

Ref: TML/KGP/ 40 / 2016-17

Date:-26. 04.2016

To
Dr. S.Kerketta
Scientist "E"
Government of India
Ministry of Environment & Forests
Eastern Regional Office
A/3, Chandrashekharpur
Bhubaneswar – 751 023
Odisha

Dear Sir,

Sub: Six monthly Compliance Report for existing Pig Iron Plant at Mahespur, Kharagpur

Please find enclosed the Six Monthly Compliance report (October'15 to March'16) for existing **Pig Iron plant** (Environmental clearance no:- J-11011/601/2008-IA II (I) dated June24, 2009) for the condition stipulated in Environment Clearance to the Tata Metaliks Ltd at Mahespur, Kharagpur.

1. Pig Iron Production-'Fy-2010-11'- 306190T, 'Fy-2011-12'-287501T, 'Fy-2012-13'- 288511T. 'Fy-2013-14 ' - 302,998.90T. **Fy 2014 -15* - 2,92,575.179 T**, Fy-2015-16*(Oct 15* to March 16*) - 142,631.747T
2. **Sinter Production- 'Fy 2014-15'- 4,76,061.369 T 'Fy-2015-16'(Oct 15 – Mar 16) - 275462T**
3. Water Consumption of 'Fy2015-16 (Oct 15 to Mar 16*)'- 337941 **KL**.
4. Power Consumption of Oct 15* to Mar 16*:- 26731300 Kwh.

The copy of the compliance report is being sent to you as hard copy as well as soft copy and same also will be uploaded in the Tata Metaliks Ltd website.for your kind perusal.

Thanking you

Yours sincerely
For Tata Metaliks Limited

Debasis Misra
VP (Operation)

Enclosure – As above

A	SPECIFIC CONDITIONS for enhancement of (3,20,000TPA to 3,45,000TPA) Pig Iron	Compliance Status
I	On-line stack monitoring facilities for all the stacks and sufficient air pollution control equipments viz gas cleaning system, dust catcher, bag filters etc. shall be provided to control emissions from the blast furnace below 100 mg/Nm ³ .	On-line stack monitoring facilities have been installed in all the stacks. Online monitoring facilities provided at Sinter Plant and MBFs. The monitoring carried out by West Bengal Pollution Control Board in April 2015 and September 2015 reveals that the levels of gaseous emissions from all the stack are within 100 mg / Nm ³ . Monitoring of gaseous emissions is also regularly being done from the DG set (2 x 1250 KVA) and found within 150 mg/Nm ³ as prescribed by West Bengal Pollution Control Board. We have also carried out stack monitoring by M/s Vimta Lab (Moef Approved agency) on December 2015.
ii	In-plant control measures for checking fugitive emissions from all the vulnerable sources shall be provided. Dust extraction system with bag filters shall be provided at material handling areas, crushers, hoppers, vibratory screens, transfer points etc. All the conveyors shall be covered with GI sheets to prevent fugitive emissions. Further, specific measures like water sprinkling around the coal stockpiles and asphaltting or concreting of the roads shall be done to control fugitive emissions.	Regular monitoring of secondary dust level is being carried out in the work zone viz., near Stand type Pig Casting Machine (SPCM), Main Sinter Building ESP areas, Cast House #1 & 2 and Bunker House # 1 & 2. The monitoring done in Dec 2015 by Moef Approved agency on December 2015.
iii	Data on ambient air quality, stack emissions and fugitive emissions shall be regularly uploaded on the website of the company and submitted on-line to the Ministry's Regional Office at Bhubaneswar, West Bengal Pollution Control Board (WBPCB) and Central Pollution Control Board (CPCB) as well as hard copy once in six months. Data on SPM, SO ₂ and NO _x shall also be displayed outside the premises at the appropriate place for the general public	Monitoring data on ambient air quality, stack emissions and fugitive emissions are now being uploaded in the website of the company (www.tatametaliks.com). The status of Display board has been provided at the Main Gate wherein different environmental monitoring data has been displayed as per the format provided by the West Bengal Pollution Control Board. It has also been provided the name & contact number of senior officers who would be giving the clarification to the general public in case of seeking & any clarification.
iv	Secondary fugitive emissions from all the sources shall be controlled within the latest permissible limits issued by the Ministry and regularly monitored. Guidelines / Code of Practice issued by the CPCB shall be followed.	Regular monitoring of secondary dust level is being carried out in the work zone viz. , near strand..PCM , Main Sinter Building, ESP areas, Cast House #1 & 2 and Bunker House # 1 & 2. It has included all the critical areas for monitoring of secondary emissions including a regular water sprinkling by providing fixed type water sprinklers covering of all the iron ore fines, coke etc. were Dry fog system has also been provided in Ground Hopper and in Bunker House area of RMHS # 1 & 2. We have also carried out stack monitoring by Moef Approved agency on December 2015.
V	Efforts shall be made to reduce impact of the transport of the raw materials and end products on the surrounding environment including agricultural land. Vehicular emissions should be regularly monitored	Besides road transport, raw materials mainly being brought by rake. The road leading from NH#6 up to the project site (4.5 km) has already been constructed for black topping along with concrete drainage with an estimated cost of Rs. 10 crore (approx) of which the Tata Metaliks has agreed to give Rs. 1 crore for the purpose. Tata Metaliks is regularly ensuring to have valid PUC of all the vehicles which are coming inside the plant. It already carried out a survey on traffic density of the area to ascertain the viability of the approach road as per IRC guidelines.
vi	Effluent Treatment Plant (ETP) shall be installed for the treatment of process water. All the wastewater generated shall be treated, recycled	Water from MBE 1& 2, and GCP Plant etc. is treated and the treated water is being recycled for different

