

Steel Authority of India Limited  
Durgapur Steel Plant  
Environment Control Department

**Sub : Expansion-cum-modernization plan of Durgapur Steel Plant (2.088 MTPA to 3.50 MTPA, Gross Hot Metal) and Captive Power Plant (40 MW) at Faridpur, Burdwan, Durgapur, West Bengal by M/s Steel Authority of India (SAIL) : Environmental Clearance**

Ref : Office Memorandum No. J- 11011/492/2007-IA II (I), dated 10<sup>th</sup> Sept, 2007 Ministry  
of Environment & Forests, Government of India, Paryavaran Bhawan , C.G.O. Complex , Lodi  
Road , New Delhi – 110003

Status report of the half yearly compliance to the conditions stipulated in the above mentioned Environment clearance as on 30.09.2015.

**A. Specific Conditions**

- I. Dust extraction (DE) system with electrostatic precipitator (ESP) to Sinter plant , Steel melting shop (SMS) and DE system with ESP to Blast furnace (BF); DE system to dolomite calcination plant and coal based Power plant shall be provided to control emissions within 50 mg/Nm<sup>3</sup> . All the BFs shall be provided coal dust injection system to reduce air emissions. Waste flue gas generated in BF shall be reused in BF. High Pressure Liquid Aspiration (HPLA) system, new charging cars with screw feeders and hydro-jet door cleaners shall be provided to Coke oven battery. On-line stack monitoring facilities for all the stacks shall be provided and reports submitted to the WBPCB, CPCB and Ministry's Regional Office at Bhubaneswar.**
- a. Care has been taken to include above systems in Expansion-cum-modernization units.
  - b. DE system to New Dolomite Calcination Plant has been included in the packages to control emissions within 50 mg/Nm<sup>3</sup> .
  - c. Coal dust injection system has already been provided in all the Blast Furnaces.
  - d. Hydro-jet cleaning system has been/will be provided for the door and door frame cleaning of Coke Oven Battery No.2 & 5 respectively. The charging cars have been/will be equipped with sealed charging sleeves along with screw feeding charging mechanism, magnetic lid lifter and lid & frame cleaning mechanism. High Pressure Liquid Aspiration (HPLA) system & water sealed AP covers have also been/will be provided. All the doors of Coke Oven Battery # 2 & 5 are/will be of zero leak proof type. Battery No.2 have also been/will be equipped with Computerised Combustion Control system for maintaining optimum heating regime. Fugitive emission level like PLD, PLL, PLO etc. are maintained well within the norm in Battery No.2.

- e. On-line stack monitoring facilities for all the major stacks shall be provided and reports submitted to the WBPCB, CPCB and Ministry's Regional Office at Bhubaneswar.
- f. Although the environmental clearance for total expansion cum modernization of Durgapur Steel Plant has been obtained but New Sinter Plant -3, Rebuilding of Blast Furnace -1, SMS – 3 Converter operation have not been included in phase 1 and will be taken up at a later stage or in phase 2 stage. Production capacity as per EC for the Expansion-cum-modernisation of Durgapur Steel Plant and production figures for the last three years are enclosed.

**II. Gaseous emission levels including secondary fugitive emissions shall be controlled within the latest permissible limits issued by the Ministry, regularly monitored and records maintained. Guidelines / Code of practice issued by the CPCB shall be followed.**

- a. Care has been taken to include control devices for Expansion-cum-modernization units. Coke Oven Battery No.2 & 5 has been/will be provided with double Gas Collecting(GC) main which will maintain better/uniform suction inside the ovens and thus the fugitive emission from different parts of battery has been reduced.
- b. For existing units the above are regularly monitored and reports being sent to the State Pollution Control Board/ Central Pollution Control Board on monthly/quarterly basis. A copy of the report is enclosed.
- c. Uploading of six monthly compliance status of the conditions stipulated in the environmental clearance, production figures and monitored data is done in SAIL's website at the following address.  
[www.sail.co.in](http://www.sail.co.in) > Durgapur Steel Plant > Environment Clearance (EC) Orders

**III. Dust extraction system with bag filters shall be provided at various dust generating points. Covered conveyers, dry fogging and dust extraction system shall be provided to control fugitive emissions in Raw material handling area. Dust suppression through water sprinkling shall be adopted in coal and iron ore storage area. In-plant control measures for checking fugitive emissions from all the vulnerable sources shall be provided.**

- a. Care has been taken to include above systems in Expansion-cum-modernization units.
- b. Dust extraction system with bag filters has been provided at various dust generating points. Covered conveyers, dry fogging and dust extraction system is being provided to control fugitive emissions in Raw material handling area. Dust suppression through water sprinkling has been adopted in coal and iron ore storage area. In-plant control measures for checking fugitive emissions from all the vulnerable sources is being provided.
- c. Dry fog dust suppression system has been installed at RMHP and Coke Oven coal crushing area .
- d. Dry fog dust suppression systems has also been installed at Blast Furnace 2,3 & 4 .

