

**Steel Authority of India Limited
Durgapur Steel Plant
Environment Control Department**

1. Project Code :

2. Name of the Project : Installation of Bloom Caster and Coal Dust Injection (CDI) system in Blast Furnace No. 3 and 4 at Durgapur Steel Plant, Durgapur , West Bengal by M/s SAIL

3. Clearance Letter no. with date : J- 11013/396/2005-IA II (I), dated 29th March, 2007

4. Period of Compliance Report : 01.04.17 – 30.09.17

I. Specific Conditions :

S.N.	Conditions	Compliance Status															
1	<p>The gaseous and particulate matter emissions from various units shall conform to the standards prescribed by the State Pollution Control Board. At no time, particulate emissions from the unit shall exceed 100mg/Nm³ and all the necessary air pollution control system shall be installed. Continuous on-line monitors for particulate emissions shall be installed in stacks. Interlocking facilities shall be provided in the pollution control equipment so that in the event of the pollution control equipment not working, the respective unit(s) is shut down automatically.</p>	<p>Bloom Caster, Ladle furnace and Coal dust injection (CDI) have been commissioned. The particulate matter emission is well below 100 mg/ Nm³ in Ladle furnace and CDI and monthly monitoring reports are being sent to CPCB & WBPCB.</p> <p>Stack emission report monitored by third party (M/s. R. V. Briggs & Co. Private Ltd.)</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Sl. No.</th> <th>Stack Location</th> <th>PM</th> <th>SO₂</th> <th>NO_x</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>Coal Dust Injection (CDI)</td> <td>18</td> <td>34</td> <td>28</td> </tr> <tr> <td>2.</td> <td>Ladle Furnace</td> <td>52</td> <td>54</td> <td>41</td> </tr> </tbody> </table> <p>Copy of the reports enclosed</p> <p>Continuous on-line Stack monitoring system installed at Ladle furnace and CDI stacks.</p>	Sl. No.	Stack Location	PM	SO ₂	NO _x	1.	Coal Dust Injection (CDI)	18	34	28	2.	Ladle Furnace	52	54	41
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	<p>The company shall install adequate dust collection and extraction system at appropriate places to control fugitive dust emissions. Bag filters shall be provided to grinding mill. Gas cleaning plant (GCP) dust from Ladle furnace in Sinter plant shall be recycled. GCP/ Fume extraction system shall be installed in Ladle furnace. Dust emissions from LF stack shall be maintained within 100 mg/Nm³.</p>	<p>Dust collection and extraction systems (bag filters) have been installed at Coal Dust Injection and Ladle furnace. Dust from bag filters are being recycled through Sinter Plant. Stack emissions are well below 100 mg/Nm³ and copies of monitoring reports by third party are enclosed.</p>																																																																													
