



The Additional P.C.C.F. (Central)
Eastern Regional Office
Ministry of Environment, Forests & Climate Change
Government of India
A/3, Chandrashekharpur,
Bhubaneswar – 751 023, Odisha

KPO/Env/C-05/46/2017
Date: 30.11.2017

Dear Sir,

Sub.: Six monthly Compliance Report for Apr-17 to Sep-17 for Environmental Clearances in respect of 6.0 MTPA Integrated Steel Plant of M/s. Tata Steel at Kalinganagar Industrial Complex, Duburi, Dist. Jajpur, Odisha.

Ref.: EC Granted by MoEF vide Letter No. J-110117/2006-IA-II(I) dated 7.11.2006.
: Amendments in EC granted by MoEF vide Letters No. J-110117/2006-IA-II (I) dated 10.12.2012, 13.05.2015 and 20.12.2016.

Kindly find enclosed Six Monthly Compliance Report for the period from April 2017 to September 2017 for the conditions stipulated in Environmental Clearance including amendments granted in EC to 6.0 MTPA Integrated Steel Plant of Tata Steel Limited at Duburi, Dist. Jajpur, Odisha for your kind considerations.

Copy of the compliance report is also being sent in soft format through e-mail (roe2.bsr-mef@nic.in), for your kind perusal.

We trust the information furnished is in line with your requirement.

Thanking you,

Yours faithfully,


U S Parkhi
Head, Environment, KPO

Encl. a/a

Copy to MS, OSPCB, Bhubaneswar / CPCB Kolkata



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Six Monthly Environment Compliance Report
Apr' 2017 to Sep' 2017
For
Integrated Steel Plant Project of Tata Steel
At
Duburi, Dist. Jajpur, Odisha



Environment Department
Tata Steel Limited
Kalinganagar Industrial Complex
Duburi- 755026
Dist Jajpur, Odisha

**Six Monthly Compliance Status (Apr'17 to Sep'17) of Environmental Clearance including Amendment in EC for 6.0 MTPA Integrated Steel Plant at Kalinganagar, Duburi, District-Jajpur
7th Nov 2006, 10th Oct 2012, 13th May 2015 and 20th Dec 2016**

A	Specific Conditions as per EC dated 7.11.2006	Compliance status as on 30.09.2017
i)	<p>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 state Boards may specify more stringent standards for the relevant parameters keeping in view the nature of the industry and its size and location. At no time, the emission level shall go beyond the prescribed standards. On-line continuous monitoring system shall be installed in stacks to monitor SPM and interlocking facilities shall be provided so that process can be automatically stopped in case emission level exceeds the limit. Nox burners shall be installed to control NOx levels. VOCs from the coke oven shall be monitored and controlled as per CPCB guidelines. The new standards prescribed by the CPCB for coke oven plants shall be strictly followed.</p>	<ul style="list-style-type: none"> • All the process units, Coke Plant, Sinter Plant, Blast Furnaces, Steel Melting Shop (SMS), CPP, Lime Plant and Hot Strip Mill have been designed conforming to the load/mass standards notified by the Ministry in order to have the gaseous emissions under control and below the prescribed limits. • Online continuous stack monitoring systems have been installed at all the major stacks of Coke Plant Battery No.1 and 2, Sinter Plant, BF, SMS, LCP and HSM to monitor stack particulate emission levels. • The units are in operation and emission levels were found within prescribed norms. • VOC from coke plant is controlled by On-main charging by HPLA, Hydraulic doors, Door sealing, Door frame cleaner, etc. as per CPCB guidelines and the systems for both the Battery No. 1 as well as Battery -2 are in operations. • Low NOx burners are installed at CPP (8 Nos for each boilers in all three boilers) and in HSM reheating furnace (84 Nos) • New standards prescribed by CPCB (31.03.2012) for coke ovens are being followed.
ii.	<p>In-plant control measures for checking fugitive emissions from all the vulnerable sources like coke oven area, Sinter Plant, BF case house, BF stack house, and BOF shop etc. shall be provided. Further, specific measures like water sprinkling and dry fogging (DF) shall be carried out at the stock piles of raw materials, stacker reclaimer, conveyor transfer points and vibrating screens etc. Dust extraction system and bag filter shall be provided for room air cleaning such as sinter plant stock house, BF stock house and BF cast house, BOF shop and Ferro-alloys handling area in steel melting shop etc. Fume extraction system in steel refining units shall also be provided. Centralized de-dusting system i.e. collection of fugitive emissions through suction hood and subsequent treatment through bag filter or any other device and finally emitted through a stack of appropriately designed and height conforming to the standards for induction furnaces in the industry shall be provided. Fugitive emissions shall be controlled, regularly monitored and records maintained.</p>	<ul style="list-style-type: none"> • In plant control measures (like Dust extraction systems- DES, Dust Suppression System- DSS and Dry Fog dust suppression systems- DFDS) are controlling fugitive emissions from all the vulnerable sources like coke oven area, Sinter Plant, BF case house, BF stack house, and BOF shop etc. • Further specific measures like water sprinkling arrangement at stock piles of raw materials, stacker reclaimer, DE, DSS and DFDS at conveyor transfer points and vibrating screens etc. have been made to control fugitive dusts from these sources. • Dust extraction system followed by De-dusting ESP has been provided at Sinter Plant. At Blast Furnace Cast house and Stock house, separate dust extraction systems followed by ESPs have been provided. In SMS, secondary de-dusting unit (Cyclone separator followed by ESP) has been provided. Fume extraction system in steel refining units has been provided. All the stacks have been designed and installed to meet the requirement of stack heights as per guidelines, for proper dispersion and dilution of pollutants • In addition to above, specific measures carried out to control of fugitive emissions from other sources are:-

