

M/s Tata Steel Ltd, Hooghly Met Coke Division, Haldia

Compliance to Conditions stipulated in Environmental Clearance for Coke Oven Plant (1.6 MTPA) & WHRB (120 MW) at Haldia, East Midnapur, West Bengal from MoEF, New Delhi on 29th January, 2007 vide letter# F. No. J-11011//284/07- IA II (I)

Period –October 2015 – March 2016

A.	SPECIFIC CONDITIONS																								
i.	<i>Proper and full utilization of coke oven gases in power plant using heat recovery steam generators (WHRB) shall be ensured and no flue gas shall be discharged into the air.</i>																								
Com	<ul style="list-style-type: none"> • The coking coal is fed after crushing into Heat Recovery type coke oven batteries consisting of chambers made of refractory. The Carbonization of coal takes place at 1100 to 1250° C and the heat for carbonization is supplied by combustion of volatile matters evolved from the coal charged by admitting air into the chamber. The hot flue gas free from volatile matters is used to generate electric power by generating steam in waste heat recovery boiler. • Presently the plant is operating at rated capacity of 1.6 MTPA coke production and with 120 MW power generation at a plant load factor of 90% • From Oct '15 to March 2016 total coke production was 788310 DMT (Dry Metric Ton) and 384.9 Million Unit of power generation. <p style="text-align: center;"><u>Coke Production & Power Generation</u></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Month</th> <th>Coke Production (Tonnes) Dry</th> <th>Power Generation (MUs)</th> </tr> </thead> <tbody> <tr> <td>Oct '15</td> <td>1,10,092</td> <td>72.0</td> </tr> <tr> <td>Nov '15</td> <td>1,05,939</td> <td>64.9</td> </tr> <tr> <td>Dec '15</td> <td>1,09,567</td> <td>70</td> </tr> <tr> <td>Jan '16</td> <td>1,09,970</td> <td>68.5</td> </tr> <tr> <td>Feb '16</td> <td>1,02,097</td> <td>61.5</td> </tr> <tr> <td>Mar '16</td> <td>1,10,714</td> <td>67.3</td> </tr> <tr> <td>TOTAL</td> <td>648379</td> <td>404.2</td> </tr> </tbody> </table> <ul style="list-style-type: none"> • The plant is having 352 numbers of coke oven batteries (1.6 MTPA coke capacity) equally divided into 4 rows. 11 numbers of ovens are forming one block so each row is having 8 nos of block. 2 nos. of blocks of 11 ovens each is now connected to one no. of WHRB & subsequently 2 nos. of WHRBs connected to one no. of combined stack of 70 m height. So each row has 4 numbers of WHRBs and 2 no. of stack. Total 8 nos of stacks and 16 nos of boilers are present in the entire plant. Stacks are designed for stack emission <100 mg/Nm³ of particulate matter. 	Month	Coke Production (Tonnes) Dry	Power Generation (MUs)	Oct '15	1,10,092	72.0	Nov '15	1,05,939	64.9	Dec '15	1,09,567	70	Jan '16	1,09,970	68.5	Feb '16	1,02,097	61.5	Mar '16	1,10,714	67.3	TOTAL	648379	404.2
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ii.	<i>The prescribed emission standards for coke oven plants as notified vide notification no. GSR 46 (E) dated 3rd February, 2006 shall be complied with.</i>																								