3	<p>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 and 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.</p>	<p>Ambient Air Quality monitoring stations are there in five locations. In addition a Continuous AAQ monitoring station has been installed. Location and specifications have been finalized in consultation with WBPCB.</p> <p>Monitoring of ambient air quality is being done through NABL accredited M/s Indicative Consultant India, and the data are regularly submitted to CPCB & WBPCB.</p> <p>AAQ report monitored by third party (M/s Indicative Consultant India)</p> <table border="1" data-bbox="863 906 1803 1395"> <thead> <tr> <th rowspan="2">Sl. No.</th> <th rowspan="2">Parameter</th> <th rowspan="2">Unit</th> <th colspan="5">Location</th> </tr> <tr> <th>CISF Gatepass Site</th> <th>R&C Lab Roof Top</th> <th>ECD Office Roof Top</th> <th>ASP CISF Barrack</th> <th>DSTV Centre</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>PM₁₀</td> <td>µg/m³</td> <td>93.57</td> <td>83.15</td> <td>93.12</td> <td>93.7</td> <td>91.02</td> </tr> <tr> <td>2.</td> <td>PM_{2.5}</td> <td>µg/m³</td> <td>23.84</td> <td>21.30</td> <td>28.86</td> <td>28.47</td> <td>26.12</td> </tr> <tr> <td>3.</td> <td>SO₂</td> <td>µg/m³</td> <td>18.33</td> <td>16.40</td> <td>19.75</td> <td>21.73</td> <td>20.25</td> </tr> <tr> <td>4.</td> <td>NO₂</td> <td>µg/m³</td> <td>51.1</td> <td>39.84</td> <td>39.36</td> <td>51.6</td> <td>46.77</td> </tr> <tr> <td>5.</td> <td>Pb</td> <td>µg/m³</td> <td>BDL</td> <td>BDL</td> <td>BDL</td> <td>BDL</td> <td>BDL</td> </tr> <tr> <td>6.</td> <td>Benzene</td> <td>µg/m³</td> <td>BDL</td> <td>BDL</td> <td>BDL</td> <td>BDL</td> <td>BDL</td> </tr> <tr> <td>7.</td> <td>NH₃</td> <td>µg/m³</td> <td>BDL</td> <td>BDL</td> <td>BDL</td> <td>BDL</td> <td>BDL</td> </tr> <tr> <td>8.</td> <td>CO</td> <td>µg/m³</td> <td>0.083</td> <td>0.081</td> <td>0.0873</td> <td>0.089</td> <td>0.078</td> </tr> </tbody> </table>	Sl. No.	Parameter	Unit	Location					CISF Gatepass Site	R&C Lab Roof Top	ECD Office Roof Top	ASP CISF Barrack	DSTV Centre	1.	PM ₁₀	µg/m ³	93.57	83.15	93.12	93.7	91.02	2.	PM _{2.5}	µg/m ³	23.84	21.30	28.86	28.47	26.12	3.	SO ₂	µg/m ³	18.33	16.40	19.75	21.73	20.25	4.	NO ₂	µg/m ³	51.1	39.84	39.36	51.6	46.77	5.	Pb	µg/m ³	BDL	BDL	BDL	BDL	BDL	6.	Benzene	µg/m ³	BDL	BDL	BDL	BDL	BDL	7.	NH ₃	µg/m ³	BDL	BDL	BDL	BDL	BDL	8.	CO	µg/m ³	0.083	0.081	0.0873	0.089	0.078
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9.	Ozone (O ₃)	µg/m ³	28.15	23.19	25.12	31.12	24.17
10	Benzo(a) Pyrene	Ng/m ³	BDL	BDL	BDL	BDL	BDL
11	As	Ng/m ³	BDL	BDL	BDL	BDL	BDL
12	Ni	Ng/m ³	BDL	BDL	BDL	BDL	BDL