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		<ul style="list-style-type: none"> ○ Mechanized dust sweeping machines are deployed on roads and other areas. ○ Water sprinkling on roads is being done through truck mounted water tankers to suppress road dust due to vehicular movement. ○ To suppress fine dusts, specially designed vehicle for mist type sprinkling of water (through movable High Pressure Mechanized Water jet) has been deployed. ○ Speed limits are enforced for movement of vehicles at the site. ○ Roads (about 22 kms) within the plant site are metaled.
A	Specific Conditions as per EC dated 7.11.2006	Compliance status as on 30.09.2017
iii.	ESP shall be provided to sinter plant and blast furnace. New standards prescribed by the CPCB for coke oven shall be strictly followed. The Company shall install Waste Heat Recovery Boilers (WHRB) to recover the waste heat and generate power from the steam produces by the WHRB. The particulate emissions from the WHRB shall be controlled by installation of ESP as per CPCB specification and particulate emissions shall not exceed 50mg/Nm ³ . Further, the company shall install bag filter, After Burner Chamber (ABC), suction hood, dust extraction device and fume extraction system to control gaseous emissions from the WHRB.	<ul style="list-style-type: none"> ● ESPs with higher efficiency have been provided to Sinter plants, Blast Furnaces, SMS etc. ● Coke oven plant is designed to comply with new standards prescribed by CPCB for Coke Oven. ● Waste Heat Recovery Boilers (WHRB) have been installed to recover waste heat which in turn shall be used for in-house power generation from the steam produces by WHRB. ● Pollution Control Systems have been designed as per CPCB guidelines to control PM emissions below 50 mg/Nm³.
iv.	Total requirement of the water from Brahmani /Kharasua river shall not exceed 26.5 MGD. No ground water shall be drawn and used for the plant. The effluent quantity into the industrial drain leading to the Gonda Nalla shall not exceed 92m ³ /hr and shall conform to the prescribed standards. Ammonia, phenol and cyanide in the effluent should be treated separately and discharged only after meeting the norms prescribed by the OSPCB/CPCB/Ministry under E(P) Act. Cyanide shall meet the standard of 0.2 ppm. TDS in the effluent discharged shall not be more than 2,100 mg/l. The domestic wastewater after treatment in STP shall be used for green belt development.	<ul style="list-style-type: none"> ● Make up water requirement for the plant is <26.5 MGD. Present water consumption is around 9 MGD only. ● Total effluent discharge envisaged is < 92 m³/hr and it meets the standards prescribed by MoEF/ CPCB/OSPCB before discharge into Ganda Nalla. ● Ammonia, Phenol, Cyanide from Coke Oven plant is treated separately in BOD plant meant for the treatment of effluent generated from Coke Plant. The BOD plant is in operation. ● For Domestic wastewater there is a STP. ● Treated water is utilized for plantation. ● No groundwater is used for plant operations.
A	Specific Conditions as per EC dated 7.11.2006	Compliance status as on 30.09.2017
v.	Ground water monitoring around the solid waste disposal site/secured landfill (SLF) shall be carried out regularly and report submitted to the Ministry's Regional Office at Bhubaneswar, CPCB and OPCB.	<ul style="list-style-type: none"> ● Ground water level is monitored and variations are negligible. ● Ground water quality is within the permissible limit.
vi.	BF slag shall be sold to the cement manufacturers after granulation. Non-granulated BF slag shall be used in road making. BOF slag shall not be dumped anywhere except used for making cement and road etc. proposed in EIA/EMP. Ammonia and tar shall be recovered and remaining solid	<ul style="list-style-type: none"> ● BF slag is sold to cement manufacturers after online slag granulation process (RASA). Majority of BF slag is transported by rail. ● Non-granulated BF slag is used for road making; non-granulated BOF slag is also used for road making.