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Com	<ul style="list-style-type: none"> As per notification no. GSR 46(E) dated 3rd February 2006, no emission standards for Non recovery coke oven plant have been mentioned. Since this is the new unit established after the notification of 2006 published, the Non recovery / waste heat recovery technology has been adopted for coke making which is environment friendly method. The emission standard specified in the Environmental Clearance, under Specific condition (iii) for stack emission has been followed. To reduce the SPM, non recovery type technology is being used. The coal is being charged inside the oven under negative pressure for 66 hours in a temp of 950 – 1200 °C as a result the volatiles evolved during coal carbonization is being combusted completely in presence of controlled quantity of air so emission of any particulate matter is very low. The stack height is 70Mt from GL. The emission from all stack are much less than 100mg/Nm3 of SPM. Regular stack monitoring is done by registered third party. Online stack monitoring system is also installed in all 7 chimney. The Avg PM (month wise) data is as follows: <p style="text-align: center;"><u>STACK PM Level (mg/Nm3) : By Third party</u></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Month</th> <th>PM (6% Co2 (V/V))</th> </tr> </thead> <tbody> <tr> <td>Oct '15</td> <td>22</td> </tr> <tr> <td>Nov'15</td> <td>21.5</td> </tr> <tr> <td>Dec'15</td> <td>21.5</td> </tr> <tr> <td>Jan'16</td> <td>19</td> </tr> <tr> <td>Feb'16</td> <td>22.25</td> </tr> <tr> <td>Mar'16</td> <td>26.25</td> </tr> <tr> <td>AVG</td> <td>22</td> </tr> </tbody> </table> <p style="text-align: center;"><u>STACK PM Level (mg/Nm3) : As per Opacity Meter</u></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Month</th> <th>PM</th> </tr> </thead> <tbody> <tr> <td>Oct '15</td> <td>26.42</td> </tr> <tr> <td>Nov'15</td> <td>27.71</td> </tr> <tr> <td>Dec'15</td> <td>25</td> </tr> <tr> <td>Jan'16</td> <td>23.42</td> </tr> <tr> <td>Feb'16</td> <td>25.14</td> </tr> <tr> <td>Mar'16</td> <td>26.28</td> </tr> <tr> <td>AVG</td> <td>25.66</td> </tr> </tbody> </table>	Month	PM (6% Co2 (V/V))	Oct '15	22	Nov'15	21.5	Dec'15	21.5	Jan'16	19	Feb'16	22.25	Mar'16	26.25	AVG	22	Month	PM	Oct '15	26.42	Nov'15	27.71	Dec'15	25	Jan'16	23.42	Feb'16	25.14	Mar'16	26.28	AVG	25.66
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iii.	<p><i>Continuous stack monitoring facilities for all the major stacks and adequate air pollution control systems shall be provided to control air emissions within 100 mg/Nm3 and reports submitted to the Ministry's Regional Office at the Bhubaneswar, WBPCB & CPCB.</i></p>																																
Com	<ul style="list-style-type: none"> On-line stack monitoring, the Opacity meter has been commissioned in all Chimney. The Stack emission report for last six month (Oct 15 – April 16) as per opacity meter is enclosed as <u>ANNEXURE – 2</u>. Regular stack monitoring is done by registered third party. 																																

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<p>iv.</p>	<p><i>Fugitive emissions from coal handling plant shall be controlled by sprinkling water. Dry fogging system shall be installed at all the transfer points. In-plant control measures like bag filters, de-dusting and dust suppression system shall be provided to control fugitive emissions from all the vulnerable sources including material handling areas and material transfer points.</i></p>
<p>Com</p>	<ul style="list-style-type: none"> Besides the continuous water sprinkling at coal handling plant and all transfer point; the Dust Suppression System with Dry Fogging (DF) has been commissioned. In Wagon Tippler, Coal crusher unit and all the coal transfer points the DF and dust suppression system is operational. Dry fog system for coal and coke handling to restrict particulate emission to within 10 mg per cu m have been installed. The system has been installed at Wagon tippler unit, coal crusher unit, Coal / coke transfer points like Junction House # 5 (Cl#7 belt discharge pt., CL#8 belt receiving pt.); Junction House # A (WCK#1, 2 belt discharge pt. WCK#3 belt receiving pt.); Junction House # B (WCK#3 belt discharge pt. RCK#1, CK#1 belt receiving pt.); Junction House # C (WCK#5, 6 belt discharge pt. CK#7 belt receiving pt.); Junction House # D (WCK#7, RCK#3 belt discharge pt. CK#1 belt receiving pt.); Screen House. In last six month 5 numbers of DF points have been constructed in coal handling area at Junction House # 1, 2 & 2A. Regular maintenance is being done for making this system effective <div style="display: flex; justify-content: space-around;">   </div> <ul style="list-style-type: none"> More than 2.5 Kilometers of the road inside the material handling area has been paved to reduce the dust generation. The total coal yard (area of 25000 sq. Mt.) has also been concreted in order to prevent the dust generation. Movable water tanker with sprinkling arrangement is used for water sprinkling purpose in the road within factory and in the periphery area and also the mechanised Mobile Vacuum Cleaning system is being used regularly for arresting the fugitive emission All around the stock yard the boundary wall has been constructed to restrict the dust flowing outside the factory. The average height of the wall is 5 mt. 30 numbers of the “Rain Gun Water Sprinklers” have been installed in the coal yard to prevent the generation of fugitive emission from the coal heap. These sprinklers can rotate at 360° and can spray the water at a radius of 15 meter. The height of the sprinklers are approx 2.6 mt. <div style="text-align: center;">  </div>