Copies of the report enclosed.

Ambient noise level is monitored using calibrated instrument and the results are well within the prescribed norms. Reports are regularly submitted to CPCB & WBPCB.

4 Consumption of cooling water shall be reduced due to phasing out of blooming mill. Recycle and reuse of secondary cooler water through re-circulation shall be ensured. Effort shall be made to adopt 'Zero' discharge except during occasional blowdown.

Due to progressive phasing out of Blooming mill & other water conservation measures, cooling water consumption in the plant has been reduced considerably during last three years :-

Quantity of cooling water being used annually for the last 3 years:

Cooling Water Consumption (m ³)		
2014-15	2015-16	2016-17
1,42,86,675	1,33,69,543	1,32,62,721

100 % recycling and reuse of secondary cooler water of Bloom Caster through recirculation is being done and Bloom caster is a zero discharge unit.

The Specific water consumption has reduced from 3.78 m³/tcs to 3.35 m³/tcs over last three years. Action has been initiated for recirculation of waste water from Outfall 1, 2 & 3 to achieve zero discharge from the plant.

5	<p>Recycling of scale and scrap in Sinter plant shall be ensured. No solid waste shall be disposed off outside the premises.</p>	<p>100 % recycling of scale in Sinter plant is being done. Scrap is being salvaged through magnetic collector and continuously charged in Blast Furnace & Steel Melting Shop.</p> <p>Type and quantities of Solid waste generated and mode of their utilization during April-Sept'2017</p> <table border="1" data-bbox="737 370 1530 1133"> <thead> <tr> <th>S. N.</th> <th>Product</th> <th>Generation</th> <th>Mode of Disposal</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>BF Slag</td> <td>346051</td> <td>Sold to cement manufacturers & used for road making</td> </tr> <tr> <td>2</td> <td>BF Flue Dust</td> <td>3777</td> <td>Sold to market</td> </tr> <tr> <td>3</td> <td>BF Sludge</td> <td>3543</td> <td>Used for land filling</td> </tr> <tr> <td>4</td> <td>BOF Slag</td> <td>140994</td> <td>Used as flux for iron making, sinter making & steel making and used for rail ballast and road making</td> </tr> <tr> <td>5</td> <td>BOF Sludge</td> <td>16482</td> <td>Used in sinter plant</td> </tr> <tr> <td>6</td> <td>Mill Scale</td> <td>9647</td> <td>Used in sinter plant</td> </tr> <tr> <td>7</td> <td>Lime Fines</td> <td>6768</td> <td>Used in sinter plant</td> </tr> <tr> <td>8</td> <td>Waste refractory</td> <td>2406</td> <td>Sold to refractory manufacturers</td> </tr> <tr> <td>9</td> <td>Cinder</td> <td>5760</td> <td>Sold to market</td> </tr> <tr> <td>10</td> <td>Sinter plant ESP Dust</td> <td>75715</td> <td>Used in sinter plant</td> </tr> </tbody> </table>	S. N.	Product	Generation	Mode of Disposal	1	BF Slag	346051	Sold to cement manufacturers & used for road making	2	BF Flue Dust	3777	Sold to market	3	BF Sludge	3543	Used for land filling	4	BOF Slag	140994	Used as flux for iron making, sinter making & steel making and used for rail ballast and road making	5	BOF Sludge	16482	Used in sinter plant	6	Mill Scale	9647	Used in sinter plant	7	Lime Fines	6768	Used in sinter plant	8	Waste refractory	2406	Sold to refractory manufacturers	9	Cinder	5760	Sold to market	10	Sinter plant ESP Dust	75715	Used in sinter plant
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6	<p>All the recommendations mentioned in the Corporate Responsibility for Environmental Protection (CREP) of CPCB shall be implemented.</p>	<p>Compliance to CREP guidelines given at Annexure- I</p>																																												