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	waste shall be burnt. Gas cleaning plant sludge and mill scales shall be reused in the sinter plant. Char generated shall be used in FBC boiler. The kiln accretions shall be utilized for filling low lying areas. The entire quantity of fly ash generated during the process shall be utilized for making brick. ESP fly ash shall be made available to the cement plants and brick making plants whereas bottom ash shall be disposed off in a suitably designed landfill as per CPCB guidelines to prevent leaching to the sub-soil and underground aquifer.	<ul style="list-style-type: none"> • In COBPP, Tar and Sulphur is recovered and same is sold as by-product. • Gas cleaning plant is in operation in BF & SMS. • Mill scales from mills are being utilized in sinter plant. • No fly ash and bottom ash is generated in our processes.
vii.	The company shall develop surface water harvesting structures to harvest the rain water for utilization in the lean season besides recharging the ground water table.	<ul style="list-style-type: none"> • Surface run-off during the monsoon is collected and stored in the reservoirs constructed under rain water harvesting schemes. • Storm water pond with necessary pumping arrangement to recover storm water in raw water system has been made.
viii.	Green belt shall be developed in at least 33% area within and around the plant premises as per the CPCB guidelines in consultation with DFO.	<ul style="list-style-type: none"> • Green Belt cover is being continuously developed within and around the project site, as well as outside the plant premises (rehabilitation colonies). <p><u>Details of tree saplings planted:</u> 2009-10: 792 nos. . 2013-14: 29888 nos. 2010-11: 1130 nos. . 2014-15: 35437 nos. 2011-12: 4800 nos. . 2015-16: 78730 nos. 2012-13: 12622 nos. . 2016-17: 77335 nos. 2017-18 till date: 80000 nos. Avenue plantation was done at Jajpur town, Kalinganagar and Bhubaneswar.</p>
ix.	Occupational Health Surveillance of the workers shall be done on a regular basis and records maintained as per the factories Act.	<ul style="list-style-type: none"> • Initial & Periodic medical check-up for workers are being done and records for the same are maintained as per the Factories Act. • To strengthen the Occupational Health Surveillance, a system has been made, in which, employee's Gate Pass is issued only after ensuring the initial medical check-up. • Specific medical check-up for mobile equipment operators is also done.
A	Specific Conditions as per EC dated 7.11.2006	Compliance status as on 30.09.2017
x.	Recommendations made in the CREP guidelines issued for the steel plants shall be implemented.	<ul style="list-style-type: none"> • CREP recommendations are being implemented and summarized below: <ol style="list-style-type: none"> 1. Coke Ovens: Fugitive emission control system is in place. All the batteries are new one and having coal stamping, charging cum pushing (SCP) machines. 2. SMS: Secondary fume extraction system has been installed. 3. BF: Pulverized Coal injection facilities have been installed in Blast Furnaces, TRT, Tar Free Runners, DE system at Cast House, etc are also provided. 4. Specific water consumption is less than 8 m³/t of flat product. 5. Online monitoring facilities provided. 6. Waste Mgmt.. Systems are implemented.

