	50 mtr.	8.2mtrs.	Wet scruber							-	-
BF Stoves-5	Chimney-5	70 mtr.	3.5mtrs.	-	12.06.14	3086T	115169	33.09	28.76	26.33	-	-
Standards : Charging side chimney- PM - 100 (Units: mg/Nm ³)												
BF Stoves – PM- 50 mg/Nm ³ , SO ₂ - 250 mg/Nm ³ , NO _x - 150 mg/Nm ³												
Refractory Material plant												
Kiln-1	Stack – 1	80 mtr.	3.3mtrs	ESP's	28.06.14	10.78T/hr	161256	146.12	87.23	-	-	-
Kiln-2	Stack – 1	80 mtr.	3.3mtrs	ESP's	02.06.14	10.25T/hr	155432	148.62	98.14	-	-	-
Kiln-3	Stack – 2	80 mtr.	3.3mtrs	ESP's	14.06.14	10.72T/hr	148256	142.31	77.36			
Kiln-4	Stack – 2	80 mtr.	3.3mtrs	ESP;s	-	-	-	-	-			
Kiln-5	Stack – 3	80 mtr.	3.3mtrs	ESP's	30.06.14	11.05T/hr	146798	138.12	90.76	-	-	-
Kiln-6	Stack – 3	80 mtr.	3.3mtrs	ESP's	-	-	-	-	-	-	-	-

Standards : PM - 150 , SO₂ - , NO_x - , CO - (Units: mg/Nm³)

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

SMS – 1 (Process)													
Conv. – 1 (BL)	Stack – 1	100 m	4.3mtrs	Wet scruber	19.06.14	-	244672	205.45	59.17	41.69			
Conv. – 2 (NB)	Stack – 1	100 m	4.3mtrs	Wet scruber	-	-	-	-	-	-			-
Conv. – 3(BL)	Stack – 1	100m	4.3mtrs	Wet scruber	-	-	-	-	-	-			
Conv. – 4 (BL)	Stack – 1	100 m	4.3mtrs	Wet scruber	09.06.14	-	254631	183.42	55.22	43.70			
Conv. – 4 (NB)	Stack – 1	100 m	4.3mtrs	Wet scruber	09.06.14	-	110762	18.05	-	-			-
Conv. – 5(BL)	Stack – 1	100m	4.3mtrs	Wet scruber	13.06.14	-	256262	226.17	96.28	40.75			
SMS-2/CCS	LF-2	80m	1.25m	Bag filter	27.06.14	-	115604	21.66	-	-			-

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

Coke Oven													
Batt. # 1	Stack – 1	100 m.	3.5mtrs	-	11.06.14		147262	29.81	145.38	65.69	-		2.32
Batt. # 2	Stack – 2	100 m.	3.5mtrs		16.06.14	-	161287	33.15	123.51	80.32	-		2.17
Batt. # 3	Stack – 3	100 m.	3.5mtrs	-	Under Cold Repair								
Batt. # 4	Stack – 4	100 m.	3.5 mtrs	-	18.06.14	-	141132	31.24	110.44	53.49	-		2.58
Batt. # 5	Stack – 5	100 m.	3.5mtrs	-	24.06.14	-	157781	39.94	169.47	81.17	-		2.75
Batt # 6	Stack - 6	100 m.	3.5 mts	Under Hot Repair									
Batt. # 7	Stack – 7	100 m.	3.5mtrs	Under Rebuilding									
Batt. # 8	Stack – 8	100 m.	3.5mtrs	-	25.06.14	-	155372	43.77	163.41	81.17	-		2.98

Standards : PM - 50, SO₂ - 800, NO_x - 500, CO – 3.00 Kg/TDCP, HC - (Units: mg/Nm³)

Sinter Plant													
SM-1	Duct-A	100 m.*	3.5mtrs	Batt. cyclone	03.06.14	-	408255	166.16	106.72	51.62	-		-
	Duct-B		3.5mtrs	Batt. cyclone	03.06.14	-	416211	154.32	-	-	-		-
SM-2	Duct-A		3.5mtrs	Batt. cyclone	26.06.14	-	445621	164.86	150.73	47.19	-		-
	Duct-B		3.5mtrs	Batt. cyclone	26.06.14	-	421638	160.62	-	-	-		-
SM-3	Duct-A		3.5mtrs	Batt. cyclone	10.06.14	-	451027	158.85	136.29	40.12	-		-
	Duct-B		3.5mtrs	ESP-6	10.06.14	-	329783	38.18	-	-	-		-