- e. DE system to New Dolomite Calcination Plant has been included in the packages to control emissions within 50 mg/Nm<sup>3</sup> .

**IV. Total requirement of the water from Harbor Pond at Durgapur Barrage on River Damodar shall not exceed 1,39,008 m<sup>3</sup> /day as per prior 'Permission' accorded by the Damodar Valley Corporation. Effluent Treatment Plant (ETP) shall be installed for the treatment of process water. Blow down from new Power plant, BOD and BF shall be reused in pig casting machine and coke quenching in Coke ovens, new SMS slag yard for spraying as hot slag and slag granulation plant respectively. The treated wastewater from all other processes shall be recycled into the process to the maximum extent possible and reused either in the process or for dust suppression or green belt development. The additional treated effluent discharge to Singaran Nala and Tamla Nala shall not exceed 8,304 m<sup>3</sup>/day and discharged only after conforming to the norms prescribed by the WBPCB and under E(P)A Rules. Domestic effluent shall be treated in sewage treatment plant (STP) and used for dust suppression and green belt development.**

- a. Care has been taken in our modernization plan so that requirement of the water from Harbor Pond at Durgapur Barrage on River Damodar shall not exceed 1,39,008 m<sup>3</sup> /day. BOD outlet water is taken for coke quenching. The treated waste water from existing processes are being taken to the system.
- b. The additional treated effluent discharge to Singaran Nala and Tamla Nala shall not exceed 8,304 m<sup>3</sup>/day and discharged only after conforming to the norms prescribed by the WBPCB and under E(P)A Rules. Domestic effluent shall be treated in sewage treatment plant (STP) and used for dust suppression and green belt development.
- c. Specific water consumption has been reduced to 3.78 m<sup>3</sup>/TCS from 4.49 m<sup>3</sup>/TCS over the last five years.

**V. After expansion, only existing ash pond (85 acre) shall be used for ash disposal and no new ash pond shall be constructed without prior permission. All the fly ash from Captive power plant shall be used in brick manufacturing at site itself or provided to cement manufacturers or used for road making. Bottom ash shall be used for filling low-lying areas inside the plant premises. Compliance to fly ash notification 1999 and subsequently amended in 2003 shall be ensured.**

- a. Captive power plant modernization will be done at a later date and not included in phase -1.

**VI. As proposed in EIA/EMP, Dolo fines, Lime fines and Mill scales shall be fully utilized in Sinter plant. BF flue dust, BF sludge from gas cleaning plant, BOF slag ESP dust from Sinter plant shall be reused in the Sinter plant. Part of the BF sludge and BOF slag shall be dumped in existing waste dump area of DSP. BOF slag shall also be reused in BF, Sinter plant, construction as rail ballast (70%) or dumped (30%). BF slag shall be either sold or used for road construction. Waste refractories and cinder shall be either recycled or sold. Waste oil shall be sold to recyclers or properly disposed off as per Hazardous Waste (Management & Handling) Rules, 1989 and subsequent amendments.**

- a. Care has been taken to utilize/dispose solid wastes and waste oil as above for Expansion-cum-modernization units.
- b. The total solid waste utilization is about 90.2%. At present, 100% Lime fines, mill scales, BF flue dust, BF slag, ESP dust from Sinter plant are being utilized . BOF slag utilization is about 70% level. Efforts are being made to further increase Solid waste utilization.
- c. Waste/used oil are being sold to registered recyclers of Pollution Control Board through auction process. as per Hazardous Waste (Management & Handling) Rules, 1989 and subsequent amendments.

Hence complied.