	and reused either in the process or for dust suppression, green belt development and various other activities at the site. No wastewater shall be discharged outside the factory premises and 'Zero' discharge shall be adopted	processes in the plant viz., Pig quenching, slag granulation and dust suppression. Waste water from canteen is also being treated and used for dust suppression and plantation. Similarly, storm water is also collected from different catchments from the plant and is stored in underground tanks. The stored water is recycled in the plant for various uses. The plant is not discharging any plant effluent into the nearby main course.																		
Vii	The company shall obtain the permission for drawl of ground water from CGWA/CGWB	As per the CGWA implementation of revised guidelines for grant of NOC for ground water withdrawal- reg. Tata Metaliks Ltd has taken permission form SWID.																		
Viii	The solid materials collected from pollution control equipment shall be suitably stored and supplied to nearby pig iron/steel plant having sinter plant. The project authorities shall make the agreement with user of Coke, coal fines and iron ore fines and copy of the agreement shall be submitted to Ministry's Regional Office at Bhubaneshwar. Used oil shall be sold to recyclers and reprocessors only.	Used oil (2950 kg from Oct 15 to March 16) and spent resin are generated as per condition based monitoring through ferrographic analysis and physical checking. The declaration of waste oil generation is done through Form-3 and disposed off to the authorized recycler <table border="1" data-bbox="954 701 1474 1205"> <thead> <tr> <th>Type of solid waste</th> <th>Generation (Approx TPA)</th> <th>Mode of utilization</th> </tr> </thead> <tbody> <tr> <td>Granulated Slag</td> <td>126095</td> <td>100 % slag is sold to cement industries</td> </tr> <tr> <td>Iron ore fines</td> <td>15871</td> <td>100% reused in the sinter plant</td> </tr> <tr> <td>Coke fines</td> <td>4318</td> <td>100% reused in the sinter plant</td> </tr> <tr> <td>Used oil</td> <td>5866kg</td> <td>Sold to authorized recycler Mis East End petrochemical Private Limited</td> </tr> <tr> <td>Spent ion exchange resin</td> <td>1210 kg (once in five year)</td> <td>Sold to authorized recycler M/s Ramkey</td> </tr> </tbody> </table>	Type of solid waste	Generation (Approx TPA)	Mode of utilization	Granulated Slag	126095	100 % slag is sold to cement industries	Iron ore fines	15871	100% reused in the sinter plant	Coke fines	4318	100% reused in the sinter plant	Used oil	5866kg	Sold to authorized recycler Mis East End petrochemical Private Limited	Spent ion exchange resin	1210 kg (once in five year)	Sold to authorized recycler M/s Ramkey
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Ix	The blast furnace slag shall be granulated and sold to the cement manufacturing units for further utilization. All the other solid waste including broken refractory mass shall be properly disposed off in environment-friendly manner. A time bound action plan shall be submitted to reduce solid waste, its proper utilization and disposal.	100% Blast furnace slag is being sold to the Cement Manufacturers..																		
X	Green belt shall be developed in 33 % area in and around the plant as per the CPCB guidelines in consultation with DFO.	Plantation has been raised inside the plant. On and above 33% of the total plant area. The different species planted are Polythea longifolia, Casul.lina aquisetifolia, Alstonia scholaris Teccoma stans, Azdirachta indica, Dalbergia sisoo, Mimosops elengi, Cassia fistula, etc.																		
Xi	All the recommendations made in the Charter on Corporate Responsibility for Environment Protection (CREP) for the steel sector shall be strictly implemented	The status of implementation of the recommendation in the Charter on Corporate Responsibility for Environment Protection (CREP) for the steel sector is enclosed in Annexure III.																		
Xii	Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, Safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.	Increase in production capacity is mainly on account of improved operations / process improvement resulting in 'Enhancement of Production' and hence it is not an Expansion Project. Thus these requirements are not applicable in the present instance																		

