

**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 : 01.04.18 – 30.09.18

I. Specific Conditions :

S.N.	Conditions	Compliance Status															
1	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>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 &amp; WBPCB.</p> <p>Stack emission report monitored by third party ( M/s. R. V. Briggs &amp; 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>SO<sub>2</sub></th> <th>NO<sub>x</sub></th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>Coal Dust Injection (CDI)</td> <td>19</td> <td>51</td> <td>27</td> </tr> <tr> <td>2.</td> <td>Ladle Furnace</td> <td>24</td> <td>70</td> <td>35</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 <sub>2</sub>	NO <sub>x</sub>	1.	Coal Dust Injection (CDI)	19	51	27	2.	Ladle Furnace	24	70	35
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1.	Coal Dust Injection (CDI)	19	51	27													
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	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	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.															

	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/Nm <sup>3</sup> .																																																																																		
3	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>Ambient Air Quality monitoring stations are there. 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 &amp; WBPCB.</p> <p>AAQ report monitored by third party (M/s Indicative Consultant India):</p> <table border="1" data-bbox="846 581 1675 1206"> <thead> <tr> <th rowspan="2">Sl. No.</th> <th rowspan="2">Parameter</th> <th rowspan="2">Unit</th> <th colspan="3">Location</th> </tr> <tr> <th>R&amp;C Lab Roof Top</th> <th>CISF Gate Pass site</th> <th>ASP CISF Barrack</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>PM<sub>10</sub></td> <td>µg/m<sup>3</sup></td> <td>91.15</td> <td>76.33</td> <td>93.03</td> </tr> <tr> <td>2</td> <td>PM<sub>2.5</sub></td> <td>µg/m<sup>3</sup></td> <td>24.27</td> <td>21.07</td> <td>27.43</td> </tr> <tr> <td>3</td> <td>SO<sub>2</sub></td> <td>µg/m<sup>3</sup></td> <td>17.12</td> <td>18.74</td> <td>17.47</td> </tr> <tr> <td>4</td> <td>NO<sub>2</sub></td> <td>µg/m<sup>3</sup></td> <td>43.95</td> <td>51.04</td> <td>44.98</td> </tr> <tr> <td>5</td> <td>Pb</td> <td>µg/m<sup>3</sup></td> <td>BDL</td> <td>BDL</td> <td>BDL</td> </tr> <tr> <td>6</td> <td>Benzene</td> <td>µg/m<sup>3</sup></td> <td>BDL</td> <td>BDL</td> <td>BDL</td> </tr> <tr> <td>7</td> <td>NH<sub>3</sub></td> <td>µg/m<sup>3</sup></td> <td>BDL</td> <td>BDL</td> <td>BDL</td> </tr> <tr> <td>8</td> <td>CO</td> <td>µg/m<sup>3</sup></td> <td>0.0927</td> <td>0.0947</td> <td>0.0995</td> </tr> <tr> <td>9</td> <td>Ozone (O<sub>3</sub>)</td> <td>µg/m<sup>3</sup></td> <td>31.25</td> <td>32.27</td> <td>33.92</td> </tr> <tr> <td>10</td> <td>Benzo(a) Pyrene</td> <td>Ng/m<sup>3</sup></td> <td>BDL</td> <td>BDL</td> <td>BDL</td> </tr> <tr> <td>11</td> <td>As</td> <td>Ng/m<sup>3</sup></td> <td>BDL</td> <td>BDL</td> <td>BDL</td> </tr> <tr> <td>12</td> <td>Ni</td> <td>Ng/m<sup>3</sup></td> <td>BDL</td> <td>BDL</td> <td>BDL</td> </tr> </tbody> </table> <p>Copies of the report enclosed.</p> <p>Ambient noise level is monitored using calibrated instrument and the results are well within the prescribed norms. Reports are regularly submitted to CPCB &amp; WBPCB.</p>	Sl. No.	Parameter	Unit	Location			R&C Lab Roof Top	CISF Gate Pass site	ASP CISF Barrack	1	PM <sub>10</sub>	µg/m <sup>3</sup>	91.15	76.33	93.03	2	PM <sub>2.5</sub>	µg/m <sup>3</sup>	24.27	21.07	27.43	3	SO <sub>2</sub>	µg/m <sup>3</sup>	17.12	18.74	17.47	4	NO <sub>2</sub>	µg/m <sup>3</sup>	43.95	51.04	44.98	5	Pb	µg/m <sup>3</sup>	BDL	BDL	BDL	6	Benzene	µg/m <sup>3</sup>	BDL	BDL	BDL	7	NH <sub>3</sub>	µg/m <sup>3</sup>	BDL	BDL	BDL	8	CO	µg/m <sup>3</sup>	0.0927	0.0947	0.0995	9	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	31.25	32.27	33.92	10	Benzo(a) Pyrene	Ng/m <sup>3</sup>	BDL	BDL	BDL	11	As	Ng/m <sup>3</sup>	BDL	BDL	BDL	12	Ni	Ng/m <sup>3</sup>	BDL	BDL	BDL