**VII. Green belt shall be developed in 250 ha.(>40%), out of 600 ha. area within and around the plant premises to mitigate the effects of fugitive emissions all around the plant as per the CPCB guidelines in consultation with DFO.**

Under green belt development project saplings of various species have been planted in different areas of DSP Township through Forest Department . At present more than 25 lakh trees are in DSP. Plantation has been in around 2014 ha. Area upto 2014-15. Tree plantation has been as follows with more than 85 % survival rate :-

|             |         |             |
|-------------|---------|-------------|
| <b>i.</b>   | 2010-11 | 60000       |
| <b>ii.</b>  | 2011-12 | 40000       |
| <b>iii.</b> | 2012-13 | 40000       |
| <b>iv.</b>  | 2013-14 | 40000       |
| <b>v.</b>   | 2014-15 | 42300       |
| <b>vi.</b>  | 2015-16 | 80000(plan) |

**B. General Conditions :**

- I. The project authority shall adhere to the stipulations made by West Bengal Pollution Control Board (WBPCB) and State Government.**
  - a. Being done.
- II. No further expansion or modification of the plant shall be carried out without prior approval of this Ministry.**
  - a. Agreed.
- III. The gaseous emissions from various process units shall conform to the load/mass based standards notified by this Ministry on 19<sup>th</sup> May, 1993 and standards prescribed from time to time. The West Bengal Pollution Control Board (WBPCB) 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.**

- a. Care has been taken to control gaseous emission within standards in Expansion-cum-modernization units. The existing units are conforming to the standards specified by CPCB & WBPCB.

**IV. Ambient air quality monitoring stations shall be set up as per statutory requirement in consultation with the WBPCB. Ambient air quality including ambient noise levels shall not exceed the standards stipulated under EPA or by the State authorities. Monitoring of ambient air quality shall be carried out regularly in consultation with WBPCB and data submitted to the CPCB and WBPCB regularly. The instruments used for ambient air quality monitoring shall be calibrated time to time.**

a. Exists. Being done.

b. Ambient Air monitoring stations are already existing. In addition a Continuous AAQ monitoring station has been installed in township. Location and specifications have been finalized in consultation with WBPCB.

Hence complied.

**V. 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 Environmental (Protection) Act, 1986 Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time).**

a. Care has been taken to include above systems for Expansion-cum-modernization units to control noise pollution.

b. In the existing units, noise levels are regularly being monitored and quarterly & monthly reports are being submitted to CPCB & WBPCB respectively.

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

a. Being done. Complied.

**VII. All the environment management measures given in the EIA/EMP shall be implemented and complied with.**

a. Care has been taken for compliance of environment management measures given in EIA/EMP.

**VIII. All the recommendations mentioned in the Corporate Responsibility for Environmental Protection (CREP) of CPCB issued for the steel plants shall be implemented.**

- a. Being implemented in existing unit, care has been taken to implement the recommendations for expansion-cum –modernisation project as well.

**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.**

- a. Rain water harvesting has been initiated by Durgapur Steel Plant. The following actions have already been taken :
- b. A study of possibility and assessment of rain water that can be harvested have also been made by an expert agency viz. M/s Sulabh International. As per the study under ground charging of rain water is not feasible in this area due to high water table. Based on their study actions have been initiated under Corporate Social Responsibility for rain water harvesting in the surrounding villages , a pond has been constructed in Akandara village for Rain water harvesting in which pisciculture is also being done. A few more projects are under way in DSP township.
- c. Old artificial lake in township park has been de-silted , repaired and renovated. The rain water is being collected in lake by natural process from the park areas. The huge lake is now being used for recreational purposes like boating, light & music programme along with fountain. The collected rain water is also used for gardening purpose in the park.
- d. A pond for collection of rain water has been constructed at HRD Department for gardening purposes.
- e. Durgapur Steel Plant is taking water from DVC for Industrial as well as Drinking purpose. A reservoir has been constructed for accumulating reserve quantity of water supplied by DVC. The reservoir has the capacity to collect additional quantity of water during rainy season. The additional quantity of water so collected is being utilized through out the year for industrial purposes.

Hence complied.

**X. Proper housekeeping and adequate occupational health programmes shall be taken up.**

For house keeping a committee has been constituted for overlooking the overall house keeping of DSP. Lot of jobs like road widening , fencing and garden development , tree plantation, regular cleaning and sweeping of roads, repair and painting of building and structures etc. has been done. DSP has separate Occupational Health department solely responsible to carry out occupational health programmes. DSP is also certified to OHSAS 18000 and best practices being followed occupational health and safety.

Hence complied.