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	<ul style="list-style-type: none"> The workplace air quality, as well as ambient air quality (PM₁₀ & PM_{2.5}) is being monitored at the regular intervals, summary of the same is given in subsequent paragraphs. The ambient air monitoring for 12 parameters as per National AAQ standard have also been done. The details data are enclosed as : <u>ANNEXURE 1</u>
v.	<i>Secondary fugitive emissions shall be controlled within the prescribed limits, regularly monitored and records maintained. Guidelines / Code of Practice issued by the CPCB in this regard shall be followed.</i>
Com	<ul style="list-style-type: none"> The ovens work under the negative pressure so secondary fugitive emissions are negligible in this non recovery coke making technology All workers are being provided with PPEs for protection HMC is following the CPCB guidelines so far the non recovery coke oven plant operation is being concerned. Positive sealing arrangements has been provided in the oven doors and flue gas pipes/valves Gaseous emissions are monitored regularly; corrective action taken whenever the results found crossing the limit.
vi.	<i>Total requirement of the water from Haldia Development Authority for coke oven and WHRB shall not exceed 5,300 m³/day and 13,750 m³/day respectively. The effluent shall be treated in the effluent treatment plant and all the treated wastewater shall be recycled and reused either in the process or for dust suppression or green belt development. No wastewater shall be discharged outside the factory premises and 'Zero' discharge shall be adopted. Domestic effluent shall be treated in sewage treatment plant (STP) and disposed off as per norms laid down by Haldia Municipal Corporation.</i>
Com	<ul style="list-style-type: none"> The average water taken from HDA as make-up water during Oct'15 to March'16 was 1558 m³/day approximately for coke oven (Tata Steel, Hooghly Met coke) and 7983.3 m³/day approximately for WHRB (Tata Power) which is within the permissible limit granted by the MOEF. The detail water consumption report is enclosed as : <u>ANNEXURE 3</u> The processed water is being tested and recycled and used for coke quenching and for green belt development within the plant. Initiatives taken for achieving Zero Discharge are: <ul style="list-style-type: none"> A Storm water pond has been developed. The capacity of the pond is 4000 Cu mt (approx). Pipe line has been laid in all 4 rows for use the same water for coke Quenching purpose Pump has been installed at the end of Row#4 drain final outlet to re-circulated the water in the quenching pond . As the unit is not having any township inside the factory premises no domestic effluent has been generated at the company's scope so STP has not been provided separately. The canteen waste water is being recycled in the process itself. The unit is being facilitated with Septic Tank , inside the factory premises for treating the domestic effluent
vii.	<i>Permission for the drawl of water from Haldia Development Authority shall be obtained and recommendations implemented.</i>
Com	<ul style="list-style-type: none"> HMC is purchasing the water from M/S Haldia Water Management Limited . An agreement between Haldia Development Authority and HMCPCL had taken place on 01 March 2007 , Ref no: 04AA 789559

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	<ul style="list-style-type: none"> Water Cess being paid to WBPCB at regular basis (last cess paid in March 2016 for the Assessment period 01/04/2015 to 30/11/2015 against the invoice raised by WBPCB).
viii.	<i>Coal and coke fines shall be recycled and reused in the process. All the other solid waste including broken refractory mass shall be properly disposed off in environment-friendly manner. The waste oil shall be properly disposed off as per the Hazardous Waste (Management & Handling) Rules, 1989 and subsequent amendments.</i>
Com	<ul style="list-style-type: none"> Coal fines are reused and coke sludge is being sold (100%) to the coke briquette manufacturer for using as industrial fuel. The waste oil is being sent to the authorized re-processor. The oil soaked jute/cotton waste generated from the process is being incinerated in the coke oven batteries and burnt at the temp of 1000 - 1200 °C for 66 hours The used oil generated from the process is being sent to authorized reprocessor The ceramic blankets are being disposed to the authorized TSDF.
ix.	<i>All the environment management measures given in the EIA/EMP shall be implemented and complied with.</i>
Com	<ul style="list-style-type: none"> Implementation of protection measures as indicated in the REIA are implemented. Online stack monitoring systems are being commissioned. For dust suppression DF system has been installed. Acoustic enclosures / barriers / shields are being used to reduce noise, providing the personal protective equipments like ear plugs/ muffs etc are also being provided.
x.	<i>As proposed, green belt shall be developed in 27 % area as per the CPCB guidelines in consultation with DFO.</i>
Com	<ul style="list-style-type: none"> Nearly 17.67 hector area is being considered as Green belt. Total 28264 number of trees are surviving as on date under Tata Steel scope. Approximately 2000 trees are existing within Tata Power scope which adds another 1.3 hector area. Total Green Belt area is 26.16% of the total 72.5 hector plant area. The areas where tree plantation are not feasible, and also not required to be paved, are being covered with grass, hedges and low bushes with flowering trees for beautification and to avoid soil erosion. The details of the trees planted are given below. Every year plantation done in available space. The detail plantation done till date is enclosed as ANNEXURE : 5
B.	GENERAL CONDITIONS
i.	<i>The project authority shall adhere to the stipulations made by West Bengal Pollution Control Board (WBPCB) and State Government.</i>
Com	Complied.
ii.	<i>No further expansion or modification of the plant shall be carried out without prior approval of this Ministry.</i>
Com	For further expansion of the project proper application in Form 1 has been submitted to MOEF on May 2014 and TOR presentation to EAC has been done on August 2014. REIA report has been completed and submitted to MOEF website. EC presentation has been done to EAC member on November 2015. The EAC members have raised some quarry. The reply against each quarry is under preparation which to be represented again to the EAC members. Further expansion will be carried out only after receiving the approval of the Ministry
iii.	<i>The gaseous emissions from various process units shall conform to the load/mass based standards notified by this Ministry on 19th May, 1993 and standards prescribed from time to time. The West Bengal Pollution Control Board (WBPCB) may specify more stringent standards for</i>