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xi.	Rehabilitation and Resettlement plan shall be implemented as per the revised R&R policy and in collaboration with the State Government in a time bound manner and report submitted to the Ministry, it's Regional Office at Bhubaneshwar and OPCB.	<ul style="list-style-type: none"> Families have been rehabilitated within the framework of "Tata Steel Parivaar" concept as per R & R policy of Odisha Govt. in consultation with the local administration. A dedicated team facilitates the resettlement & rehabilitation effectively.
xii.	The environmental clearance for the mining project and forest clearance for the forest land involved in the mining project shall be obtained from the Ministry prior to operation of the integrated Steel Plant. In case, environmental clearance for the mining proposal from State Govt/Govt. of India is not available, Ministry shall be regularly informed about the source of ore and coal.	<ul style="list-style-type: none"> The matter is being pursued with State and Central Government. Coal is being imported. Source of iron ore is mainly from the mines of Tata Steel in Odisha.
B.	General Conditions as per EC dated 7.11.2006	Compliance status as on 30.09.2017
i.	The project authorities must strictly adhere to the stipulations made by the Orissa Pollution Control Board (OPCB) and the State Government	<ul style="list-style-type: none"> During project execution and subsequent operation phases TSL has strictly adhere to stipulation made by OSPCB and the state Government
ii.	No further expansion or modification in the plant should be carried out without prior approval of the Ministry of Environment and Forests.	<ul style="list-style-type: none"> Amendments in the Environmental Clearance were granted by MoEF on 10.10.2012, 13.05.2015 and 26.12.2016 vide letters no. J-11011/7/2006-IA.II.(I). Our application regarding expansion from 6 MTPA to 8 MTPA has been submitted on 20.09.2016. ToR for expansion grated on 14th March 2017..
iii.	At least four ambient air quality-monitoring stations should be established in the downward direction as well as where maximum ground level concentration of SPM, SO ₂ and NO _x are anticipated in consultation with the OPCB. Data on ambient air quality and stack emission should be regularly submitted to this Ministry including its Regional Office at Bhopal and the OPCB/CPCB once in six months.	<ul style="list-style-type: none"> Ambient Air quality monitoring Stations are established. Data on Ambient Air Quality and Stack emissions are submitted regularly on monthly basis to OSPCB and Half yearly basis to MoEF&CC. Data of Online Continuous Ambient Air quality monitoring stations as well as Continuous Emission Monitoring Systems of Stacks are also being transferred to the server of OSPCB through Real Time Data Acquisition System (RTDAS).
iv.	Industrial waste water shall be properly collected, treated so as to conform to the standards prescribed under GSR 422 dated 19 th May, 1993 and 31 st December, 1993 or as amended from time to time. The treated wastewater shall be utilized for plantation purpose.	<ul style="list-style-type: none"> For Treatment of Industrial waste water and its recovery and reuse, individual units like Coke Plant, HSM, SMS, BF etc have individual Waste Water Treatment units in operation. Excess treated water from individual treatment plant is being sent to Central Effluent Treatment Plant (CETP). CETP is in operation with tertiary treatment. The Treated water from CETP is used in process, plantation, dust suppression & other uses.
v.	The overall noise levels in and around the plant area shall be kept well within the standards (85 dBA) by providing noise control measures including acoustic hoods, silencers, enclosures	<ul style="list-style-type: none"> Low noise prone rotary equipment and vibration dampening has been one of the design aspects as a control measure for noise pollution. Provision of acoustic hoods, silencers in steam