7	<p>Rainwater harvesting measures shall be adopted. The company shall harvest the rainwater from the roof tops and storm water drains to recharge the ground water and use the same water for the various activities of the project to conserve fresh water.</p>	<p>As per the guidelines issued by West Bengal Pollution Control Board to Durgapur Steel Plant, water bodies must be developed for storing of rainwater and recharging of groundwater is not permitted.</p> <p>DSP has build up different water bodies/ponds in steel township & surrounding villages under CSR project besides DSP's main water reservoir at Waria.</p> <p>Surface Area wise details are given below :-</p> <table border="0"> <tr> <td>Main Water Reservoir</td> <td>: 8,50,000 m²</td> </tr> <tr> <td>MKM Park Lake</td> <td>: 2,80,000 m²</td> </tr> <tr> <td>Waterbody at Vasundhara</td> <td>: 25,000 m²</td> </tr> <tr> <td>Pond at Dampara</td> <td>: 728 m²</td> </tr> <tr> <td>Pond at Akandara</td> <td>: 1,200 m²</td> </tr> <tr> <td>Check-Dam at Baganpara</td> <td>: 3,472 m²</td> </tr> <tr> <td>Pond at B-Zone Park</td> <td>: 8,190 m²</td> </tr> </table> <p>Besides these Durgapur Steel Plant is constructing a Rain Water Harvesting catch pit with pump house to arrest rain water from 20,000 m² area over rooftop of Medium Structural Mill which will be used as Make Up water inside the plant.</p>	Main Water Reservoir	: 8,50,000 m ²	MKM Park Lake	: 2,80,000 m ²	Waterbody at Vasundhara	: 25,000 m ²	Pond at Dampara	: 728 m ²	Pond at Akandara	: 1,200 m ²	Check-Dam at Baganpara	: 3,472 m ²	Pond at B-Zone Park	: 8,190 m ²	
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8	<p>Necessary other statutory clearances from other concerned Departments including 'No Objection Certificate' from the WBPCB shall be obtained.</p>	<p>'No Objection Certificate' from the WBPCB obtained. All other statutory clearances from concerned departments are being renewed regularly.</p>															
9	<p>Pollution load due to expansion / modernization of the project after installation of Bloom caster and Coal Dust Injection (CDI) system in Blast Furnace no. 3 & 4 shall be assessed and a report shall be submitted to the Ministry and its Regional Office at Bhuvaneshwar/ CPCB/ SPCB.</p>	<p>Pollution load after installation of Bloom caster & Coal Dust Injection (CDI) system and due to other pollution control measures has shown a reducing trend over the last four years. The particulate emission load and effluent load of DSP for the last four years are given below :-</p> <table border="1"> <thead> <tr> <th></th> <th>2014-15</th> <th>2015-16</th> <th>2016-17</th> <th>2017-18 (H1)</th> </tr> </thead> <tbody> <tr> <td>Particulate Emission Load (Kg/tcs)</td> <td>0.699</td> <td>0.6933</td> <td>0.6918</td> <td>0.6908</td> </tr> <tr> <td>Effluent Load (Kg/tcs)</td> <td>0.0866</td> <td>0.085</td> <td>0.0838</td> <td>0.0819</td> </tr> </tbody> </table>		2014-15	2015-16	2016-17	2017-18 (H1)	Particulate Emission Load (Kg/tcs)	0.699	0.6933	0.6918	0.6908	Effluent Load (Kg/tcs)	0.0866	0.085	0.0838	0.0819
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10	The company shall undertake eco-development measures including community welfare measures in the project area.	<p>Extensive effort has been given for eco-development through afforestation. The details have been given in the prescribed format attached as Annexure -II.</p> <p>DSP is having laid down policy under Corporate Social Responsibility and actions are being taken as per the policy. Detailed activities/projects undertaken are given in Annexure-III.</p> <p>Around Rs. 336.28 Lakh has been spent for CSR projects during the year 2016-17.</p> <p>SA 8000 : 2008 “ The Social Accountability Standards” certification done by DNV.</p>
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II. General Conditions :