	GENERAL CONDITIONS for enhancement of (3,20,000TPA to 3,45,000TPA) Pig Iron	Compliance Status
i	The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board (SPCB) and the State Government.	Tata Metaliks has received Consent to Operate for both MBF and Sinter plant from WBPCB and valid up to 30.11.2018
ii	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment and Forests	Tata Metaliks has applied to the Ministry for capacity expansion from 345000 TPA to 500000TPA: In which TOR has been issued on 19.05.2014
iii	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 Pollution Control Board (SPCB) may specify more stringent standards for the relevant parameters keeping in view the nature of the industry and its size and location. At no time, the emission level shall go beyond the prescribed standards. Interlocking facilities shall be provided so that process can be automatically stopped in case emission level exceeds the limit.	On-line stack monitoring facilities have been installed in all the stacks. Online monitoring facilities provided at Sinter Plant and MBFs. It is also monitoring stack emission by West Bengal Pollution Control Board and also through a 3rd party consultant viz M/s Vimta Lab Please see the data in Annexure E The levels of gaseous emissions from all the stack are within 100 mg / Nm ³ Monitoring of gaseous emissions is also regularly being done from the DG set (2x1250 KVA) and found to be within 150 mg/Nm ³ as prescribed by West Bengal Pollution Control
iv	At least four ambient air quality monitoring stations shall 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 SPCB. Data on ambient air quality and stack emission shall be regularly submitted to this Ministry including its Regional Office and the SPCB / CPCB once in six months	Ambient air quality is being monitored by M/s Vimta Labs Ltd at four places i.e., near ADM building and near Guest House, Material gate etc for PM ₁₀ , PM _{2.5} , SO ₂ , NO ₂ and other eight parameters. The data of December, 2015 indicate that these parameters are within the limit in respect of 24 hours standards, Please see Annexure E
v	In-plant control measures for checking fugitive emissions from all the vulnerable sources shall be provided. Further, specific measures like water sprinkling around the coal stockpiles and asphaltting or concreting of the roads shall be done to control fugitive emissions.	Regular monitoring of secondary dust level is being carried out. work zone near Cast House, Bunker House and SPCM and SPM, RPM, SO ₂ and NO _x concentrations in the work zone monitored by NABL & WBPCB approved agency M/s Indicative consultant on June 2015 and M/s Vimta Lab on December 2015 are within the prescribed limit. The project has made concrete roads and water sprinklers are used for dust suppression, dry fog system also used in both RMHS ground hopper and transfer House. Please see Annexure E.
vi	Industrial wastewater shall be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May, 1993 and 31st December, 1993 or as amended from time to time. The treated wastewater shall be utilized for plantation purpose	The water consumption from 'Oct 15 to Mar 16' for the existing plant is 340236 KL. ETP has been installed to treat process water and it has been informed that the treated effluent is being used for different processes in the plant. Analysis of drinking water as per the direction of Public Health Engineering Department, Govt of West Bengal supplied to Canteen, Union Room, Mechanical Room,