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	etc. on all sources of noise generation. The ambient noise levels should conform to the standards prescribed under EPA Rules, 1989 viz. 75 dBA (daytime) and 70 dBA (nighttime).	ejectors as well as sound proof enclosures have also been made at various internal sites.									
vi.	The project proponent shall also comply with all the environmental protection measures and safeguards recommended in the EIA/EMP report. Further, the company must undertake socio-economic development activities in the surrounding villages like community development programmes, educational programmes, drinking water supply and health care etc.	<ul style="list-style-type: none"> • Environmental protection measures as proposed in the EIA and EMP report is being implemented. • Various socio-economic developmental activities in the area of Health, Women Empowerment, Education, Sports & culture, Infrastructure development etc. are on-going in 28 villages surrounding the project site. Recently, 5 medical mobile units have been added for immediate treatment to the local people. • Multi-specialty, 100 bedded hospitals (Medica TS) is now functioning very close to the plant site for facilitating health service to the community. 									
vii.	The project authorities shall utilize Rs.1,525.00 Crores earmarked for the environmental pollution control measures judiciously to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government along with the implementation schedule for all the conditions stipulated herein. The funds so provided shall not be diverted for any other purpose.	Funds earmarked for the environmental pollution control measures are utilized only for the said purpose. Till 30.09.2017, Rs. 1952.90 Crs. has been spent on Pollution Control Facilities.									
viii.	The Regional Office of this Ministry at Bhopal/CPCB/OPCB will 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 reports are being submitted regularly. Last Report Sent on 29.5.2017.									
ix.	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 OPCB/Committee and may also be seen at Website of the Ministry of Environmental and Forests at http://envfor.nic.in . This shall be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same shall be forwarded to the Regional office.	<p>Complied.</p> <p>Paper advertisement Details:</p> <table border="1"> <thead> <tr> <th><u>Newspaper</u></th> <th><u>Language</u></th> <th><u>Date</u></th> </tr> </thead> <tbody> <tr> <td>New Indian Express</td> <td>English</td> <td>13.06.06</td> </tr> <tr> <td>Sambad</td> <td>Odia</td> <td>13.06.06</td> </tr> </tbody> </table>	<u>Newspaper</u>	<u>Language</u>	<u>Date</u>	New Indian Express	English	13.06.06	Sambad	Odia	13.06.06
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New Indian Express	English	13.06.06									
Sambad	Odia	13.06.06									
X	Project authorities should inform 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.	Complied.									

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	Additional Conditions vide letter dated 10.10.2012	Compliance status as on 30.09.2017
i)	The company shall install low NOx burners to mitigate NOx emissions from captive power plant.	There are three nos. of boilers of captive power plant. At each boiler, 8 Nos. of Low NOx burners have been installed to control NOx emissions.
ii)	Data on ambient air, stack and fugitive emission shall be regularly submitted online to Ministry's Regional Office at Bhubaneswar and Central Pollution Control Board as well as hard copy once in six months and display data on PM10, SO2 and NOx outside the premises at the appropriate place for the general public.	<ul style="list-style-type: none"> • Six Monthly compliance reports are sent in hard as well as soft copies to MoEF/ OSPCB. The same is also available at company web site. • AAQ data is displayed at the entrance of the Plant (Plant's Main Gate) for information to general public through Electronic display board • Four nos. of CAAQMS (Two Nos. inside and Two Nos. outside plant premises) are in operation. • For monitoring of stack emissions, Online Continuous emission monitoring systems have been installed at all the operating units' viz. Coke Oven battery#2, Battery #1, CPP1, SP, BF, SMS, LCP and HSM and all are in operation.
iii)	The National Ambient Air Quality Standard issued by the Ministry vide GSR No. 826(E) dated 16th November, 2009 shall be followed.	Air Quality standards conforming to NAAQS vide GSR 826 (E) has been referred for air quality monitoring and review.
iv)	The project proponent shall also submit six monthly reports on the status of the compliances of the stipulated environmental conditions including results of monitored data (both in hard copies as well as by e-mail) to the respective Regional Office of MoEF, the respective Zonal Office of CPCB and SPCB. The Regional Office of the Ministry at Bhubaneswar/CPCB/SPCB shall monitor the stipulated conditions.	<ul style="list-style-type: none"> • We are submitting the six-monthly compliance report in stipulated time. • Last Six-monthly compliance reports for the period Oct'16 to Mar'17 was submitted to MoEF/ OSPCB Regional Office both in hard as well as soft copy on 29.05.17. • Soft copy of the half yearly progress report was also been sent to roez.bsr-mef@nic.in.
v)	The environmental statement for each financial year ending 31 march in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (protection Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliances of environmental conditions and shall also be sent to the respective Regional Offices of the MoEF by e-mail.	<ul style="list-style-type: none"> • Environment Statement for FY 2016 -17 was submitted to OSPCB on 25.09.2017 • Both, Environment Statement and Status of Compliance of EC conditions have been uploaded on company's website. (www.tatasteel.com)
vi)	The company shall submit within three months their policy towards Corporate Environment Responsibility which should inter-alia address (i) Standard operating process/ procedure to bring into focus any infringement/ deviation/ violation of the environmental or forests norms/ conditions, (ii) Hierarchical system or Administrative order of the Company to deal with environmental issues and ensuring compliances to the environmental clearances conditions and (iii) system of reporting of noncompliance/ violation of environmental norms to the Board of Directors of the Company and/or shareholders.	<ul style="list-style-type: none"> • Corporate Environmental Policy was submitted to MoEF, New Delhi vide our letter no. TSL/DEL/805/2013 dated 8.1.2013. • Copy of the same was also submitted to MoEF, Bhubaneswar Office.