S.N.	Conditions	Compliance Status									
1	The project authority shall adhere to the stipulations made by West Bengal Pollution Control Board (WBPCB) and State Government.	All the stipulation given by West Bengal Pollution Control Board are being strictly adhered to.									
2	No further expansion or modification of the plant shall be carried out without prior approval of this Ministry.	This will be adhered to.									
3	The overall noise levels in and around 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).	<p>Necessary measures have been taken to control noise level within the standards (85 dBA) in and around plant. In various units, noise levels are regularly being monitored and monthly reports are being submitted to CPCB & WBPCB.</p> <p>Noise level monitoring report:</p> <p style="text-align: center;">Work Zone Noise</p> <table border="1" data-bbox="1136 1289 1944 1440"> <thead> <tr> <th data-bbox="1136 1289 1234 1362">Sl. No.</th> <th data-bbox="1234 1289 1619 1362">Location</th> <th data-bbox="1619 1289 1944 1362">Noise Level Leq (dB(A))</th> </tr> </thead> <tbody> <tr> <td data-bbox="1136 1362 1234 1403">1</td> <td data-bbox="1234 1362 1619 1403">Oxygen plant</td> <td data-bbox="1619 1362 1944 1403">81.4</td> </tr> <tr> <td data-bbox="1136 1403 1234 1440">2</td> <td data-bbox="1234 1403 1619 1440">Blast Furnace</td> <td data-bbox="1619 1403 1944 1440">84.0</td> </tr> </tbody> </table>	Sl. No.	Location	Noise Level Leq (dB(A))	1	Oxygen plant	81.4	2	Blast Furnace	84.0
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4	Proper house keeping and adequate occupational health programmes shall be taken up.	<p>For house keeping a committee has been constituted for overlooking the overall house keeping of DSP. Lots 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.</p> <p>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 for occupational health and safety.</p> <p>Occupational health surveillance report for the period April to Sept'2017 :-</p> <table border="1"> <thead> <tr> <th>Sl. No.</th> <th>Parameter</th> <th>Total (Nos.)</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>OHS Emergency</td> <td>9373</td> </tr> <tr> <td>2.</td> <td>Periodic Medical Examination</td> <td>3033</td> </tr> <tr> <td>3.</td> <td>Vision Testing</td> <td>696</td> </tr> <tr> <td>4.</td> <td>Biochemistry</td> <td>12537</td> </tr> <tr> <td>5.</td> <td>Pathological Test</td> <td>231</td> </tr> <tr> <td>6.</td> <td>Pulmonary Function Test</td> <td>3001</td> </tr> </tbody> </table>	Sl. No.	Parameter	Total (Nos.)	1.	OHS Emergency	9373	2.	Periodic Medical Examination	3033	3.	Vision Testing	696	4.	Biochemistry	12537	5.	Pathological Test	231	6.	Pulmonary Function Test	3001																			
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			8.	ECG	36																		
			9.	X-Ray	92																		
			10.	Hygiene Survey	39																		
			11.	Hygiene Locations	67																		
			12.	Training	123																		
5	A separate environmental management cell to carry out various management and monitoring functions shall be setup under the control of Senior Executive.	<p>Already exists. The organization structure of Environment Control Department consist of General Manager(Env. & Utilities), two DGM, two AGM and one Manager with average experience of 25 years. The Air and Water laboratory is manned by 8 experienced senior analysts.</p> <p>Names of Officers of Environment Control Deptt. as per hierarchy:</p> <table border="1"> <thead> <tr> <th>Sl. No.</th> <th>Name</th> <th>Designation</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>B P Mukherjee</td> <td>GM</td> </tr> <tr> <td>2.</td> <td>U Bhattacharyya</td> <td>DGM</td> </tr> <tr> <td>3.</td> <td>A Majumdar</td> <td>DGM</td> </tr> <tr> <td>4.</td> <td>S Dey</td> <td>AGM</td> </tr> <tr> <td>5.</td> <td>S Sarkar</td> <td>AGM</td> </tr> <tr> <td>6.</td> <td>S Roy Sarkar</td> <td>Manager</td> </tr> </tbody> </table>	Sl. No.	Name	Designation	1.	B P Mukherjee	GM	2.	U Bhattacharyya	DGM	3.	A Majumdar	DGM	4.	S Dey	AGM	5.	S Sarkar	AGM	6.	S Roy Sarkar	Manager
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5.	S Sarkar	AGM																					
6.	S Roy Sarkar	Manager																					
6	Rs. 4.05 Crores earmarked towards environmental pollution control measures shall be judiciously 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.	<p>The above amounts have been spent towards pollution control measures for Bloom Caster, Ladle Furnace and CDI units.</p> <p>Total amounts spent on various environment protection measures through out the plant during last 3 years is as follows:</p> <p style="text-align: right;">(Figs. In Rs. Crores)</p> <table border="1"> <thead> <tr> <th>Year</th> <th>2014-15</th> <th>2015-16</th> <th>2016-17</th> </tr> </thead> <tbody> <tr> <td>Expenditure</td> <td>43.14</td> <td>108.73</td> <td>30.98</td> </tr> </tbody> </table>	Year	2014-15	2015-16	2016-17	Expenditure	43.14	108.73	30.98													
Year	2014-15	2015-16	2016-17																				
Expenditure	43.14	108.73	30.98																				
7	The Regional Office of this Ministry at Bhuvaneshwar/ CPCB/ SPCB shall monitor the stipulated conditions. A six monthly compliance report and the monitored data along with statistical interpretation shall be	Six monthly compliance report is being sent to MoEF, Bhubaneswar and monthly monitoring reports for the existing units are being sent to CPCB/ WBPCB. Six monthly compliance report is also available at SAIL's website.																					