Standards : PM - 150 , SO₂ - , NO_x - (Units: mg/Nm³)

* All three Sinter M/c Exhaust are connected to a common single stack of 100m height

SMS – 1 (Process)												
Conv. – 1 (BL)	Stack – 1	100 m	4.3mtrs	Wet scruber	08.07.14	-	222985	215.53	87.60	66.39	-	-
Conv. – 1 (NB)	Stack – 1	100 m	4.3mtrs	Wet scruber	08.07.14	-	105612	17.81	-	-	-	-
Conv. – 3(BL)	Stack – 1	100m	4.3mtrs	Wet scruber	03.07.14	-	231514	226.26	62.88	49.52	-	-
Conv. – 4 (BL)	Stack – 1	100 m	4.3mtrs	Wet scruber	19.07.14	-	215173	190.31	92.26	36.01	-	-
Conv. – 4 (NB)	Stack – 1	100 m	4.3mtrs	Wet scruber	-	-	-	-	-	-	-	-
Conv. – 5(BL)	Stack – 1	100m	4.3mtrs	Wet scruber	17.07.14	-	240105	209.91	101.26	50.11	-	-
SMS-1/CCS	LF-1	80m	1.25m	Bag filter	30.07.14	-	110569	19.76	-	-	-	-

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

Coke Oven												
Batt. # 1	Stack – 1	100 m.	3.5mtrs	-	29.07.14	-	145683	39.07	188.41	69.42	-	2.21
Batt. # 2	Stack – 2	100 m.	3.5mtrs	-	16.07.14	-	140518	31.89	252.16	70.42	-	2.16
Batt. # 3	Stack – 3	100 m.	3.5mtrs	-	Under Cold Repair							
Batt. # 4	Stack – 4	100 m.	3.5 mtrs	-	28.07.14	-	146281	36.42	205.11	55.81	-	2.36
Batt. # 5	Stack – 5	100 m.	3.5mtrs	-	07.07.14	-	151229	46.83	160.15	64.53	-	2.40
Batt # 6	Stack - 6	100 m.	3.5 mts	Under Hot Repair								
Batt. # 7	Stack – 7	100 m.	3.5mtrs	Under Rebuilding								
Batt. # 8	Stack – 8	100 m.	3.5mtrs	-	01.07.14	-	145025	48.50	149.84	92.37	-	2.42

Standards : PM - 50, SO₂ - 800, NO_x - 500, CO – 3.00 Kg/TDCP, HC - (Units: mg/Nm³)

Sinter Plant												
SM-1	Duct-A	100 m.*	3.5mtrs	Batt. cyclone	20.07.14	-	386124	155.82	101.32	55.65	-	-
	Duct-B		3.5mtrs	Batt. cyclone	20.07.14	-	379621	162.26	-	-	-	-
SM-2	Duct-A		3.5mtrs	Batt. cyclone	23.07.14	-	390486	162.23	112.16	47.13	-	-
	Duct-B		3.5mtrs	Batt. cyclone	23.07.14	-	392123	159.61	-	-	-	-
SM-3	Duct-A		3.5mtrs	Batt. cyclone	12.07.14	-	394528	161.11	110.44	63.70	-	-
	Duct-B		3.5mtrs	ESP-6	12.07.14	-	311621	42.75	-	-	-	-

Standards : PM - 150 , SO₂ - , NO_x - (Units: mg/Nm³)

* All three Sinter M/c Exhaust are connected to a common single stack of 100m height

SMS – 1 (Process)													
Conv. – 1 (BL)	Stack – 1	100 m	4.3mtrs	Wet scruber	05.08.14	-	228328	167.24	73.22	29.50	-	-	
Conv. – 2 (BL)	Stack – 1	100 m	4.3mtrs	Wet scruber	-	-	-	-	-	-	-	-	
Conv. – 3(BL)	Stack – 1	100m	4.3mtrs	Wet scruber	16.08.14	-	238472	238.46	87.32	19.65	-	-	
Conv. – 3 (NB)	Stack – 1	100 m	4.3mtrs	Wet scruber	16.08.14	-	101563	19.64	-	-	-	-	
Conv. – 4 (BL)	Stack – 1	100 m	4.3mtrs	Wet scruber	29.08.14	-	233852	178.12	98.18	32.12	-	-	
Conv. – 5(BL)	Stack – 1	100m	4.3mtrs	Wet scruber	-	-	-	-	-	-	-	-	
SMS-1/CCS	LF-2	80m	1.25m	Bag filter	14.08.14	-	112709	21.66	-	-	-	-	