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	Additional Safeguards vide letter dated 13.5.2015	Compliance status as on 30.09.2017
2i	Project proponent should install 24x7 air and water monitoring devices to monitor the air emission and effluent discharge, as provided by Central Pollution Control Board (CPCB) and submit the report to Ministry and its Regional office	<ul style="list-style-type: none"> • To monitor the air emissions, Online stack monitoring devices have been installed at all the major stacks like Coke Battery No. 1 and 2, Captive power plant, Sinter Plant, Blast Furnace, Steel Melting Shop, Lime Plant and Hot Strip Mill. • Online Water quality monitoring stations installed at the outlet of BOD plant of Coke Oven Unit and at the outlet of CETP unit.
2ii	For Wet quenching: permission to start the coke ovens with wet quenching till CDQ is stabilized by June 2016, thereafter maintain wet quenching as a standby and use for 20 days (3 weeks) in a year or per annum for maintenance or operation exigencies	<ul style="list-style-type: none"> • CDQ unit for Battery No. 1 & 2 is in operation. • Wet quenching system is maintained as standby
2iii	For LDO: Use of LDO for generation of power in power plants and DG set till Blast Furnace gas is available for power generation in power plants and there after maintain LDO as “Standby” and use for 15 days(two weeks) per annum for maintenance or operational exigencies.	<p>BF Gas generated is used for power generation in Captive Power Plant. LDO is being maintained as standby fuel. DG sets are operated only in case of excegencies.</p>
	Additional Conditions vide letter dated 20.12.2016	Compliance status as on 30.09.2017
7.i	For Wet quenching: permission to start the coke ovens with wet quenching till the CDQ is stabilized by November 2016, thereafter maintain wet quenching as a standby and use for 20 days (3 weeks) in a year or per annum for maintenance or operational exigencies.	<ul style="list-style-type: none"> • CDQ unit for Battery No. 1 & 2 is in operation. • Wet quenching system is maintained as standby

Plant: Photographs

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Sinter Plant



Wagon Tippler



Coil Yard with wagon loading facility



Coke Dry Quenching (CDQ)



Online Ambient Air Quality Monitoring Station



Digital Display Board at Main Gate

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In-House Environmental Laboratory



Ambient Air Quality Monitoring



Material Recovery Plant (MRP) for LD slag processing



In-house Nursery



Landscaping inside plant



Plantation inside plant premises

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Mechanized road sweeping machine



Water Sprinkling through truck mounted tanker



Environmental Quiz competition for employee on WED-2017



Participation by children of nearby colonies and villages in drawing and essay competition on WED-2017