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	<i>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.</i>
Com	Complying all the conditions stipulated by WBPCB.
iv.	<i>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 Ministry's Regional Office at the Bhubaneswar, WBPCB & CPCB regularly. The instruments used for ambient air quality monitoring shall be calibrated time to time.</i>
Com	<ul style="list-style-type: none"> Order has been placed to M/S Chemptrol India Pvt. Ltd. for installation of one Ambient Air Quality monitoring station within the plant. Commissioning is under process Different areas have been identified within the factory premises where Ambient Air Quality is being tested at a regular basis. Beside this the Work zone air quality also being tested at a regular basis by the certified 3rd party accredited by WBPCB. The summary is enclosed. ANNEXURE 1 All the tests being carried out by third party registered by WBPCB Regular noise monitoring also been done by the accredited 3rd party. The half yearly data are being submitted to Ministry's Regional Office at the Bhubaneswar, WBPCB, Haldia office. The instruments used for ambient air quality monitoring by the accredited 3rd party is being calibrated time to time and the calibration certificates are collected from the party.
v.	<i>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).</i>
Com	<ul style="list-style-type: none"> The noise level inside the plant has been recorded between specified limit The control measures such as; silencers, enclosures, hoods, rubber pads, have been provided at the appropriate places in the existing plant. The work areas where noise levels are high, earplugs and earmuffs have been provided to reduce the noise exposure. The detail report is enclosed as ANNEXURE - 4
vi.	<i>Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.</i>
Com	<ul style="list-style-type: none"> The health surveillance is being done as per Factory Act. Up to March 2016, PME (Periodical Medical Examination) has been done for more than 90% of company employees (342 employees). Records are maintained at the Occupational Health Centre. Health check up for contractors persons are conducted regularly during the time of the renewal of the respective gate pass. 100% checkup happened for contractor employees and records are being maintained at the OHC.
vii.	<i>All the recommendations mentioned in the Corporate Responsibility for Environmental Protection (CREP) of CPCB issued for the steel plants shall be implemented</i>
Com	<ul style="list-style-type: none"> The CREP has been implemented by Tata Steel - JSR works since this unit is the stand alone coke making unit only. The coke is being transferred to JSR H Blast furnace for making the steel. The integrated steel work is at Jamshedpur The company follows the Tata Steel CSR policy At HMC a separate CSR committee that executes various activities like, free medical checkup and

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medicine distribution camp for children, eye testing camp and free spectacle distribution, school books, teaching aids, school bags, winter cloths distribution to BPL people, infrastructure development for local school like Toilets for Girls, septic tank, water tank, boundary fencing for the school boundary, electrification arrangement and fittings, desks and chairs and tables for the students etc have been done. Regular monthly CSR activity has been planned and executed.

CSR Activity Plan FY'16:

Activities	Apr '15	May '15	Jun '15	Jul '15	Aug '15	Sep '15	Oct '15	Nov '15	Dec '15	Jan '16	Feb '16	Mar '16
Free Medical check-up-camp in Schools												
Awareness on General Hygiene / Natural Resources												
Free Eye Check-up camp												
Inter-school Quiz Contest												
Road Safety, Domestic Safety & General Safety for school children												
Infrastructure Development												
Aid for deaf & dumb school children												
Art Workshop for Children												
Furniture to School												
Toilets for schools												
Community development (Sports Events)												
Distribution of Winter Garments												
Distribution of Teaching Aid												

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

Com

- The local people nearly 256 people as permanent employee and over 1000 as contractual employees are being employed by the company.
- As a part of welfare activity, 5 nos of primary schools, mainly for BPL people, have been considered. Some infrastructural development like making toilets for girls, boundary wall around the school, electrification jobs, school furniture etc are being done.
- More than Rs. 18 lakhs had been spent for CSR and welfare activity in FY'16 by HMC division. Tata power organises separate CSR activities and they have separate fund for CSR activities
- HMC unit is not a profit centre of Tata Steel Ltd. In the FY 16 Total budget of Rs. 16 lakhs have been allocated (Rs 1 / ton of coke production) in order to spend for community welfare and CSR activity.
- For community development some infrastructural development in the neighboring area has been planned like infrastructural improvement in the local community
- Programmes like construction of Girls toilets, electrification of school building, tree plantation at schools, distribution of Library books and teaching aids, educational aids free medical camps for school children, free eye camp for local people, distribution of winter garments etc were conducted within 4 km radius of the factory in H2 of FY'16