Standards : 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/Nm³) All ducts are connected to a common stack

Coke Oven													
Batt. # 1	Stack – 1	100 m.	3.5mtrs	-	27.08.14	-	135768	29.68	195.78	59.05	-	2.28	
Batt. # 2	Stack – 2	100 m.	3.5mtrs	-	01.08.14	-	141629	25.16	187.11	64.04	-	2.36	
Batt. # 3	Stack – 3	100 m.	3.5mtrs	-	Under Cold Repair								
Batt. # 4	Stack – 4	100 m.	3.5 mtrs	-	18.08.14	-	143254	34.80	189.49	53.17	-	2.43	
Batt. # 5	Stack – 5	100 m.	3.5mtrs	-	12.08.14	-	140162	47.25	214.17	59.73	-	2.51	
Batt # 6	Stack - 6	100 m.	3.5 mts	Under Hot Repair									
Batt. # 7	Stack – 7	100 m.	3.5mtrs	Under Rebuilding									
Batt. # 8	Stack – 8	100 m.	3.5mtrs	-	09.08.14	-	139461	48.22	205.81	60.32	-	2.67	

Standards : PM - 50, SO2 - 800, NOx - 500, CO – 3.00 Kg/TDCP, HC - (Units: mg/Nm³)

Sinter Plant													
SM-1	Duct-A	100 m.*	3.5mtrs	Batt. cyclone	25.08.14	-	389129	159.31	92.74	52.11	-	-	
	Duct-B		3.5mtrs	Batt. cyclone	25.08.14	-	390265	162.36	-	-	-	-	
SM-2	Duct-A		3.5mtrs	Batt. cyclone	02.08.14	-	413621	165.63	96.96	46.73	-	-	
	Duct-B		3.5mtrs	Batt. cyclone	02.08.14	-	406138	163.06	-	-	-	-	
SM-3	Duct-A		3.5mtrs	Batt. cyclone	23.08.14	-	394561	164.54	107.14	50.25	-	-	
	Duct-B		3.5mtrs	ESP-6	23.08.14	-	304139	37.39	-	-	-	-	

Standards : PM - 150 , SO2 - , NOx - (Units: mg/Nm³)

* All three Sinter M/c Exhaust are connected to a common single stack of 100m height

SMS – 1 (Process)													
Conv. – 1 (BL)	Stack – 1	100 m	4.3mtrs	Wet scruber	-	-	-	-	-	-	-	-	-
Conv. – 2 (BL)	Stack – 1	100 m	4.3mtrs	Wet scruber	-	-	-	-	-	-	-	-	-
Conv. – 3(BL)	Stack – 1	100m	4.3mtrs	Wet scruber	30.09.14	-	274389	232.73	108.27	43.56	-	-	-
Conv. – 3 (NB)	Stack – 1	100 m	4.3mtrs	Wet scruber	30.09.14	-	106108	22.26	-	-	-	-	-
Conv. – 4 (BL)	Stack – 1	100 m	4.3mtrs	Wet scruber	26.09.14	-	252533	196.86	86.32	32.26	-	-	-
Conv. – 5(BL)	Stack – 1	100m	4.3mtrs	Wet scruber	29.09.14	-	262422	211.54	92.42	28.44	-	-	-
SMS-2/CCS	LF-1	80m	1.25m	Bag filter	03.09.14	-	110824	24.38	-	-	-	-	-

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

Coke Oven													
Batt. # 1	Stack – 1	100 m.	3.5mtrs	-	09.09.14	-	141495	37.45	183.5	60.31	-	-	1.80
Batt. # 2	Stack – 2	100 m.	3.5mtrs	-	20.09.14	-	144050	31.57	277.0	72.4	-	-	1.94
Batt. # 3	Stack – 3	100 m.	3.5mtrs	-	Under Cold Repair								
Batt. # 4	Stack – 4	100 m.	3.5 mtrs	-	25.09.14	-	149685	34.88	281.58	58.46	-	-	2.43
Batt. # 5	Stack – 5	100 m.	3.5mtrs	-	18.09.14	-	146494	46.37	256.60	66.56	-	-	2.51
Batt # 6	Stack - 6	100 m.	3.5 mts	Under Hot Repair									
Batt. # 7	Stack – 7	100 m.	3.5mtrs	Under Rebuilding									
Batt. # 8	Stack – 8	100 m.	3.5mtrs	-	01.09.14	-	139534	44.53	143.72	34.12	-	-	2.67