		Power House and RMHS is being done. Similarly, analysis of wastewater of Wastewater Pond, effluents of Emergency Discharge and Canteen outlet is being done. All the parameters of effluents quality are meeting the prescribed standards														
vii	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 EPA Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time).	As per the data provided on 21 st December 2015 by M/s Vimta Labs Ltd, the noise level is within the permissible limit. See Annexure-E <table border="1"> <thead> <tr> <th>Sl no</th> <th>Area / Location</th> <th>Ambient Limit (dBA)</th> <th>Result (dBA)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>ADM Building (Near Main Gate)</td> <td rowspan="3">75 dBA (day time)</td> <td>66.4- 68.9</td> </tr> <tr> <td>2</td> <td>Material Gate</td> <td>65.4- 69.7</td> </tr> <tr> <td>3</td> <td>Near Guest House</td> <td>67.9.- 66.6</td> </tr> </tbody> </table>	Sl no	Area / Location	Ambient Limit (dBA)	Result (dBA)	1	ADM Building (Near Main Gate)	75 dBA (day time)	66.4- 68.9	2	Material Gate	65.4- 69.7	3	Near Guest House	67.9.- 66.6
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2	Material Gate		65.4- 69.7													
3	Near Guest House		67.9.- 66.6													
viii	Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.	Regular occupational health checkup April 15 to September 15 was carried out. The investigation includes blood test, audiometric, PFT and eye test including general health checkup. Please see Annexure-3.														
ix	The company shall develop rain water harvesting structures to harvest the rain water for utilization in the lean season besides recharging the ground water table	A pond has been constructed to store both surface and rooftop rain water. This pond is sufficient enough to collect the rainwater from entire catchment of the plant area. The total quantity of rain water which can be stored in the rainwater harvesting pit is 0.03 million m ³ .														
x	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. Suggestions made during the public hearing shall be implemented.	The project has been taking up community welfare programmes regularly which includes drinking water supply, Livelihood & Entrepreneurship, Improve village infrastructure & sanitation, health checkup, organizing camps for awareness on addiction, maternal health and hygiene, sex education and blood donation. Please see Annexure 5.														
xi	Adequate fund shall be earmarked towards capital cost and recurring cost/annum for environment pollution control measures and shall be judiciously utilized 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.	The details of expenditure for the year 2015-16(Oct 15 to Mar 16) towards pollution control is Rs.1.61 crore of which Energy conservation, reduction of fossil fuel consumption and thereby decreasing green house gas emission by installing LED lights in place of conventional lights, installing variable frequency drives in fans in fans are Rs 60 Lakhs and others. Please see Annexure 1														
xii	The Regional Office of this Ministry / 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	The condition is being complied.														
xiii	The Project Proponent shall inform the public that the project has been	The condition was complied and it was														

	<p>accorded environmental clearance by the Ministry and copies of the clearance letter are available with the SPCB and may also be seen at Website of the Ministry of Environment 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>	<p>informed through advertisement in English & Bengali news papers that Ministry Of Environment and Forests accorded environmental clearance (No- J-11011/601/2008-IA II (I) dated June24, 2009)</p>
xiv	<p>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.</p>	<p>The plant is already under operation</p>

Annexure E

Ambient Air Monitoring.

Sl	Area / Location	Analysis Done By	Date Of Sampling	SO2	PM10	PM2.5	O3	C6H6	NH3	NO2	CO	Benzo Pyrene	As	Ni	Pb
	Limits in ($\mu\text{g}/\text{m}^3$)			80	100	60	100	05	400	80	2000	01	06	20	1.0
1	Near ADM Building	Vimta Labs Ltd	29.12.2015 & 30.12.2015	16.2	61.2	29.1	6.3	<0.01	18.5	19.5	512	<0.01	<1	2.6	0.031
2	Guest House	Vimta Labs Ltd	29.12.2015 & 30.12.2015	14.6	62.7	25.2	7.2	<0.01	17.4	20.1	534	<0.01	<1	2.4	0.027
3	Material Gate	Vimta Labs Ltd	29.12.2015 & 30.12.2015	16.2	65.3	39.2	8.5	<0.01	15.1	19.3	-574	<0.01	<1	-1.9	0.026
4	Project Site	Vimta Labs Ltd	29.12.2015 & 30.12.2015	14.4	69.4	37.5	6.4	<0.01	16.2	19.6	475	<0.01	<1	2.4	0.038