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4	<p>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.</p>	<p>Due to progressive phasing out of Blooming mill &amp; other water conservation measures, cooling water consumption in the plant has been reduced considerably during last three years :-</p> <p>Quantity of cooling water being used annually for the last 3 years:</p> <table border="1" data-bbox="1058 461 1593 672"> <thead> <tr> <th colspan="3">Cooling Water Consumption ( m<sup>3</sup> )</th> </tr> <tr> <th>2015-16</th> <th>2016-17</th> <th>2017-18</th> </tr> </thead> <tbody> <tr> <td>1,33,69,543</td> <td>1,32,62,721</td> <td>1,21,53,710</td> </tr> </tbody> </table> <p>100 % recycling and reuse of secondary cooler water of Bloom Caster through recirculation is being done and Bloom caster is a zero discharge unit.</p> <p>The Specific water consumption has reduced from 3.78 m<sup>3</sup>/tcs to 3.25 m<sup>3</sup>/tcs over last three years.</p> <p>Action has been initiated for recirculation of waste water from Outfall 1, 2 &amp; 3 to achieve zero discharge from the plant.</p>	Cooling Water Consumption ( m <sup>3</sup> )			2015-16	2016-17	2017-18	1,33,69,543	1,32,62,721	1,21,53,710							
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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 &amp; Steel Melting Shop.</p> <p>Type and quantities of Solid waste generated and mode of their utilization during Apr-Sept'18:</p> <table border="1" data-bbox="852 1172 1650 1422"> <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>394226</td> <td>Sold to cement manufacturers &amp; used for road making</td> </tr> <tr> <td>2</td> <td>BF Flue Dust</td> <td>4287</td> <td>Sold to market</td> </tr> <tr> <td>3</td> <td>BF Sludge</td> <td>4001</td> <td>Used for land filling</td> </tr> </tbody> </table>	S. N.	Product	Generation	Mode of Disposal	1	BF Slag	394226	Sold to cement manufacturers & used for road making	2	BF Flue Dust	4287	Sold to market	3	BF Sludge	4001	Used for land filling
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6	All the recommendations mentioned in the Corporate Responsibility for Environmental Protection (CREP) of CPCB shall be implemented.	Compliance to CREP guidelines given at <b>Annexure- I</b>																												
7	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>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 &amp; surrounding villages under CSR project besides DSP's main water reservoir at Waria.</p> <p>Surface Area wise details are given below :-</p> <table> <tr> <td>Main Water Reservoir</td> <td>: 8,50,000 m<sup>2</sup></td> </tr> <tr> <td>MKM Park Lake</td> <td>: 2,80,000 m<sup>2</sup></td> </tr> <tr> <td>Waterbody at Vasundhara</td> <td>: 25,000 m<sup>2</sup></td> </tr> <tr> <td>Pond at Dampara</td> <td>: 728 m<sup>2</sup></td> </tr> <tr> <td>Pond at Akandara</td> <td>: 1,200 m<sup>2</sup></td> </tr> <tr> <td>Check-Dam at Baganpara</td> <td>: 3,472 m<sup>2</sup></td> </tr> <tr> <td>Pond at B-Zone Park</td> <td>: 8,190 m<sup>2</sup></td> </tr> </table>		Main Water Reservoir	: 8,50,000 m <sup>2</sup>	MKM Park Lake	: 2,80,000 m <sup>2</sup>	Waterbody at Vasundhara	: 25,000 m <sup>2</sup>	Pond at Dampara	: 728 m <sup>2</sup>	Pond at Akandara	: 1,200 m <sup>2</sup>	Check-Dam at Baganpara	: 3,472 m <sup>2</sup>	Pond at B-Zone Park	: 8,190 m <sup>2</sup>													
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8	Necessary other statutory clearances from other concerned Departments including 'No Objection Certificate' from the WBPCB shall be obtained.	'No Objection Certificate' from the WBPCB obtained. All other statutory clearances from concerned departments are being renewed regularly.															
9	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>Pollution load after installation of Bloom caster &amp; 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" data-bbox="842 496 1944 716"> <thead> <tr> <th></th> <th>2014-15</th> <th>2015-16</th> <th>2016-17</th> <th>2017-18</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>0.6906</td> </tr> <tr> <td>Effluent Load (Kg/tcs)</td> <td>0.0866</td> <td>0.085</td> <td>0.0838</td> <td>0.0812</td> </tr> </tbody> </table>		2014-15	2015-16	2016-17	2017-18	Particulate Emission Load (Kg/tcs)	0.699	0.6933	0.6918	0.6906	Effluent Load (Kg/tcs)	0.0866	0.085	0.0838	0.0812
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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 <b>Annexure -II</b>.</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 <b>Annexure-III</b>.</p> <p>Around Rs. 174 Lakhs has been spent for CSR projects during the year 2017-18.</p> <p>SA 8000 : 2008 " The Social Accountability Standards" certification done by DNV.</p>															