Standards : PM - 50, SO₂ - 800, NO_x - 500, CO – 3.00 Kg/TDCP, HC - (Units: mg/Nm³)

Sinter Plant													
SM-1	Duct-A	100 m.*	3.5mtrs	Batt. cyclone	04.09.14	-	446963	162.46	89.32	47.39	-	-	-
	Duct-B		3.5mtrs	Batt. cyclone	04.09.14	-	439896	166.21	-	-	-	-	-
SM-2	Duct-A		3.5mtrs	Batt. cyclone	24.09.14	-	419236	158.26	92.57	41.42	-	-	-
	Duct-B		3.5mtrs	Batt. cyclone	24.09.14	-	420527	161.38	-	-	-	-	-
SM-3	Duct-A		3.5mtrs	Batt. cyclone	16.09.14	-	396816	165.48	98.24	36.16	-	-	-
	Duct-B		3.5mtrs	ESP-6	16.09.14	-	336246	36.94	-	-	-	-	-

Standards : PM - 150 , SO₂ - , NO_x - (Units: mg/Nm³) All three Sinter M/c Exhaust are connected to a common single stack of 100m height

Ambient Air Quality and fugitive emissions

APR'2014

a. Ambient Air Quality (AAQ)
(All Ambient Air Quality Station)

Standards : PM₁₀ - 100, PM_{2.5}-60, SO₂ - 80, NO₂ – 80, NH₃ - 400 , O₃-100, BaP- 1.0 , CO -4000 (Units: micro gram/m³) BaP- ng/m³

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 ₆ H ₆	As	BaP	Ni	CO
1	B.S. City Rly. Stn.	20.04.14	81.32	44.28	15.49	43.35	62.25	48.54	0.17	1.62	2.67	0.82	13.30	1.002
2	Garga Dam	20.04.14	62.23	36.84	15.11	43.18	56.70	46.24	0.17	1.32	3.22	0.56	15.81	1.064
3	Sector-12	21.04.14	77.54	41.59	16.22	46.30	59.38	44.96	0.20	1.58	2.96	0.62	14.61	1.246
4	Sector-9	22.04.14	73.84	38.32	14.91	44.55	55.58	45.38	0.23	1.39	2.94	0.48	16.34	0.988
5	Bokaro Hotel	22.04.14	68.44	36.78	14.42	44.52	62.71	46.83	0.19	1.56	3.11	0.68	14.01	1.112
6	CISF (SGP)	23.04.14	92.48	56.88	16.42	45.77	63.36	57.06	0.19	1.22	2.67	0.46	13.13	1.108
7	Air Strip	21.04.14	78.68	42.14	16.02	44.87	56.47	46.24	0.20	1.47	2.89	0.69	14.62	1.102

MAY'2014

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 ₆ H ₆	As	BaP	Ni	CO
1	B.S. City Rly. Stn.	22.5.14	92.2	54.03	14.48	53.69	57.06	52.63	0.16	1.54	2.22	0.58	11.01	0.984
2	Garga Dam	22.5.14	67.25	39.42	11.56	50.26	53.36	48.54	0.16	1.38	2.14	0.46	9.93	0.846
3	Sector-12	23.5.14	82.77	39.48	13.18	56.20	62.88	45.73	0.16	1.14	1.97	0.32	9.21	1.082
4	Sector-9	25.5.14	66.77	39.92	14.24	51.26	58.62	39.76	0.12	1.06	1.67	0.32	8.23	0.904
5	Bokaro Hotel	24.5.14	72.45	38.26	13.83	52.22	60.55	42.41	0.15	1.34	2.29	0.38	10.72	0.973
6	CISF (SGP)	24.5.14	87.59	46.15	14.65	53.46	54.47	39.02	0.11	1.08	1.88	0.34	9.01	1.004
7	Air Strip	23.5.14	74.25	45.74	13.62	52.26	56.70	44.63	0.12	1.22	1.84	0.38	8.11	0.752