**XI. The company shall undertake eco-development measures including community welfare measures in the project area.**

DSP is having laid down CSR policy and actions are being taken as per the policy

The CSR policy is :

DSP, a unit of SAIL, manufacturing various products of iron and steel, will work as a responsible corporate citizen and work for holistic development of the society in and around Durgapur and continually endeavour to make a meaningful and sustainable difference in people's lives. To accomplish this, we shall:

- i. Support and facilitate comprehensive and sustainable development of peripheral villages to bridge the gap and bring the deprived and the downtrodden villagers into the mainstream society.
- ii. Contribute to ensure Primary education to every child in the periphery and Madhyamik education to the girl child.
- iii. Provide medical & health care facilities for the poor in nearby villages through mobile units and health centres, support for NGOs engaged in eye donations & grafting and generate wider awareness about the communicable diseases & large scale immunization.
- iv. Facilitate vocational training for unemployed youth and create avenues for Self-employment.
- v. Support organizations engaged in the welfare of the mentally and physically challenged persons.
- vi. Upgrade infrastructure for social, cultural and intellectual development of larger populace and support development of ancient heritage sites.
- vii. Provide avenues for mass participation of people in sports & cultural activities and support & nurture sporting talent.

Around Rs. 701.40 Lakh has been spent for CSR projects during the year 2014-15.

SA 8000 : 2008 " The Social Accountability Standards" certification done by DNV.

Hence complied.

**XII. A separate environmental management cell to carry out various management and monitoring functions shall be set up under the control of Senior Executive.**

Already exists. The organization structure of Environment Control Department consist of General Manager(Env. & Utilities), one DGM, two AGM and one Manager with average experience of 30 years. The Air and Water laboratory is manned by 11 experienced senior analyst.

Hence complied.

**XIII. As mentioned in the EIA/EMP, Rs. 338.60 Crores and Rs. 32.25 Crores earmarked towards capital cost and recurring cost /annum respectively for environment pollution control measures shall be used 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.**

- a. Care has been taken to fully use above amounts towards pollution control measures for Expansion-cum-modernization units in phase I and phase II.

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

- a. Six monthly compliance report is being sent to MoEF, Bhubaneswar and quarterly/monthly monitoring reports for the existing units are being sent to CPCB/ WBPCB. After the expansion-cum-modernisation the report will also include these new areas. A copy of the monthly monitoring report is enclosed. Six monthly compliance report is also available at SAIL's website.

**XV. The 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.**

- a. Phase I work in progress Phase II work may start after completion of phase I work.

**XVI. 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 West Bengal Pollution Control Board /Committee and may also be seen at Website of Ministry of Environment and Forests at <http://envfor.nic.in>. This should 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.**

- a. Done. The same was sent to your office also.
- b. Hence complied.



Production Capacity as per EC for Expansion-cum-Modernisation of Durgapur Steel Plant and Production Figures for last three years

| Sl. No. | Product                                 | Capacity after Expansion (in MMTPA) | Production in 2012-13 (in MMTPA) | Production in 2013-14 (in MMTPA) | Production in 2014-15 (in MMTPA) |
|---------|---|-------------------------------------|----------------------------------|----------------------------------|----------------------------------|
| 1       | Gross Coke from Coke Ovens              | 1.7                                 | 1.14                             | 1.237                            | 1.31                             |
| 2       | Gross Hot Metal from Blast Furnaces     | 3.5                                 | 2.242                            | 2.190                            | 2.297                            |
| 3       | Liquid Steel from Basic Oxygen Furnaces | 3.08                                | 2.034                            | 2.023                            | 2.064                            |
| 4       | Gross Sinter from Sinter Plant          | 4.739                               | 3.188                            | 3.104                            | 3.17                             |
| 5       | Dolomite                                | 0.694                               | 0                                | 0                                | 0                                |

| Sl. No. | Product Mix                                      | Capacity after Expansion (in '000' TPA) | Production in 2012-13 (in '000' TPA) | Production in 2013-14 (in '000' TPA) | Production in 2014-15 (in '000' TPA) |
|---------|--|---|--------------------------------------|--------------------------------------|--------------------------------------|
| 1       | Merchant Mill products (TMT bars & Plain rounds) | 306.7                                   | 312                                  | 310                                  | 310                                  |
| 2       | Skelp Mill products (Skelp in coils)             | 220                                     | 118                                  | 119                                  | 61.7                                 |
| 3       | Wheels   | 86                                      | 22.72                                | 27.32                                | 26.1                                 |
| 4       | Axles  | 19.8                                    | 2.2                                  | 3.19                                 | 3.5                                  |
| 5       | New Bar & Rod Mill products                      |   |                                      |                                      |                                      |
|         | a) Wire rod products                             | 500                                     | 0                                    | 0                                    | 0                                    |
|         | b) Bars and Merchant products                    | 700                                     | 0                                    | 0                                    | 0                                    |
| 6       | New Medium Structural Mill products              | 1000                                    | 0                                    | 0                                    | 0                                    |
| 7       | Cold Pigs  | 214                                     | 34                                   | 37                                   | 53.1                                 |