II. General Conditions :

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1	The project authority shall adhere to the stipulations made by West Bengal Pollution Control Board (WBPCB) and State Government.	All the stipulations 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 &amp; WBPCB.</p> <p>Noise level monitoring report:</p> <p style="text-align: center;">Work Zone Noise</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Sl. No.</th> <th>Location</th> <th>Noise Level Leq (dB(A))</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Oxygen plant</td> <td>76.8</td> </tr> <tr> <td>2</td> <td>Blast Furnace</td> <td>80.3</td> </tr> <tr> <td>3</td> <td>Turbines (OPP)</td> <td>82.4</td> </tr> <tr> <td>4</td> <td>OPP (other areas)</td> <td>77.6</td> </tr> <tr> <td>5</td> <td>Mills (Rolling / forgoing)</td> <td>78.1</td> </tr> <tr> <td>6</td> <td>SMS</td> <td>74.3</td> </tr> <tr> <td>7</td> <td>SP</td> <td>71.7</td> </tr> <tr> <td>8</td> <td>Coke-oven area</td> <td>78.2</td> </tr> </tbody> </table>	Sl. No.	Location	Noise Level Leq (dB(A))	1	Oxygen plant	76.8	2	Blast Furnace	80.3	3	Turbines (OPP)	82.4	4	OPP (other areas)	77.6	5	Mills (Rolling / forgoing)	78.1	6	SMS	74.3	7	SP	71.7	8	Coke-oven area	78.2
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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 Apr- Sept'18 :-</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <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>9265</td> </tr> <tr> <td>2.</td> <td>Periodic Medical Examination</td> <td>3347</td> </tr> <tr> <td>3.</td> <td>Vision Testing</td> <td>696</td> </tr> <tr> <td>4.</td> <td>Biochemistry</td> <td>13976</td> </tr> <tr> <td>5.</td> <td>Pathological Test</td> <td>142</td> </tr> <tr> <td>6.</td> <td>Pulmonary Function Test</td> <td>3347</td> </tr> <tr> <td>7.</td> <td>Audio Test</td> <td>1769</td> </tr> <tr> <td>8.</td> <td>ECG</td> <td>41</td> </tr> <tr> <td>9.</td> <td>X-Ray</td> <td>92</td> </tr> <tr> <td>10.</td> <td>Hygiene Survey</td> <td>40</td> </tr> <tr> <td>11.</td> <td>Hygiene Locations</td> <td>84</td> </tr> <tr> <td>12.</td> <td>Training</td> <td>87</td> </tr> </tbody> </table>	Sl. No.	Parameter	Total (Nos.)	1.	OHS Emergency	9265	2.	Periodic Medical Examination	3347	3.	Vision Testing	696	4.	Biochemistry	13976	5.	Pathological Test	142	6.	Pulmonary Function Test	3347	7.	Audio Test	1769	8.	ECG	41	9.	X-Ray	92	10.	Hygiene Survey	40	11.	Hygiene Locations	84	12.	Training	87
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3.	Vision Testing	696																																							
4.	Biochemistry	13976																																							
5.	Pathological Test	142																																							
6.	Pulmonary Function Test	3347																																							
7.	Audio Test	1769																																							
8.	ECG	41																																							
9.	X-Ray	92																																							
10.	Hygiene Survey	40																																							
11.	Hygiene Locations	84																																							
12.	Training	87																																							