JUNE'2014

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 ₆ H ₆	As	BaP	Ni	CO
1	B.S. City Rly. Stn.	11.6.14	69.34	39.37	10.38	50.96	54.64	52.37	0.12	1.42	1.59	0.38	8.02	1.048
2	Garga Dam	11.6.14	57.81	30.60	8.46	46.45	49.39	50.24	0.15	1.33	1.38	0.36	7.23	0.942
3	Sector-12	12.6.14	85.44	41.91	9.40	47.42	53.48	47.01	0.16	1.42	1.73	0.34	8.98	0.976
4	Sector-9	13.6.14	74.61	38.56	10.32	52.46	56.61	41.46	0.14	1.52	1.74	0.47	9.06	0.948
5	Bokaro Hotel	13.6.14	70.08	36.41	8.78	50.14	56.97	43.43	0.14	1.38	1.66	0.34	7.35	0.892
6	CISF (SGP)	14.6.14	56.91	30.18	8.67	51.06	52.17	38.78	0.11	1.36	1.08	0.46	7.31	0.944
7	Air Strip	12.6.14	60.71	27.66	9.91	53.46	53.28	47.56	0.12	1.46	1.17	0.42	6.52	0.964
8	CAAQMS at Main gate	17.6.14	61.90	31.80	10.30	13.3	8.00	29.3	-	0.600	-	-	-	1.200

JULY'2014

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 ₆ H ₆	As	BaP	Ni	CO
1	B.S. City Rly. Stn.	18.7.14	97.56	54.24	8.69	40.58	36.04	32.19	0.14	1.34	1.53	0.28	7.72	0.876
2	Garga Pump House	18.7.14	64.47	35.09	8.76	37.38	32.19	34.63	0.12	1.38	1.20	0.28	6.75	0.942
3	Sector-12	19.7.14	49.58	27.28	7.75	38.93	37.35	31.63	0.10	1.42	0.78	0.32	8.30	0.988
4	Sector-9	22.7.14	52.38	27.42	7.60	33.66	34.41	28.78	0.07	1.28	0.87	0.34	8.19	0.853
5	Bokaro Hotel	20.7.14	34.47	21.51	6.84	36.80	23.07	20.28	0.07	1.22	0.76	0.24	7.59	0.788
6	CISF (SGP)	20.7.14	32.51	22.06	6.91	34.83	24.97	21.95	0.08	1.32	0.74	0.27	6.16	0.874
7	Air Strip	19.7.14	51.68	29.95	7.37	38.75	29.97	19.02	0.11	1.34	0.85	0.29	6.11	0.982
8	CAAQMS at Main gate	10.7.14	64.70	35.10	10.60	16.20	8.40	14.20	-	0.40	-	-	-	1.200

AUG'2014

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 ₆ H ₆	As	BaP	Ni	CO
1	B.S. City Rly. Stn.	12.08.14	82.71	48.41	9.65	43.86	30.23	28.87	0.14	1.58	1.17	0.32	8.37	0.922
2	Garga Dam	12.08.14	56.38	32.95	7.83	38.75	28.30	29.51	0.11	1.46	0.67	0.27	6.77	0.878
3	Sector-12	13.08.14	52.42	27.33	8.67	40.10	28.57	27.52	0.10	1.52	0.76	0.26	6.11	1.032
4	Sector-9	14.08.14	43.82	26.11	9.12	44.16	23.62	24.14	0.08	1.43	0.49	0.26	5.35	0.988
5	Bokaro Hotel	15.08.14	47.75	29.41	8.30	45.40	23.86	24.39	0.09	1.34	0.52	0.24	4.62	0.748
6	CISF (SGP)	16.08.14	55.86	28.40	8.76	44.42	28.86	27.56	0.08	1.42	0.71	0.26	4.56	0.794
7	Air Strip	13.08.14	63.57	38.51	8.30	41.29	24.97	25.61	0.09	1.34	0.68	0.22	4.58	0.912
8	CAAQMS at Main gate	23.08.14	57.10	29.70	10.20	16.10	6.50	8.30	-	0.90	-	-	-	1.100