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Construction of Girls Toilet : Location : Doro Sovarampur High School



Distribution of Library Books & Geographical Items at Solat Mahendra Balika Vidyabhavan



Free Medical Camp at Prathomik Bibhag Debhog High



Toilet Block (Boys & Girls) at Shruti (School for Deaf & Dumb)



Distribution of Winter Garment's at Prathomik Bibhag Debhog High & Solat Mahendra Primary School

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Electrification & Fixing of Fan at Prathomik Bibhag Debhog High



Distribution of Educational Aid at Jojo Club, Ranichak



Free Eye Camp at Sudhir Institute



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ix.	<p>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.</p>
Com	<ul style="list-style-type: none"> A Storm water pond has been developed. The capacity of the pond is 4000 Cu mt (approx). During rain, the roof water from all building like ADM building / Store / Laboratory / pump house are collected in a common storm water drain and this water is collected in the storm water pond. Four number of pumps were commissioned for pumping to QT. Pipe line of 3 KM has been laid in all 4 rows for using this water for coke quenching and other purposes like gardening, water spraying in the road, water sprinkling system etc. <div style="display: flex; justify-content: space-around;">   </div>
x.	<p>Proper house keeping and adequate occupational health programmes shall be taken up.</p>
Com	<ul style="list-style-type: none"> Separate agency has been appointed for removal of scarps and maintaining proper housekeeping within the plant and for cleaning activity. For storage of waste “COLORED BINS” have been provided at various location Impervious pit has been constructed for storing the hazardous waste Mobile vacuum cleaning machine is also being used at a regular interval for evacuating the dust particles TPM initiatives has been started by the shop floor employees in terms of improving the house keeping at shop floor. Identifying KAIZENS and conducting 1s & 2s has been initiated. Regular Housekeeping Audit is being conducted to improve the housekeeping in the plant
xi.	<p>A separate environmental management cell to carry out various management and monitoring functions shall be set up under the control of Senior Executive.</p>
Com	<p>Tata Steel Ltd., HMC Division have an Environmental Management Section (EMS) with a permanent qualified designated employee at a Senior Manager level, reports directly to the General Manager of the unit, to supervise the environmental activities and environmental management programmes. This section co-ordinates and provides necessary services on environmental issues of the entire unit. This section is responsible for implementation of Environmental Management Plan and interaction with the environmental regulatory agencies, reviewing policy and planning and mitigates all statutory compliances. This section interacts with State Environment Department, Ministry of Environment & Forests (MoEF), Central Pollution Control Board (CPCB), West Bengal Pollution Control Board (WBPCB) and other environment regulatory agencies.</p> <p>The major responsibilities of the EMS includes:</p>

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	<ul style="list-style-type: none"> • Obtaining Consent from WBPCB. • Environmental monitoring • Analysis of environment data, reports, preparations and transmission of report to statutory authorities, Corporate cell etc. • Compliance with guidelines and statutory requirements. • Coordination with statutory bodies, functional groups of the unit, Corporate Environment Management Cell • Interaction for evolving and implementation of modification programmes to improve the availability / efficiency of pollution control devices / systems. • Environmental Appraisal (Internal) and Environmental Audit. <p>The Corporate Environment Management Cell of Tata Steel, Jamshedpur works, headed by Chief – Environment and respective Heads – Environment also monitors and supervises the environmental activities of the HMC division at a regular basis.</p> <p>Tata Power has a separate Environment Management Cell for monitoring environmental activities and statutory compliances in terms of power generation and distribution</p>																								
xii.	<i>Adequate funds shall be allocated towards the capital cost and recurring cost/annum environmental pollution control measures and utilized judiciously 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.</i>																								
Com	<p>In HMC, Separate Fund is allocated for carrying out continuous water spraying & sprinkling system, mobile vacuum cleaning system, within the plant area for controlling dust, installation & regular maintenance of DF system to control fugitive emission, installing Online ambient air quality monitoring system etc. Fund for Green Belt development and CSR activity have also being allocated which are used in a planned manner.</p> <table border="1"> <thead> <tr> <th>SI No.</th> <th>Items</th> <th>Amount Spent (in FY'16)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Water sprinkling on the road for dust suppression</td> <td>Rs. 26 Lakhs</td> </tr> <tr> <td>2</td> <td>For cleaning/ housekeeping</td> <td>Rs. 196 Lakhs</td> </tr> <tr> <td>3</td> <td>Installation of DF and Maintenance and spares for Dry Fog system</td> <td>Rs. 24 Lakhs</td> </tr> <tr> <td>4</td> <td>Green belt maintenance</td> <td>Rs. 28 Lakhs</td> </tr> <tr> <td>5</td> <td>Environment Parameters monitoring</td> <td>Rs. 5 Lakhs</td> </tr> <tr> <td>6</td> <td>Online Ambient Air Monitoring Station</td> <td>Rs. 85 Lakhs</td> </tr> <tr> <td></td> <td>TOTAL EXPENSES</td> <td>Rs. 364 Lakhs</td> </tr> </tbody> </table>	SI No.	Items	Amount Spent (in FY'16)	1	Water sprinkling on the road for dust suppression	Rs. 26 Lakhs	2	For cleaning/ housekeeping	Rs. 196 Lakhs	3	Installation of DF and Maintenance and spares for Dry Fog system	Rs. 24 Lakhs	4	Green belt maintenance	Rs. 28 Lakhs	5	Environment Parameters monitoring	Rs. 5 Lakhs	6	Online Ambient Air Monitoring Station	Rs. 85 Lakhs		TOTAL EXPENSES	Rs. 364 Lakhs
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xiii.	<i>The Regional Office of this Ministry at Bhubaneswar / CPCB / WBPCB shall monitor the stipulated conditions. A six monthly compliance report and the monitored data alongwith statistical interpretation shall be submitted to them regularly.</i>																								
Com	<ul style="list-style-type: none"> • Environment Audit Report FY 14 –15 had been submitted to WBPCB on 29 September 2015 • Six monthly environmental performance monitoring Report for April 2015 – September 2015 has also been submitted to MOEF, Regional Office, Bhubaneswar on December 2015 via email and hard copy has also been couriered. The same report has been submitted to WBPCB office also. 																								
xiv.	<i>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.</i>																								