| Sl. No. | By-Product        | Capacity after Expansion (in TPA) | Production in 2012-13 (in TPA) | Production in 2013-14 (in TPA) | Production in 2014-15 (in TPA) |
|---------|-------------------|-----------------------------------|--------------------------------|--------------------------------|--------------------------------|
| 1       | Ammonium Sulphate | 16740                             | 10606                          | 11933                          | 12902                          |
| 2       | Crude Benzol      | 11616                             | 4430                           | 4506                           | 2542                           |
| 3       | Crude Tar         | 62544                             | 40873                          | 48929                          | 52978                          |
| 4       | Granulated Slag   | 888696                            | 522491                         | 520868                         | 546940                         |

## Monitoring results

Month : October ' 2015

Name of the Steel Plant : Durgapur Steel Plant

### A. Stack emission

| Name of the Plant | Stack connected to (Name of the unit) | Parameters              |                 |                 |      |
|-------------------|---------------------------------------|-------------------------|-----------------|-----------------|------|
|                   |                                       | Particulate matter (PM) | SO <sub>2</sub> | NO <sub>x</sub> | CO   |
| Blast Furnace     |                                       |                         |                 |                 |      |
|                   | BF-2 Stove (under Capital repair)     | --                      | --              | --              | --   |
|                   | BF-3 Stove                            | 15                      | 38              | 43              | 0.21 |
|                   | BF-4 Stove                            | 17                      | 47              | 62              | 0.32 |

Standards : PM - 50 mg/Nm<sup>3</sup>, SO<sub>2</sub> – 250 mg/Nm<sup>3</sup>, NO<sub>x</sub> – 150 mg/Nm<sup>3</sup>, CO – 1 % (vol/vol)

| Name of the Plant  | Stack connected to (Name of the unit) | Parameters                     |
|--------------------|---------------------------------------|--------------------------------|
|                    |                                       | <b>Particulate matter (PM)</b> |
| Steel Melting Shop | Ladle Furnace                         | 24                             |

Standards : PM - 100 mg/Nm<sup>3</sup>

| Name of the Plant | Stack connected to (Name of the unit) | Parameters              |                 |                 |      |
|-------------------|---------------------------------------|-------------------------|-----------------|-----------------|------|
|                   |                                       | Particulate matter (PM) | SO <sub>2</sub> | NO <sub>x</sub> | CO   |
| Coke Oven         |                                       |                         |                 |                 |      |
|                   | Battery No. 1                         | 37                      | 185             | 182             | 2.41 |
|                   | Battery No. 2                         | 30                      | 115             | 76              | 1.74 |
|                   | Battery No. 3                         | 43                      | 168             | 171             | 2.62 |
|                   | Battery No. 6                         | 33                      | 154             | 148             | 2.47 |

Standards : PM - 50 mg/Nm<sup>3</sup> , SO<sub>2</sub> – 800 mg/Nm<sup>3</sup> , NO<sub>x</sub> - 500 mg/Nm<sup>3</sup> , CO - 3 kg/T Coke

| Name of the Plant | Stack connected to (Name of the unit) | Parameters              |
|-------------------|---------------------------------------|-------------------------|
| Sinter Plant      |                                       | Particulate matter (PM) |
|                   | SP-1<br>Sinter M/C – 1& 2             | 69                      |
|                   | SP-2<br>Sinter M/C (T1T2)             | 50                      |
|                   | SP-2<br>Space Dedusting (B1B2)        | 57                      |

Standards : PM - 150 mg/Nm<sup>3</sup>

| Name of the Plant          | Stack connected to (Name of the unit) | Parameters              |
|----------------------------|---------------------------------------|-------------------------|
| New Lime Calcination Plant |                                       | Particulate matter (PM) |
|                            | Lime Kiln-1                           | 32                      |
|                            | Lime Kiln-2                           | 38                      |
|                            | Lime Kiln-3                           | 35                      |