	submitted to them regularly.	
8	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.	Project already commissioned.
9	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.	Done. The same was sent to MOEF , Bhubaneswar also.

Annexure-I

Compliance to CREP guidelines

1. Coke Oven Plants

- PLD, PLL and PLO are all within norm.

Plant/Bat. No.	PLD (%)	PLL (%)	PLO (%)	Charging emission (sec/ charge)
Battery No. 1	4.18	0.58	1.33	57
Battery No. 2*	3.25	0.33	1.14	37
Battery No. 5*	2.44	0.26	0.96	42
Battery No. 6	1.92	0.49	1.11	61

- Rebuilding of Coke Oven Batteries

- Bat # 1 Rebuilding – To be taken up from Apr' 2019
- Bat # 2 Rebuilding – Completed
- Bat # 3 Rebuilding – Cold Repair from Apr'2017 to Dec'2018
- Bat # 4 Rebuilding – Taken down for rebuilding from Dec'2014
- Bat # 5 Rebuilding – Completed
- Bat # 6 Rebuilding - Cold and Hot repair from March'2016 to Jun'2017; Rebuilding planned from Oct'2021

2. Steel Melting Shop

Fugitive Emissions :

Reduction level at present is 85 % through the following actions :

- a. Mouth jam cleaning being carried out on requirement basis instead of opportunity basis to result proper sealing of skirt over converter mouth
 - b. Iron ore & dolomite being charged in small batches instead of 500 kg or 1 ton
 - c. Scrubber cleaning being done after every 250- 300 heats
 - d. To have proper suction and to reduce puffing at converter mouth gas flow being maintained by running ID fan at a speed of +1300 rpm
- 100 % by Installation of Dog House- Tendering process in progress. Implementation will take 21 months from order placement.

3. Blast Furnace

Direct inject of reducing agents :

- CDI in operation in all the three Blast Furnaces

4. Solid Waste/ Hazardous Waste Management

Utilisation of SMS/ BF Slag during 2016-17:

Waste	Generation (T)	Utilisation (T)	% Utilisation
BOF Slag	289466	221066	76.4
BF Slag	744824	718222	96.4
Total	1034290	939288	90.8

Efforts to enhance BOF slag utilization :

- Field trial for the use of weathered LD slag as rail track ballast is going on at Ispat Nagar railway yard, Bokaro in association with South Eastern Railways.

- “Laboratory scale study for development of technology for dry granulation of LD/BOF slag” for enhancing utilization of LD slag is going on by RDCIS in association with IIT Kharagpur.

Hazardous Wastes

- Utilisation of tar sludge/ ETP sludge :

Tar sludge and ETP sludge are blended with coal and charged into Coke Oven Batteries

- Inventorisation of hazardous waste :

Being done as per Hazardous Waste (M & H) Rules

5. Water Conservation/ Water Pollution

- Specific Water consumption for 2016-17 is 3.35 m3/tcs (<5 m3/tcs)

- CO-BP effluent treatment plant is running efficiently and meeting effluent discharge standards

Location of the sampling point	Parameters monitored (mg/l, except pH)							
	pH	TSS	Phenol	Cyanide as CN ⁻	BOD	COD	Amm. Nitrogen	O & G
<u>COBP Effluent</u> Outlet to BOD plant	7.32- 8.11	17-33	0.21- 0.46	0.09-0.17	15- 22	109-122	19- 39	2.3- 4.4

6. Installation of Continuous Stack and AAQ systems

- Installation of Continuous stack monitoring system :

Continuous Stack Monitoring systems installed and commissioned in 17 no. stacks with online data transmission to CPCB server, Delhi.

Installation of Continuous Stack Monitoring systems in 10 nos. more stacks is under progress.

- Online ambient air quality monitoring station :

- Commissioned in March 2011 in DSP township.
- On-line data transfer on real time basis is being done to the CPCB server from the CAAQM Station

7. Efficient functioning of pollution control equipment

Pollution control equipments are being maintained and run efficiently. Compliance report in this regard being submitted to CPCB every quarter.

8. Life Cycle Assessment (LCA) study recommendations

Raw Material usage

- Sinter in BF burden increased to above 70 %
- Recycling of iron ore fines, mill scales and BOF sludge being done
- LD slag is being used in BF, BOF, SP and in other areas
- CDI commissioned in all BFs

Improvement in Iron & Steel Making Process

- 100 % steel production through LD route
- 100 % steel processed through continuous casting

Clean Technology Development

- CDI installed in Blast Furnaces-2, 3 & 4
- Installation of Bell Less Top at BF-3
- Installation of Curtain Flame ignition system for ignition of sinter mix at Sinter Plant
- Bed humidification by steam addition in Sinter Plant

Integrated energy management

- By-product gases are being used for power generation, Rolling mill reheating furnaces etc.
- Energy intensive Blooming & Billet Mills have been phased out and replaced by energy efficient production through Caster route

Integrated waste water management

- Water consumption 3.35 m³/tcs
- Waste water treated in effluent treatment plants of Coke Oven, Blast Furnace, Continuous Casting Plant, Rolling Mills etc. and re-circulated back into process

9. Clean Technology Measures

- Castable runners installed in Blast Furnaces

- Processing of the waste containing flux & ferrous waste through waste recycling plant

BOF Slag is being used in BF, BOF, SP, Foundry and mill scales, lime fines is used for sinter making. Scrap is being charged in Blast Furnace and BOF.