Plantation programme on WED-2017



Prize distribution to winners of Essay & Drawing competition on WED-2017

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Annexure-1

AMBIENT AIR QUALITY (INSIDE PLANT)														
Period: April'17 to September'17														
Sl. No	Sampling Stations	month	PM₁₀ µg /m³	PM_{2.5} µg /m³	SO₂ µg /m³	NO_x µg /m³	CO mg/m³	Ozone (O₃) µg/m³	Lead (Pb) µg/m³	Ammonia (NH₃) µg/m³	Benzen e (C₆H₆)	Benzo (a) Pyrene ng /m³	Arsenic (As) ng /m³	Nickel (Ni) ng/m³
1	Coke Oven	Apr'17 to Sept'17	62.5	29.4	7.7	13.0	0.28	<10	BDL	<20	1.63	0.13	BDL	BDL
2	Power Plant		52.8	24.4	7.8	12.7	0.10	<10	BDL	<20	<2.0	BDL	BDL	BDL
3	Gate-1		57.4	25.6	7.05	11.8	BDL	<10	BDL	<20	<2.0	BDL	BDL	BDL
4	HSM		52.3	22.9	6.2	10.6	BDL	<10	BDL	<20	<2.0	BDL	BDL	BDL
5	Gate No:4		65.7	32.3	7.9	12.4	BDL	<10	BDL	<20	<2.0	BDL	BDL	BDL
6	SMS		56.2	27.05	6.35	10.8	BDL	<10	BDL	<20	<2.0	BDL	BDL	BDL
C.P.C.B Standard			100 (24 Hrs.)	60 (24 Hrs.)	80 (24 Hrs.)	80 (24 Hrs.)	2 (8 Hrs.)	100 (8 Hrs.)	1 (24 Hrs.)	400 (24 Hrs.)	05 (Annual)	01 (Annual)	06 (Annual)	20 (Annual)

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GROUND WATER QUALITY									
Period: Apr'17 to September 2017									
Sl. No.	Parameter	Standard as per BIS: 10500	Apr'17	May'17	Jun'17	Jul'17	Aug'17	Sept'17	Average
1	pH Value	6.5-8.5	6.6	6.8	7.1	6.5	6.8	6.6	6.73
2	Colour	5	CL	CL	CL	CL	CL	CL	CL
3	Odour	U/O	U/O	U/O	U/O	U/O	U/O	U/O	U/O
4	Taste	Agreeable	AL	AL	AL	AL	AL	AL	AL
5	Turbidity (NTU), max	5	0.22	0.3	0.61	0.44	0.48	0.73	0.46
6	Anaionic Detergents, mg/l, max	0.2	ND	ND	ND	ND	ND	ND	ND
7	Aluminium as Al, mg/l, max	0.03	BDL	BDL	BDL	BDL	BDL	BDL	BDL
8	Alkalinity, mg/l, max	200	93	73	67	78	73	81	77.50
9	Total Hardness (as CaCO ₃), mg/l, max	300	73.2	80.4	71.7	91	81.7	70.9	78.15
10	Electrical Conductivity at 250C, µmho/cm	\$	183	264	173	217	211	209	209.50
11	Calcium (as Ca), mg/l, max	75	11.6	14.2	12.9	16.3	18.5	13.7	14.53
12	Magnesium as Mg, mg/l, max	\$	7.8	5.8	9.1	10.4	11.8	6.3	8.53
13	Sodium as Na, mg/l, max	\$	9.1	8.3	6.6	5.2	9.9	8.7	7.97
14	Potassium as K, mg/l, max	\$	0.32	0.32	0.36	0.53	0.68	0.31	0.42
15	Copper (as Cu), mg/l, max	0.05	BDL	BDL	BDL	BDL	BDL	BDL	BDL
16	Iron (as Fe), mg/l, max	0.3	0.16	0.23	0.11	0.43	0.38	0.39	0.28
17	Manganese (as Mn), mg/l, max	0.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL
18	Chloride (as Cl), mg/l, max	250	6.6	12.9	14.8	11.2	13.3	15.3	12.35
19	Sulphate (as SO ₄), mg/l, max	200	22.8	22.9	21.8	22.3	28	21.6	23.23
20	Nitrate (as NO ₃), mg/l, max	45	0.11	0.26	0.27	0.36	0.28	0.33	0.27
21	Fluoride (as F), mg/l, max	1	0.04	0.09	0.11	BDL	0.1	0.12	0.09
22	Phenolic Compounds (as C ₆ H ₅ OH), mg/l, max	0.001	BDL	BDL	BDL	BDL	BDL	BDL	BDL
23	Mercury (as Hg), mg/l, max	0.001	BDL	BDL	BDL	BDL	BDL	BDL	BDL