Standards : PM – 150 mg/Nm<sup>3</sup>

| Name of the Plant | Stack connected to (Name of the unit) | Parameters              |
|-------------------|---------------------------------------|-------------------------|
| OPP               |                                       | Particulate matter (PM) |
|                   | OPP Boiler 1                          | 68                      |
|                   | OPP Boiler 2                          | 64                      |
|                   | OPP Boiler 5                          | 43                      |
|                   | OPP Boiler 6                          | 46                      |

Standard : PM – 350 mg/Nm<sup>3</sup>

## B. Ambient Air Quality and fugitive emissions

### a. Ambient Air Quality (AAQ)

| S. N. | Location of the Station | Parameters        |                  |                 |                 |                |                 |      |       |     |    |                               |      |
|-------|-------------------------|-------------------|------------------|-----------------|-----------------|----------------|-----------------|------|-------|-----|----|-------------------------------|------|
|       |                         | PM <sub>2.5</sub> | PM <sub>10</sub> | SO <sub>2</sub> | NO <sub>2</sub> | O <sub>3</sub> | NH <sub>3</sub> | CO   | Pb    | Ni  | As | C <sub>6</sub> H <sub>6</sub> | BaP  |
| 1     | ECD Office Building     | 35.7              | 62.4             | 18.3            | 22.2            | 35.4           | 27.4            | 1.22 | 0.077 | 8.6 | <1 | 1.48                          | <0.5 |
| 2     | Project Bldg.           | 32.6              | 60.3             | 16.2            | 20.6            | 33.5           | 22.3            | 1.19 | 0.076 | 8.1 | <1 | 1.51                          | <0.5 |
| 3     | R & C Lab               | 31.7              | 59.5             | 16.7            | 21.4            | 32.8           | 24.2            | 1.17 | 0.068 | 8.4 | <1 | 1.42                          | <0.5 |
| 4     | DSTV Centre             | 30.4              | 51.7             | 8.7             | 16.3            | 30.5           | 22.8            | 1.05 | 0.065 | 6.3 | <1 | 1.31                          | <0.5 |
| 6     | ASP-CISF Barrack        | 32.6              | 52.4             | 9.1             | 15.6            | 31.4           | 23.2            | 1.14 | 0.072 | 6.9 | <1 | 1.34                          | <0.5 |

Standards : PM<sub>2.5</sub>- 60 µg/m<sup>3</sup>, RPM/PM<sub>10</sub> –100 µg/m<sup>3</sup>, SO<sub>2</sub> – 80 µg/m<sup>3</sup>, NO<sub>2</sub> – 80 µg/m<sup>3</sup>, O<sub>3</sub> – 100 µg/m<sup>3</sup>, NH<sub>3</sub>- 400 µg/m<sup>3</sup>, CO – 4 mg/m<sup>3</sup>, Pb- 1 µg/m<sup>3</sup>, Ni- 20 ng/m<sup>3</sup>, As- 6 ng/m<sup>3</sup>, C<sub>6</sub>H<sub>6</sub>- 5 µg/m<sup>3</sup>, BaP – 1 ng/m<sup>3</sup>

**b. Fugitive emissions status**

| S. No. (1) | Name of the Unit (2)       | RPM (mg/m <sup>3</sup> ) (6) | SO <sub>2</sub> (µg/m <sup>3</sup> ) (7) | NO <sub>x</sub> (µg/m <sup>3</sup> ) (8) | CO (µg/m <sup>3</sup> ) (9) | Pb (µg/m <sup>3</sup> ) (10) |
|------------|----------------------------|------------------------------|--|--|-----------------------------|------------------------------|
| 1          | Coke Oven area             | 1.10- 1.69                   | N.A.                                     | N.A.                                     | N.A.                        | N.A.                         |
| 2          | Blast Furnace              | 1.02- 1.58                   | 23- 39                                   | 35- 51                                   | 2915- 4840                  | 0.11- 0.20                   |
| 3          | Sinter Plant               | 1.12- 1.71                   | N.A.                                     | N.A.                                     | N.A.                        | N.A.                         |
| 4          | Steel Melting Shop         | 0.98- 1.53                   | 21- 42                                   | 39- 60                                   | 2764- 4558                  | 0.13- 0.24                   |
| 5          | Old Power Plant            | 0.95- 1.50                   | N.A.                                     | N.A.                                     | N.A.                        | N.A.                         |
| 6          | New Lime Calcination plant | 1.21- 1.82                   | N.A.                                     | N.A.                                     | N.A.                        | N.A.                         |
| 7          | Raw Material Storage       | 1.24- 1.83                   | N.A.                                     | N.A.                                     | N.A.                        | N.A.                         |