- Reduction of Green House Gases

By-product gases are being used for power generation and continuous efforts are being made to reduce power consumption

- Resource conservation

Waste utilization, water consumption, energy consumption have improved

Year	Waste Utilisation	Water Consumption	Sp. Energy Consumption
	(%)	(M ³ /TCS)	(GCal/TCS)
2015-16	94.6	3.52	6.42
2016-17	91.8	3.35	6.36

- Up-gradation of environment monitoring laboratories and training

Environment Laboratory is ISO 14001 certified and equipped with all latest instruments

- Improve overall House Keeping

House keeping has improved. Further improvement and beautification jobs have been taken up.

Annexure-II

FORMAT FOR PROVIDING PARTICULARS ON GREEN BELT/PLANTATION
UNDER F© ACT 1980 AND E(p) ACT 1986

1.	a) Name of the Project	Installation of Bloom Caster and Coal Dust Injection (CDI) system in Blast Furnace No. 3 and 4 at Durgapur Steel Plant, Durgapur , West Bengal by M/s SAIL
	b) Env't. /Forest Clearance Nos.	J- 11013/396/2005-IA II (I), dated 29th March, 2007
2.	Location, Block/Sub. Divn./Dist/State	Faridpur, Burdwan, Durgapur, West Bengal
3.	Address for communication	General Manager (Env. & Utilities), Durgapur Steel Plant, Durgapur – 713203
4.	Existing vegetation in the area region :	
	a) Species (trees/shrubs/grasses/climbers)	Woody plants
	b) Major prevalent species of each type	Sonajhuri (Acacia species), Teak plant, Sisoo plants, Krishna Chura & Radha Chura
5.	Land coverage by the project :	
	a) Total area under the project	20.5 hectares
	b) Area covered for basic infrastructure (roads/buildings/factory etc.)	Records not available
6.	Details about natural vegetation :	
	a) Name and number of trees/species felled	Nil
	b) Name and number of plants and species still available in the area	Nil
	c) By protecting the area will indigenous stock come up	Not applicable
	d) Extent of green belt developed	347.66 hectares (from 2009-10 to 2017-18(H1))

7.	Plantation required to be carried out as per :	
	a) Conditions of Environmental clearance in ha./ Nos.	Green belt to be developed in 250 hectare within and around the plant premises
	b) Conditions for Forest Act (c) clearance in ha. /Nos.	Not applicable
	c) Voluntarily in ha. /Nos.	-

8.	Details of plantation					
a) Total area available for plantation in each category						
i)Green Belt	ii)Dumps	iii)Back filled area	iv)Road sides	v)Block plantation		
347.66 ha	-	-	-	-		
b) Plantation details (category wise & methodology used)						
Year of Plantation	Species planted	Spacing	Height attained (in ft.)	Total area covered (in hectares)	Area still available	
2013-14	Woody plants	2.5 metres	4 – 11	25.00	n.a.	
2014-15	-do-	-do-	4 – 8	21.45	-do-	
2015-16	-do-	-do-	3 – 7	72.52	-do-	
2016-17	-do-	-do-	2 – 4	19.25	-do-	
2017-18 (H1)	-do-	-do-	2 - 3	65	-do-	
c) Survival of plantation		1 st year	2 nd year	3 rd year	4 th year	5 th year
		2013-14	2014-15	2015-16	2016-17	2017-18(H1)
- Total plantation (No.)		40000	42300	115900	30800	60000
- Survival (No.)		34115	36010	98585	26193	51036
- Survival (%)		85.29	85.13	85.06	85.04	85.06
9.	Agency carrying out plantation and maintenance	i) Horticulture & Social Forestry Department, Durgapur Steel Plant ii) Divisional Forest Office, Govt. of West Bengal, Bidhan Nagar, Durgapur				

10.	Financial details (year wise) plantation wise and item wise			
Sl. No.	Year	Funds allocated (Rs. Lakhs)	Expenditure made (Rs. Lakhs)	Average cost of each surviving plant (in Rs.)
1.	2013-14	18.69	18.69	54.78
2.	2014-15	23.16	23.16	64.31
3.	2015-16	23.36	23.36	23.69
4.	2016-17	18.81	18.81	71.81
5.	2017-18(H1)	20	20	39.19
11.	Inspection of plantation by field experts and their comments and follow up actions		Records not available	
12.	Remarks/ any other information		Plantation target for 2017-18 is 1,40,000 nos.	