M/s Tata Steel Ltd, Hooghly Met Coke Division, Haldia

Compliance to Conditions stipulated in Environmental Clearance for Coke Oven Plant (1.6 MTPA) & WHRB (120 MW) at Haldia, East Midnapur, West Bengal from MoEF, New Delhi on 29th January, 2007 vide letter# F. No. J-11011//284/07- IA II (I)

Period –October 2015 – March 2016

Com	<ul style="list-style-type: none"> • All required information has been intimated to WBPCB while obtaining Consent to Operate. • The validity of Consent to Operate is up to 31 May 2017.
xv.	<p><i>The Project Proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the W. B. Pollution Control Board / Committee and may also be seen at Website of the 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</i></p> <p><i>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.</i></p>
Com	<ul style="list-style-type: none"> • Communication regarding grant of environment clearance were given to the community on 08.03.2008 through newspaper advertisements. Details of which are given below. <ul style="list-style-type: none"> ○ Financial Express – (English Adv.) / Aajkal – (Bengali Adv.) dated 08.03.2008. • The compliance of the same was informed to MoEF (Regional Office – Bhubaneswar) through letter dated 11.03.08 by post.

M/s Tata Steel Ltd, Hooghly Met Coke Division, Haldia

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Period –October 2015 – March 2016

AMBIENT AIR QUALITY SUMMERY REPORT**ANNEXURE - 1**

Name : M/s. Tata Steel Ltd., Hooghly Met Coke Div.

Address : HFC Complex, Patikhali, Haldia, Purba Medinipur

Ambient Air Quality

Parameters	Std ($\mu\text{g}/\text{m}^3$)	LOCATIONS							
		Near OHC / Canteen	Near Rest Room	Near QC Lab	Near Electrical Sub Station	Opposite BHEL Shed (Pump House)	Near Simplex Gate	Near Engineering Store	Near Patikhali Gate
PM ₁₀	100	72.03	65.07	89.36	66.91	88.3	81.38	79.36	76.98
PM _{2.5}	60	30.53	25.19	39.04	22.64	30.98	31.1	29.59	26.72
SO ₂	80	12.88	12	19.99	12.88	16.68	11.6	12.54	14.6
Nox	80	23.49	24.56	36.3	28.83	36.31	29.11	28.58	34.4

Work Zone Air Quality

LOCATION	SPM		RPM		SO ₂		NO ₂	
	STD.	ACTUAL	STD.	ACTUAL	STD.	ACTUAL	STD.	ACTUAL
Wagon Tippler	10 mg/m ³	1.156	5 mg/m ³	0.349	5 mg/m ³	0.019	6 mg/m ³	0.041
Crusher house	10 mg/m ³	0.738	5 mg/m ³	0.311	5 mg/m ³	0.016	6 mg/m ³	0.037
Junction House # 8	10 mg/m ³	1.154	5 mg/m ³	0.31	5 mg/m ³	0.02	6 mg/m ³	0.02
Blending Bunker	10 mg/m ³	0.722	5 mg/m ³	0.215	5 mg/m ³	0.017	6 mg/m ³	0.038
End Bench of Row#1	10 mg/m ³	0.518	5 mg/m ³	0.207	5 mg/m ³	0.015	6 mg/m ³	0.032
End Bench of Row#2	10 mg/m ³	0.604	5 mg/m ³	0.275	5 mg/m ³	0.016	6 mg/m ³	0.037
End Bench of Row#3	10 mg/m ³	0.93	5 mg/m ³	0.417	5 mg/m ³	0.014	6 mg/m ³	0.037
End Bench of Row#4	10 mg/m ³	0.683	5 mg/m ³	0.272	5 mg/m ³	0.013	6 mg/m ³	0.035