**Standards : RPM – 4 mg/m<sup>3</sup>, SO<sub>2</sub>- 200 µg/m<sup>3</sup>, NO<sub>x</sub>- 150 µg/m<sup>3</sup>, CO- 10000 µg/m<sup>3</sup>, Pb- 2 µg/m<sup>3</sup>**

**C. Water Pollution Status**

| Location of the sampling point | Parameters monitored (mg/l, except pH) |        |             |                            |        |          |               |           |
|--------------------------------|--|--------|-------------|----------------------------|--------|----------|---------------|-----------|
|                                | pH                                     | TSS    | Phenol      | Cyanide as CN <sup>-</sup> | BOD    | COD      | Amm. Nitrogen | O & G     |
| <b><u>COBP Effluent</u></b>    |  |        |             |                            |        |          |               |           |
| Inlet to BOD plant             | 8.34-9.10                              | 90-102 | 82- 110     | 4.90- 17.10                | 25 -54 | 280- 312 | 206- 357      | 11 - 26   |
| Outlet to BOD plant            | 7.35-8.21                              | 16-36  | 0.19-0.4650 | 0.11- 0.17                 | 11- 23 | 107-120  | 18- 41        | 1.60-4.60 |

**Standards : pH - 6 – 8.5 , TSS – 100 mg/l , Phenol – 1 mg/l , Cyanide – 0.2 mg/l , BOD – 30 mg/l , COD – 250 mg/l , Amm. Nitrogen – 50 mg/l , O & G – 10 mg/l**

**Quality of various effluent streams at the Boundary line of the plant**

| Name of the stream | Parameters (mg/l, except pH) |        |                               |               |            |
|--------------------|------------------------------|--------|-------------------------------|---------------|------------|
|                    | pH                           | SS     | Cyanide (as CN <sup>-</sup> ) | Amm. Nitrogen | O&G        |
| Outfall – 1        | 8.05- 8.28                   | 9- 30  | N.A.                          | N.A.          | 1.15- 1.71 |
| Outfall – 2        | 7.53- 7.90                   | 10- 28 | 0.037-0.095                   | 4.11-11.42    | 1.11- 1.48 |
| Outfall – 3        | 7.33- 8.31                   | 7- 22  | N.A.                          | N.A.          | 1.25- 2.21 |
| Outfall – 4        | 7.28- 8.33                   | 6- 15  | N.A.                          | N.A.          | 1.04-1.30  |

| Name of the stream | Parameters (mg/l, except pH) |       |            |                               |        |         |               |             |
|--------------------|------------------------------|-------|------------|-------------------------------|--------|---------|---------------|-------------|
|                    | pH                           | SS    | Phenol     | Cyanide (as CN <sup>-</sup> ) | BOD    | COD     | Amm. Nitrogen | O & G       |
| Outfall – 5        | 7.35- 8.31                   | 16-44 | 0.17- 0.41 | 0.11- 0.18                    | 12- 23 | 114-132 | 15- 38        | 1.30 – 3.70 |

**Standards : pH - 6 – 8.5 (OF-1, 2, 4 & 5), 6 - 9 (OF- 3), TSS – 100 mg/l , Phenol – 1 mg/l , Cyanide (as CN<sup>-</sup>)– 0.2 mg/l , BOD – 30 mg/l , COD – 250 mg/l , Amm. Nitrogen – 50 mg/l , O & G – 10 mg/l**

### Status of Sewage Treatment Plant (STP)

| Name of the STP | Parameters (mg/l, except pH) |    |     |     |
|-----------------|------------------------------|----|-----|-----|
|                 | pH                           | SS | BOD | COD |
| STP Outlet-1    | 7.55                         | 19 | 11  | 51  |
| STP Outlet-2    | 7.28                         | 28 | 19  | 35  |
| STP Outlet-3    | 7.92                         | 22 | 14  | 44  |