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. &amp; Utilities), three DGMs, one AGM and one Sr. Manager and one Asst. Manager with average experience of 15 years. The Air and Water laboratory is manned by 6 experienced senior analysts.</p> <p>Names of Officers of Environment Control Deptt. as per hierarchy:</p> <table border="1" data-bbox="1110 386 1921 683"> <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>A Majumdar</td> <td>DGM</td> </tr> <tr> <td>3.</td> <td>U Bhattacharyya</td> <td>DGM</td> </tr> <tr> <td>4.</td> <td>S Dey</td> <td>DGM</td> </tr> <tr> <td>5.</td> <td>S Sarkar</td> <td>AGM</td> </tr> <tr> <td>6.</td> <td>S Roy Sarkar</td> <td>Sr. Manager</td> </tr> <tr> <td>7.</td> <td>R Chakraborty</td> <td>Asst. Manager</td> </tr> </tbody> </table>	Sl. No.	Name	Designation	1.	B P Mukherjee	GM	2.	A Majumdar	DGM	3.	U Bhattacharyya	DGM	4.	S Dey	DGM	5.	S Sarkar	AGM	6.	S Roy Sarkar	Sr. Manager	7.	R Chakraborty	Asst. Manager
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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 full amount has been spent towards pollution control measures for Bloom Caster, Ladle Furnace and CDI units.</p> <p>Total amount spent on various environment protection measures through out the plant during last 3 years is as follows: (Figs. In Rs. Crores)</p> <table border="1" data-bbox="1075 922 1921 997"> <thead> <tr> <th>Year</th> <th>2015-16</th> <th>2016-17</th> <th>2017-18</th> </tr> </thead> <tbody> <tr> <td>Expenditure</td> <td>108.73</td> <td>30.98</td> <td>13.12</td> </tr> </tbody> </table>	Year	2015-16	2016-17	2017-18	Expenditure	108.73	30.98	13.12																
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7	The Regional Office of this Ministry at Bhubaneswar/ CPCB/ SPCB shall monitor the stipulated conditions. A six monthly compliance report and the monitored data along with statistical interpretation shall be submitted to them regularly.	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.																								
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	<p>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 <a href="http://envfor.nic.in">http://envfor.nic.in</a>. 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.</p>	<p>Done. The same was sent to MOEF , Bhubaneshwar also.</p>
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**Compliance to CREP guidelines**

**1. Coke Oven Plants**

**- PLD, PLL and PLO are all within norm.**

Battery No.	PLD (%)	PLL (%)	PLO (%)	Charging emission (sec/ charge)
Battery No. 1	3.20	0.37	1.21	59
Battery No. 2	3.04	0.18	1.04	33
Battery No. 5	2.51	0.43	1.14	41
Battery No. 6	2.88	0.36	1.26	54

**- 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 toDec'2018
- Bat # 4 Rebuilding – Phased out
- 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- Order to be placed on M/s SMS GmbH, Germany. Awaiting Board approval. 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 2018-19 (H1):

Waste	Generation (T)	Utilisation (T)	% Utilisation
BOF Slag	148669	102847	69.2
BF Slag	394226	415763	100
Total	542895	518610	95.52

Efforts to enhance BOF slag utilization :

- Efforts taken for utilization of weathered BOF/Steel Slag for road making by NRRDA under Pradhan Mantri Gram SadakYojna .

### 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 2018-19 (H1) is 3.25 m<sup>3</sup>/tcs (<5 m<sup>3</sup>/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 <sup>-</sup>	BOD	COD	Amm. Nitrogen	O & G
<u>COBP Effluent</u> Outlet to BOD plant	7.22- 8.10	15-37	0.22- 0.56	0.076- 0.165	10- 23	105-130	17- 31	3.1- 4.8

## **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.

Installation of Continuous Stack Monitoring systems in remaining 20 nos. stacks has also been completed. Necessary action has been taken to commence data transmission to CPCB server at the earliest.