**Six Monthly Compliance Status (Apr'17 to Sep'17) of Environmental Clearance including
Amendment in EC for 6.0 MTPA Integrated Steel Plant at Kalinganagar, Duburi, District-Jajpur
7th Nov 2006, 10th Oct 2012, 13th May 2015 and 20th Dec 2016**

24	Cadmium (as Cd), mg/l, max	0.01	BDL						
25	Selenium (as Se), mg/l, max	0.01	BDL						
26	Arsenic (as As), mg/l, max	0.05	BDL						
27	Cyanide (as CN), mg/l, max	0.05	BDL						
28	Lead (as Pb), mg/l, max	0.05	BDL						
29	Zinc (as Zn), mg/l, max	5	0.12	0.18	0.41	0.48	0.21	0.08	0.25
30	Nickel as Ni, mg/l, max	\$	BDL						
31	Total Chromium as Cr, mg/l, max	\$	0.08	0.16	0.16	BDL	0.22	0.15	0.15
32	Chromium (as Cr+6), mg/l, max	0.05	0.006	0.004	0.005	0.004	0.006	0.008	0.01
33	Mineral Oil, mg/l, max	0.01	ND						
34	Total Coliform, MPN/ 100 ml	\$	ND						
35	E-coli , MPN/ 100 ml	\$	ND						
36	Total Dissolved Solids, mg/l, max	500	190	166	148	166	171	133	162.33
37	Residual, free Chlorine, mg/l, min	0.2	ND						
38	Boron mg/l , max	1	BDL						

Ambient Noise Monitoring Report

Sl. No	NOISE MONITORING LOCATIONS	Apr'17		May'17		Jun'17		Jul'17		Aug'17		Sept'17		Average			
		in dBA * (Day Time)	in dBA **(Nig ht Time)	in dBA * (Day Time)	in dBA **(Nig ht Time)	in dBA * (Day Time)	in dBA **(Night Time)	in dBA * (Day Time)	in dBA **(Nig ht Time)	in dBA * (Day Time)	in dBA **(Night Time)	in dBA * (Day Time)	in dBA **(Nig ht Time)	in dBA (Day Time)	NOISE STANDARDS Day time (in dBA)	in dBA (Night Time) 10.00p m to 06.00a m	NOISE STANDARDS Night time (in dBA)
1	Sinter Plant	68.8	51.3	66.3	50.8	62.3	51.1	61.7	54.4	62.8	50.8	66.2	53.6	64.7	75	52.0	70
2	Blast Furnace	60.1	48.6	56.9	49.6	55.4	50.2	58.3	50.1	58.4	49.3	59.5	46.7	58.1		49.1	
3	SMS	51.2	44.4	50.4	41.3	54.8	49.3	48	46.9	62	47.3	49.1	46.8	52.6		46.0	
4	Gate-1	60.6	52.9	54.8	51.5	59.3	50.2	62.1	49.1	63.2	53.8	61.4	52.6	60.2		51.7	
5	RMHS	62.9	50.5	61.9	49.5	63.9	51.6	66.3	48.8	64.1	50.2	63.6	49.4	63.8		50.0	
6	HSM	58.9	47.7	55.7	46.6	56.4	52.8	58	44.5	59.2	49.4	53.5	47.7	57.0		48.1	
7	LCP	61.4	48.3	53.8	47	57.7	49.9	59.1	50.6	58.5	48.6	60.6	48.1	58.5		48.8	

*Day time: 06.00am to 10.00pm

**Night Time: 10.00pm to 06.00am