Particulate Matter –

Sl	Analysis Done By	Date Of Sampling	Common Stack of Boiler 1&2	Hot Blast Stove 1	Hot Blast Stove 2	DG-1	DG-2
1	West Bengal Pollution Control Board	14.09.2015 & 15.09.2015	13.72 mg/Nm ³	14.86 mg/Nm ³	23.71 mg/Nm ³	8.65 mg/Nm ³	43.20 mg/Nm ³
2	Vimta Labs Limited	21.12.2015 & 22.12.2015	26.7 mg/Nm ³	26.2 mg/Nm ³	25.1 mg/Nm ³	35.8 mg/Nm ³	33.8 mg/Nm ³

Work Zone Air

Analysis Done By	Area	Month	SPM($\mu\text{g}/\text{m}^3$) Limit- 100	RPM($\mu\text{g}/\text{m}^3$) Limit- 60	SO ₂ ($\mu\text{g}/\text{m}^3$) Limit- 80	NO ₂ ($\mu\text{g}/\text{m}^3$) Limit- 80
Vimta Labs Limited	Cast House 1	December 2015	62.3	33.1	13.2	15.4
	Cast House 2		76.5	41.2	15.3	17.1
	Bunker 1		75.6	37.5	14.9	21.1
	Bunker 2		70.1	40.3	12.8	17.5
	SPCM		62.7	25.2	16.2	19.5

Work Zone Noise

Analysis Done By	Limit (75 dBA)	Month	Cycle Stand	Comp /Blower House-1	Comp /Blower House-2	TG/DG Area	SPCM Area	Sinter ID Area	Sinter Main M/C
Vimta Labs Ltd	Maximum	December 2015	64.6	63.6	68.4	67.4	67.3	68.5	68.7
	Minimum		59.3	58.7	60.4	61.6	64.4	63.3	65.3

Annexure 1

Expenditure on Pollution Control From Oct'15- March'16 in Tata Metaliks Ltd

Sl No	Initiatives taken	Expenditure (Rs in Lakhs)
1	Maintainance of head & tail ESP & bag filters at sinter plant	31.30
2	All stacks emission, ambient, work zone air, effluent, drinking water, noise sampling & analysis,	1.70
3	Materials procurement for installation of dry fog system at coke drying unit for dust suppression and cooling system at strand pig casting machine-1 to reduce water consumption	10.00
4	Operation, maintenance & development of water conservation and other environmental projects including water sprinklers for dust suppression	12.40
5	Industrial water treatment in the entire plant	10.50
6	Drain & vat cleaning all plant locations	8.00
7	Road sweeping & water spraying with mobilie tanker	6.00
8	Cleaning of sludge tank & reusing at sinter plant	7.00
9	Energy conservation, reduction of fossil fuel consumption and thereby decreasing green house gas emission by installaing LED lights in place of conventional lights, installaing variable frequency drives in fans in fans.	60.00
10	Development and maintenance of greeneries	15.00
	Grand Total	161.90

Annexure 2
CREP Guidelines

The plan for the implementation of the recommendations made for the steel plants in the Charter on Corporate Responsibility for Environmental Protection (CREP) guidelines is presented in **Table-1**.