M/s Tata Steel Ltd, Hooghly Met Coke Division, Haldia

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Period – October 2015 – March 2016

Ambient Air Monitoring for 12 Parameters

(CPCB, Emission Regulation (Part III), IS: 5182 (Part – 4) 1999, IS: 5182 (Part – 2), 2001, IS: 5182 (Part – 6), 1975, Reaffirmed 1998, UV Photometric Method, Non-Dispersive Infrared Spectrometry Method, Soxhlet Extraction and GC analysis, Atomic Absorption Spectrophotometric Method & UV Photometric Method for Ozone monitoring)

LOCATION – 1 : Canteen

Time of Sampling	Concentration ($\mu\text{g} / \text{m}^3$)								Concentration (ng / m^3)		
	PM ₁₀	PM _{2.5}	SO ₂	NO ₂	Pb	Benzene	NH ₃	CO	Benzo(a) Pyrene	As	Ni
10:30 AM to 06:30 PM	48.87	17.65	10.73	14.66	BDL	BDL	BDL	0.1216	BDL	BDL	BDL
06:45 PM to 02:45 AM	43.04	15.58	9.17	15.63	BDL	BDL	BDL	0.0825	BDL	BDL	BDL
03:00 AM to 11:00 AM	36.98	13	8.25	12.7	BDL	BDL	BDL	0.1348	BDL	BDL	BDL
Time					Concentration ($\mu\text{g} / \text{m}^3$)						
					Ozone as O ₃ (Limit = 100 $\mu\text{g} / \text{m}^3$)						
9:30 AM to 5:30 PM					15						

LOCATION – 2 : Near Main Simplex Gate

Time of Sampling	Concentration ($\mu\text{g} / \text{m}^3$)								Concentration (ng / m^3)		
	PM ₁₀	PM _{2.5}	SO ₂	NO ₂	Pb	Benzene	NH ₃	CO	Benzo(a) Pyrene	As	Ni
10:00 AM to 06:00 PM	86.91	50.19	18.2	31.07	BDL	BDL	BDL	0.4017	BDL	BDL	BDL
06:15 PM to 02:15 AM	77.46	44.17	15.47	27.97	BDL	BDL	BDL	0.3512	BDL	BDL	BDL
02:30 AM to 10:30 AM	72.73	41.56	16.38	29	BDL	BDL	BDL	0.6511	BDL	BDL	BDL
Time					Concentration ($\mu\text{g} / \text{m}^3$)						
					Ozone as O ₃ (Limit = 100 $\mu\text{g} / \text{m}^3$)						
9:30 AM to 5:30 PM					27.5						

M/s Tata Steel Ltd, Hooghly Met Coke Division, Haldia

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Period –October 2015 – March 2016

ANNEXURE -2**STACK SUMMERY REPORT (October 2015 - March 2016)**

Name : M/s. Tata Steel Ltd, Hooghly Met Coke Div.

Address : HFC Complex, Patikhali, Haldia, Purba Medinipur

Date of sampling	Location	Particulate Matter	PM (mg/Nm ³) (6% CO ₂ (V/V))
09.10.2015	Chimney 2 CD	17.0 at 5% CO ₂	20
09.10.2015	Chimney 4 CD	21.0 at 5.2% CO ₂	24
05.11.2015	Chimney 1 AB	18.0 at 4.8% CO ₂	23
05.11.2015	Chimney 1 CD	21.0 at 5% CO ₂	25
23.11.2015	Chimney 4 AB	11.0 at 5.2% CO ₂	13
23.11.2015	Chimney 4 CD	22.0 at 5.2% CO ₂	25
04.12.2015	Chimney 2 AB	17.0 at 5% CO ₂	20
04.12.2015	Chimney 2 CD	23.0 at 5% CO ₂	27
23.12.2015	Chimney 3 AB	14.0 at 5% CO ₂	17
23.12.2015	Chimney 3 CD	19.0 at 5.2% CO ₂	22
19.01.2016	Chimney 4 AB	19.0 at 5% CO ₂	23
19.01.2016	Chimney 4 CD	13.0 at 5.2% CO ₂	15
04.02.2016	Chimney 1 CD	18.0 at 5.4 % CO ₂	20
04.02.2016	Chimney 1 AB	22.0 at 5.2 % CO ₂	25
18.02.2016	Chimney 2 AB	12.0 at 4.8 % CO ₂	15
18.02.2016	Chimney 3 AB	24.0 at 5.0 % CO ₂	29
02.03.2016	Chimney 2 AB	27.0 at 4.8 % CO ₂	34
02.03.2016	Chimney 4 AB	20.0 at 5.0 % CO ₂	24
17.03.2016	Chimney 3 CD	18.0 at 4.8% CO ₂	23
17.03.2016	Chimney 4 CD	20.0 at 5.0 % CO ₂	24