**Standards : pH - 6 - 9 , SS – 100 mg/l , BOD – 30 mg/l, COD – 250 mg/l**

### D. Hazardous Waste and Solid Waste Management

#### a. Status of Solid Waste Management :

| Name of the Plant | Quantity of Solid Waste generated per month | Type of Solid Waste | Methods of reuse / Disposal                                |
|-------------------|---|---------------------|--|
| Blast Furnace     | 51606 T                                     | Slag                | Sold   |
| Steel Melting     | 20712 T                                     | Slag                | Reused in Sinter Plant, Blast Furnace , BOF shop & Foundry |
| OPP               | 2277 T                                      | Cinder              | Sold   |

#### b. Status of Hazardous Waste Management:

| Name of the Plant | Quantity of Hazardous Waste generated per month | Type of Hazardous waste            | Category | Methods of handling, transportation and disposal   |
|-------------------|---|------------------------------------|----------|--|
| CO & CC           | 120 T   | Tar sludge (Coal Chemical)         | 13.4     | Mixed with coal fines at coal bed and recharged in Coke oven battery   |
|                   | 6.05T   | Benzol acid sludge (Coal Chemical) | 13.3     | Disposed using common hazardous waste treatment, storage and disposal facility of West Bengal Waste Management Ltd, Haldia |

#### c. Status of Bio-medical Waste

| Name of the Township of the industry | Quantity of Bio-medical Waste generated per month | Type of Bio-medical waste                | Methods of handling, transportation and disposal   |
|--------------------------------------|---|--|--|
| Durgapur Steel Plant Hospital        | 1000 kg   | Body parts, Soaked cotton, dressing etc. | Collected into four colour coded containers and disposed through authorized agency of PCB. |
|                                      | 1591 kg   | Plastics                                 |  |
|                                      | 114 kg  | Sharps                                   |  |

### E. Noise Pollution Control Status

| Location                      | Noise Level Leq dB(A) |
|-------------------------------|-----------------------|
| Oxygen plant                  | 83.7                  |
| Blast Furnace                 | 84.1                  |
| Turbines (OPP)                | 84.3                  |
| OPP (other areas)             | 76.5                  |
| Mills<br>(Rolling / forgoing) | 84.0                  |
| SMS                           | 75.7                  |
| SP                            | 76.2                  |
| Coke-oven area                | 77.1                  |

#### **Ambient Noise (at the boundary line of the plant)**

Day time : 60.5 –68.3 dB(A)  
Night time : 48.3-55.2 dB(A)

#### **Standards :**

**Ambient Noise : Day time -75 dB(A), Night time – 70 dB(A)**  
**Work Zone Noise – 85 dB(A)**



**F. Status of compliances to the emission standards of coke oven batteries in Durgapur Steel Plant**

| Plant/Bat. No.       | PLD (%) | PLL (%) | PLO (%) | Charge-ing emission (sec/ charge.) (TC) | Stack emission (mg/Nm <sup>3</sup> ) |                 |     |
|----------------------|---------|---------|---------|---|--------------------------------------|-----------------|-----|
|                      |         |         |         |   | PM                                   | SO <sub>2</sub> | NOx |
| <b>Battery No. 1</b> | 3.05    | 0.44    | 0.92    | 39                                      | 37                                   | 185             | 182 |
| <b>Battery No. 2</b> | 2.80    | 0.21    | 0.28    | 25                                      | 30                                   | 115             | 76  |
| <b>Battery No. 3</b> | 4.76    | 0.54    | 1.05    | 57                                      | 43                                   | 168             | 171 |
| <b>Battery No. 6</b> | 5.52    | 0.65    | 1.12    | 65                                      | 33                                   | 154             | 148 |

**Standard : PLD – 10%, PLL – 1%, PLO – 4%, Charging Emission(Sec/charge) – 75(for COB.1,3,4,6/50(COB.2) PM – 50 mg/Nm<sup>3</sup>, SO<sub>2</sub> – 800 mg/Nm<sup>3</sup>, NOx – 500 mg/Nm<sup>3</sup>**

**Status of Benzo-Pyrene (BaP) concentration in work zone air**

**Coke Oven Plant**

| Battery No. |                  | Battery area (top of the battery) (µg/ m <sup>3</sup> ) | Other units in coke oven plant (µg/ m <sup>3</sup> ) |
|-------------|------------------|---|--|
|             | <b>Standards</b> | 5   | 2  |
| 1           |                  | 1.29  | 0.56   |
| 2           |                  | 1.08  | 0.31   |
| 3           |                  | 2.37  | 0.81   |
| 6           |                  | 2.50  | 0.92   |

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