SEP'2014

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 ₆ H ₆	As	BaP	Ni	CO
1	B.S. City Rly. Stn.	20.09.14	73.28	40.07	8.96	43.45	31.08	27.56	0.12	1.55	0.71	0.28	6.36	1.084
2	Garga Dam	20.09.14	59.97	30.49	9.22	45.79	31.39	26.31	0.10	1.31	0.73	0.24	6.03	0.847
3	Sector-12	21.09.14	51.60	31.79	8.76	40.51	29.97	28.84	0.09	1.47	0.68	0.24	5.36	0.982
4	Sector-9	23.09.14	48.97	28.75	9.22	44.62	28.3	25.37	0.07	1.39	0.76	0.21	5.50	0.976
5	Bokaro Hotel	23.09.14	57.17	33.10	9.19	46.25	27.26	26.7	0.08	1.27	0.70	0.26	5.70	0.856
6	CISF (SGP)	24.09.14	58.31	36.15	8.96	45.85	29.41	25.45	0.07	1.44	0.69	0.23	4.71	0.968
7	Air Strip	21.09.14	65.96	37.89	8.44	42.25	27.82	28.70	0.08	1.36	0.76	0.20	4.82	0.1008
8	CAAQMS at Main gate	12.09.14	46.40	26.0	15.10	6.60	12.50	10.90	-	1.00	-	-	-	0.90

Water Pollution Status

Water consumption 4.52m³ / 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°C, pH -6.0-8.50, TSS- 100, Phenol- 1.0, Cyanide- 0.20, BOD- 30, COD- 250, Amm. Nitrogen- 50, O&G- 5.0

Note:- Outfall-1 (COBPP, Sinter Plant, TPP, BF, RMP), Outfall-2:(SMS-1, SMS-2 &CCS, Rolling Mills)

Outfall-3 (OG, HRCF, Project Sites, BGH)

APR'2014

Date of Monitoring	Name of the stream	Parameters (mg/l, except pH and temp.)									Flow rate m3/hr
		Temp. °C	pH	TSS	Phenol	Cyanide	BOD	COD	Amm. Nitrogen	O&G	
08.04.14	OF- 1	26.4	7.61	41	0.196	0.029	10.5	44	3.37	0.49	450m3/hr
	OF- 2	26.0	7.50	18	0.018	0.009	9.6	33	1.217	0.68	200m3/hr
	OF- 3	26.3	7.80	21	0.006	0.013	7.8	32	0.63	0.21	100m3/hr

MAY'2014

Date of Monitoring	Name of the stream	Parameters (mg/l, except pH and temp.)									Flow rate m3/hr
		Temp. °C	pH	TSS	Phenol	Cyanide	BOD	COD	Amm. Nitrogen	O&G	
09.05.14	OF- 1	28.2	7.67	42	0.015	0.011	7.34	38	1.83	0.18	450m3/hr
	OF- 2	28.1	6.07	40	0.009	0.013	7.52	43	0.692	0.29	200m3/hr
	OF- 3	29.4	7.24	32	0.033	0.020	5.38	34	0.335	0.48	100m3/hr

JUNE'2014

Date of Monitoring	Name of the stream	Parameters (mg/l, except pH and temp.)									Flow rate m3/hr
		Temp. °C	pH	TSS	Phenol	Cyanide	BOD	COD	Amm. Nitrogen	O&G	
10.06.14	OF- 1	29.4	6.72	40	0.033	0.013	8.45	92	3.42	0.37	450m3/hr
	OF- 2	30.7	6.88	44	0.017	0.011	5.55	47	1.05	0.55	200m3/hr
	OF- 3	32.2	7.14	24	0.024	0.021	5.26	51	0.62	0.48	100m3/hr

JULY'2014

Date of Monitoring	Name of the stream	Parameters (mg/l, except pH and temp.)									Flow rate m3/hr
		Temp. °C	pH	TSS	Phenol	Cyanide	BOD	COD	Amm. Nitrogen	O&G	
08.07.14	OF- 1	26.3	7.54	44	0.024	0.018	10.05	79	1.72	0.42	450m3/hr
	OF- 2	26.6	6.78	31	0.014	0.009	7.58	52	1.14	0.35	200m3/hr
	OF- 3	26.4	7.90	29	0.018	0.012	7.52	46	0.344	0.31	100m3/hr

AUG'2014

Date of Monitoring	Name of the stream	Parameters (mg/l, except pH and temp.)									Flow rate m3/hr
		Temp. °C	pH	TSS	Phenol	Cyanide	BOD	COD	Amm. Nitrogen	O&G	
06.08.14	OF- 1	28.2	7.87	34	0.011	0.024	9.15	69	1.63	0.68	450m3/hr
	OF- 2	27.9	7.18	30	0.016	0.013	8.95	53	1.91	0.46	200m3/hr
	OF- 3	27.5	7.25	29	0.010	0.011	6.75	58	0.632	0.27	100m3/hr