### **- 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 is being submitted to CPCB every quarter.

## **8. Life Cycle Assessment (LCA) study recommendations**

Raw Material usage

- Sinter in BF burden increased to around 70 %
- Recycling of iron ore fines, mill scales and BOF sludge being done
- LD slag is being used in BF, 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 in Blast Furnaces-2, 3 & 4
- Bell Less Top at BF-3
- Curtain Flame ignition system for ignition of sinter mix at 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 3.25 m<sup>3</sup>/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

- Reuse of the waste containing flux & ferrous waste. BOF Slag is being used in BF, 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 as fuel and for power generation and continuous efforts are being made to reduce power consumption

- Resource conservation

Waste utilization, water consumption, energy consumption have improved

<b>Year</b>	<b>Waste Utilisation</b>	<b>Water Consumption</b>	<b>Sp. Energy Consumption</b>
	(%)	(M <sup>3</sup> /TCS)	(GCal/TCS)
2016-17	91.8	3.35	6.36
2017-18	92.7	3.29	6.19

- 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	Expansion-cum-modernisation of Durgapur Steel Plant
	b) Evt. /Forest Clearance Nos.	EC letter no. J-11011/492/2007-IA-II(I) dated 10.09.2007
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&RadhaChura
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	369.7 hectares (from 2009-10 to 2018-19(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		
369.7 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	
2014-15	Woody plants	2.5 metres	5 – 12	21.45	n.a.	
2015-16	-do-	-do-	4 – 10	72.52	-do-	
2016-17	-do-	-do-	4 – 8	19.25	-do-	
2017-18	-do-	-do-	3 – 5	80.94	-do-	
2018-19 (H1)	-do-	-do-	1- 3	6.07	-do-	
c) Survival of plantation		1 <sup>st</sup> year	2 <sup>nd</sup> year	3 <sup>rd</sup> year	4 <sup>th</sup> year	5 <sup>th</sup> year
		2014-15	2015-16	2016-17	2017-18	2018-19
- Total plantation (No.)		42300	115900	30800	140000	10000
- Survival (No.)		36010	98585	26193	118860	9800
- Survival (%)		85.13	85.06	85.04	84.90	98.00
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.	2014-15	23.16	23.16	64.31
2.	2015-16	23.36	23.36	23.69
3.	2016-17	18.81	18.81	71.81
4.	2017-18	25	25	21.03
5.	2018-19 (H1)	2.65	2.65	26.46
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 2018-19 is 50,000 nos.	

### Annexure-III

#### Corporate Social Responsibility

##### Plant / Unit : Durgapur Steel Plant

S.N.	Sector	CSR Activities/ Projects
1	Education	Running & Management of the Primary School - SAIL KanyaShikshaNiketan from July 2017 - 30 <sup>th</sup> June, 2018 for underprivileged/BPL Girl Child.
2	Education	Educational activities in MSVs.
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 MahilaSamaj premises for the period from August 2017 - July 2018.
7	Healthcare	Free Eye Camp at DSP MahilaSamaj premises
8	Healthcare	Free Health Check up Camps at SAIL KanyaShikshaNiketan, Durgapur Handicapped Happy Home & HOPE Schools
9	Livelihood Generation / Voc.Trng.	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.
10	Women Empowerment	Running of Vocational Training courses on Dress Making, Garments Designing & Embroidery of Women for the period from July 2017 - June 2018.
11	Rural Development	Repair jobs in MSVs
12	Rural Development	Sports & Cultural activities in MSVs.
13	Art & Culture	Running & Maintenance of Durgapur Museum
14	Art & Culture	Durgapur GrameenNrityaSangeetPratiyogita
15	Sports	Grameen Football Pratiyogita
16	Environment	Removal of Plastic Waste from Steel Township for the period from July 2017- June 2018.

Contact Person :

Sri AsokMajumdar,  
Dy. General Manager,  
Environment Control Department,  
Durgapur Steel Plant,  
Durgapur – 713203 (W.B)