Annexure-III

Corporate Social Responsibility

Plant / Unit : Durgapur Steel Plant

Sl. No.	Sector	Description of Activity / Project undertaken
1	2	3
1	Education	Running & Management of the Primary School - SAIL Kanya Shiksha Niketan from 1st July 2016 - 30 th June, 2017 for underprivileged/BPL Girl Child.
2	Education	Smooth Running of Mukul School in A-Zone of DSP Township.
3	Healthcare	Regular Free Health Check up Camps at all the 11 MSVs of DSP.
4	Healthcare	Running Free Medical Unit NIVEDITA at DSP Township
5	Healthcare	Regular Free Health Check up Camps at all the 6 Peripheral Villages.
6	Healthcare	Running Free Mother & Child Care Unit at DSP Mahila Samaj premises for the period from August 2016 - July 2017.
7	Healthcare	Free Medical Camp during Rath Yatra Festival 2016 at Rajiv Gandhi Mela Maidan, B-Zone, Durgapur-5.
8	Healthcare	Free Medical Camp during Kalpataru Sanskritik Mela 2017, Durgapur-1.
9	Healthcare	Free Eye Camp at DSP Mahila Samaj Premises, A-Zone, Durgapur-4
10	Healthcare	Free Health Check-up Camps for Students / Inmates of Durgapur Handicapped Happy Home, SAIL Kanya Shiksha Niketan & HOPE Schools.
11	Healthcare	Repair of Mobile Medical Van used for Free Health Check-up Camps at Model Steel Villages.

12	Livelihood Generation Voc.Trg.	/	Running of Vocational Training Institute (VTI) / Shilpangan for unemployed youth including women for livelihood generation (Mobile Repair, Fabrication, Computer Hardware & Software, House Wiring etc.) & Physiotherapy, Pathological Lab & ECG Technician courses at NIVEDITA.
13	Livelihood Generation Voc.Trg.	/	Running, Management & Maintenance of Two Silk Yarn Units
14	Livelihood Generation Voc.Trg.	/	Additional Infrastructure at Shilpangan Sub-Centre - Harshabardhan Road Primary School, A-Zone, Durgapur-4
15	Livelihood Generation Voc.Trg.	/	Additional Infrastructure at Skill Development Training Centre at DII/9 JC Bose Avenue, B-Zone, Durgapur-5
16	Livelihood Generation Voc.Trg.	/	Acoustic in the Auditorium Hall of Vocational Training Institute / Shilpangan & LED Light fitting, PC Road, B-Zone, Durgapur-5
17	Women Empowerment		Running of Hair & Skin Care Unit of Women for the period from January 2017 - December 2017.
18	Women Empowerment		Running of Vocational Training courses on Dress Making, Garments Designing & Embroidery of Women for the period from July 2016 - June 2017.
19	Rural Development		Education, Sports & Cultural activities in MSVs.
20	Rural Development		Repair & Renovation jobs at the Model Steel Villages
21	Cultural Activities		Running & Maintenance of Durgapur Museum in 2017.
22	Cultural Activities		Durgapur Grameen Nritya Sangeet Pratiyogita on 4, 5 & 6 January 2017 at Bidhan Bhawan, Durgapur-5
23	Sports		Organizing “ Grameen Football Pratiyogita” involving rural teams of peripheral villages.
24	Sports		Organizing “ Grameen Kabaddi Pratiyogita” involving rural teams of peripheral villages.
25	Environment		Removal of Plastic Waste from Steel Township for the period from July 2016- June 2017.
26	Environment		Installation of additional Statues in the Sculpture Garden in SAIL-DSP Bio-Diversity Park Vasundhara
27	Environment		Sterilization of Stray Dogs of DSP Township towards Animal Welfare

Contact Person :

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Environment Control Department,
Durgapur Steel Plant,
Durgapur – 713203 (W.B)