OPACITY METER READING (AVG)

Period : October 2015 - March 2016

	Chimney 1 CD	Chimney 2 AB	Chimney 2 CD	Chimney 3 AB	Chimney 3 CD	Chimney 4 AB	Chimney 4 CD	AVG
Oct '15	44	19	26	20	32	20	24	26.42857
Nov '15	37	33	26	17	38	21	22	27.71429
Dec '15	35	44	25	16	17	19	19	25
Jan '16	31	36	25	14	21	17	20	23.42857
Feb '16	30	31	27	19	27	20	22	25.14286
Mar '16	31	30	27	14	20	33	29	26.28571

M/s Tata Steel Ltd, Hooghly Met Coke Division, Haldia

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Period –October 2015 – March 2016

ANNEXURE -3

WATER CONSUMPTION
Period : October 2015 - March 2016

Name : M/s. Tata Steel Ltd, Hooghly Met Coke Div.

Address : HFC Complex, Patikhali, Haldia, Purba Medinipur

MONTH	YEAR	HMC (CUBIC MTR)	TPC (CUBIC MTR.)	WATER CONSUMED PER DAY (HMC)	WATER CONSUMED PER DAY (TPC)	TOTAL WATER CONSUMED (CUBIC MTR/MONTH)	TOTAL WATER CONSUMED PER DAY (HMC & TPC)
October	2015	29478	265715	950.90	8571.45	295193.00	9522.35
November	2015	58152	249106	1938.40	8303.53	307258.00	10241.93
December	2015	43832	242953	1413.94	7837.19	286785.00	9251.13
January	2016	54738	219748	1765.74	7088.65	274486.00	8854.39
February	2016	32908	226541	1134.76	7811.76	259449.00	8946.52
March	2016	66499	256912	2145.13	8287.48	323411.00	10432.61

M/s Tata Steel Ltd, Hooghly Met Coke Division, Haldia

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Period –October 2015 – March 2016

AMBIENT NOISE SUMMERY REPORT (DAY & NIGHT)**ANNEXURE -4****Period : October 2015 - March 2016**

Name : M/s. Tata Steel Ltd, Hooghly Met Coke Div.

Address : HFC Complex, Patikhali, Haldia, Purba Medinipur

AMBIENT NOISE SUMMERY REPORT

Location	(Limit = 75 dBA)
Near Simplex Gate	63.45
In Front of New Administrative Building	52.72
Near Patikhali Gate	66.1
In front of Engineering Store	57.60
North Side of LCR	73.3
Near Rest Room	63.5
North side of CCSS	68

WORK ZONE NOISE SUMMERY REPORT (as per Factory Act)

Location	(Limit = 85 dBA)
Wagon Tippler	83.4
Blending Bunker	82.3
Crusher Motor Floor (no man area)	85
Junction House # 8	77.71
End Bench of Quenching Row # 4	78.9

M/s Tata Steel Ltd, Hooghly Met Coke Division, Haldia

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Period –October 2015 – March 2016

Details of Tree Plantation at HMC Site:**ANNEXURE - 5**

Sl. No.	Location	Existing numbers
1	Tippler Side along the boundary wall	326
2	Patikhali canal - both side	1423
3	Wagon Loader - Across boundary wall	1253
4	Simplex Gate	1558
5	Back side of Scrap yard	230
6	Coke Yard	2553
7	Central Avenue surrounding	1397
8	CCR surrounding area	1252
9	Patikhali Main gate to watch tower & east boundary wall	465
10	Near TPC ADM building	87
11	Hooghly Road	187
12	Boiler surrounded area	1700
13	Back side of new ADM building	235
14	Western Avenue Road both side, south side wall and in front of CCSS	1500
15	Around Storm water pond	367
16	"Green Haldia : Clean Haldia" project	1000
17	Trees planted near weigh bridge / across the road at the southern part of the plant	327
18	Boiler surrounding area in all 4 rows	3300
19	Chimney surrounded area	1200
20	Row#2 and 3 Quenching surrounded area	5200
21	Back side of Canteen / OHC / rest room	900
22	Water Storage Tank surrounded area	418
23	End of CL#4 & Surrounding	223
24	South side boundary wall	1163
25	Plantation done by Tata Power	1925
TOTAL		30189