SEP'2014

Date of Monitoring	Name of the stream	Parameters (mg/l, except pH and temp.)									Flow rate m3/hr
		Temp. °C	pH	TSS	Phenol	Cyanide	BOD	COD	Amm. Nitrogen	O&G	
29.09.14	OF- 1	26.2	8.15	37	0.048	0.019	13.2	42	2.31	0.34	450m3/hr
	OF- 2	28.1	6.50	34	0.027	0.008	12.6	62	1.71	0.31	200m3/hr
	OF- 3	28.4	7.40	20	0.023	0.009	9.75	51	1.09	0.16	100m3/hr

Status of Sewage Treatment Plant (STP)

Standards : Temp.- Upto 40°C, pH -6.0-8.5, TSS- 30, Phenol- 1.0, Cyanide- 0.20, BOD- 20, COD- 250.

APR'2014

Date	Time of Monitoring	Name of the STP	Quantity of the Effluent	Temp. °C	pH	TSS	BOD	COD	Remarks
04.04.14	09:30:00	BGH	-	26.3	8.00	12	10.2	65	
	10:30:00	Dhandabra	-	26.1	7.60	14	11.80	75	
	10:00:00	Sector -6	-	26.5	7.42	16	11.20	76	
	11:30:00	Camp-2	-	26.5	7.20	15	13.8	96	
	12:00:00	Sector-12	-	26.6	7.46	14	12.75	82	

MAY'2014

Date	Time of Monitoring	Name of the STP	Quantity of the Effluent	Temp. °C	pH	TSS	BOD	COD	Remarks
20.05.14	09:30:00	BGH	-	25.9	6.96	12	10.8	79	
	10:30:00	Dhandabra	-	24.3	7.09	13	11.5	73	
	10:00:00	Sector -6	-	25.4	7.54	16	12.6	63	
	11:30:00	Camp-2	-	25.7	7.39	18	14.5	78	
	12:00:00	Sector-12	-	24.9	7.42	14	11.2	68	

JUNE'2014

Date	Time of Monitoring	Name of the STP	Quantity of the Effluent	Temp. °C	pH	TSS	BOD	COD	Remarks
17.06.14	11.30.00	BGH	-	31.3	8.00	15	10.10	79	
	11.00.00	Dhandabra	-	30.8	7.70	17	12.15	86	
	10.30.00	Sector -6	-	30.9	7.50	19	11.35	72	
	10.00.00	Camp-2	-	30.7	7.16	14	12.20	94	
	09.30.00	Sector-12	-	30.4	7.56	16	11.80	76	

JULY'2014

Date	Time of Monitoring	Name of the STP	Quantity of the Effluent	Temp. °C	pH	TSS	BOD	COD	Remarks
11.07.14	11.30.00	BGH	-	27.8	7.89	14	9.60	62	
	11.00.00	Dhandabra	-	28.4	7.43	15	11.50	75	
	10.30.00	Sector -6	-	29.1	7.23	18	12.50	63	
	10.00.00	Camp-2	-	28.3	7.53	16	13.40	88	
	09.30.00	Sector-12	-	26.4	6.56	16	12.25	82	

AUG'2014

Date	Time of Monitoring	Name of the STP	Quantity of the Effluent	Temp. °C	pH	TSS	BOD	COD	Remarks
19.08.14	11.30.00	BGH	-	26.7	7.65	13	10.25	72	
	11.00.00	Dhandabra	-	27.1	6.42	16	10.70	82	
	10.30.00	Sector -6	-	26.9	6.70	18	11.10	75	
	10.00.00	Camp-2	-	26.3	6.80	19	10.40	64	
	09.30.00	Sector-12	-	26.7	6.76	15	9.85	88	

SEP'2014

Date	Time of Monitoring	Name of the STP	Quantity of the Effluent	Temp. °C	pH	TSS	BOD	COD	Remarks
10.09.14	12.30.00	BGH	-	27.8	7.13	12	10.5	59	
	11.40.00	Dhandabra	-	27.4	7.52	15	12.5	68	
	11.20.00	Sector -6	-	27.2	7.41	16	9.5	55	
	10.45.00	Camp-2	-	26.9	7.26	14	15.0	82	
	10.20.00	Sector-12	-	26.8	7.69	16	12.0	76	