TABLE-1
PLAN FOR THE IMPLEMENTATION OF THE RECOMMENDATIONS OF
CREP GUIDELINES FOR INTEGRATED ISPAT & POWER INDUSTRY

Sr. No.	CREP Recommendations	Action Plan
1	<p>Coke Oven Plants</p> <p>To meet the parameters PLD (% leaking doors), PLL (% leaking lids), PLO (% leaking off take), of the notified standards under EPA within three years. Industry will submit time bound action plan and PERT Chart along with the Bank Guarantee for the implementation of the same.</p> <p>To rebuild at least 40% of the coke oven batteries* in next 10 years.</p>	Not applicable.
2	<p>Steel Melting Shop</p> <ul style="list-style-type: none"> • Fugitive emissions <p>To reduce (including installation of secondary de-dusting facilities)</p>	Not applicable.
3	<p>Blast Furnace</p> <p>Direct inject of reducing agents</p>	There is no direct injection of reducing agent in the Blast furnace.
4	<p>Solid Waste / Hazardous Waste Management</p> <p>Utilization of 100% Steel Melting Shop (SMS) / Blast Furnace (BF) Slag</p>	100 % Granulated slag is sold to cement industries.
5	<p>Hazardous Wastes</p> <ul style="list-style-type: none"> • Charge of tar sludge / ETP sludge to Coke Oven. • Inventorization of the Hazardous Waste as per Hazardous Waste (M&H) Rules, 1989 as amended in 2000 and implementation of the Rules. (tar sludge, acid sludge, waste lubricating oil and type fuel falls in the category of Hazardous Waste) 	<p>Not applicable</p> <p>Used oil/ spent oil are being sold to authorized recycler. The declaration of waste oil generation is done through Form-3.</p>
6	<p>Water Conservation / Water Pollution</p> <ul style="list-style-type: none"> • To reduce specific water consumption to 5 m³/t for long products and 8 m³/t for flat products. • To operate the CO-BP effluent treatment plant efficiently to achieve the notified effluent discharge standards. 	<p>Not applicable</p> <p>However as part of water conservation following measures is taken.</p> <p>Water conservation is achieved through 4 R strategy, namely Reduce, Reuse, Recycle and Rain water harvesting, In Reduce step loss reduction is achieved by arresting leakages, installation of nozzles and sprinklers in flexible rubber hoses. In reuse and recycle step recycling of process water and waste water in closed loop is done with zero discharge. Waste water recirculation plants at MBF-1, MBF-2, power house and sinter plant are in operation to reuse the waste water, pig quenching, slag granulation and road dust suppression. In rain water harvesting step already 2 rain water harvesting systems are in operation and others are under planning.</p> <p>Waste water generated from blast furnace gas cleaning plant is treated in thickener or</p>

Sr. No.	CREP Recommendations	Action Plan
		clarifier by adding flocculating agent and clear water is recycled to the GCP recirculation tank for reuse. BFG seal pot drain water at sinter plant is recycled & used for dust suppression using high capacity sprinklers.
7	Installation of Continuous stack monitoring system & its calibration in major stacks and setting up of the online ambient air quality monitoring stations by June 2005	Continuous online stack monitoring has been installed at all the stacks.
8	To operate the existing pollution control equipment efficiently and to keep proper record of run hours, failure time and efficiency with immediate effect. Compliance report in this regard be submitted to CPCB / SPCB every three months.	Existing 6 monthly compliance reports is being submitted regularly to MoEF.
9	To implement the recommendations of Life Cycle Assessment (LCA) study sponsored by MoEF.	Not applicable
10	The industry will initiate the steps to adopt the following clean technologies/measures to improve the performance of industry towards production, energy and environment	In house action has been taken to improve the efficiency of the pump, reduce the resistance of the pipe line, use of VVVF drive and improve the efficiency of the blowers to reduce the energy consumption. Further to this energy audits shall be carried out to improve the performance.
	Energy recovery of top Blast Furnace (BF) gas.	BF gas cleaned in GCP and is used as fuel in CPP, stove, sinter and annealing furnace (TMDIPL) and ladle heating.
	Use of Tar-free runner linings.	Not applicable
	De-dusting of Cast House at tap holes, runners, skimmers ladle and charging points.	This is being planned during the expansion projects.
	Suppression of fugitive emissions using nitrogen gas or other inert gas.	Not applicable
	To study the possibility of slag and fly ash transportation back to the abandoned mines, to fill up the cavities through empty railway wagons while they return back to the mines and its implementation.	Not applicable
	Processing of the waste containing flux & ferrous wastes through waste recycling plant.	Not applicable
	To implement rainwater harvesting.	Rain water harvesting from administrative block-security barrack and store are used for gardening, toilets and cleaning.
	Reduction of Green House Gases by: a. Reduction in power consumption b. Use of gases for power generation c. Promotion of Energy Optimization Technology including energy audit	Blast furnace gas is used for power generation. In house energy audit is carried out and different energy conservation initiatives are taken to reduce electrical energy consumption and improve energy efficiency in compressors, fans, pumps, blowers, lighting systems etc. Thermal energy conservation in mini blast furnace (coke rate saving) and power house (fuel saving) are also achieved by process optimization and improvement. External energy audit shall also be planned.
	To set targets for Resource Conservation such as Raw material, energy and water consumption to match International Standards.	On going
Up-gradation in the monitoring and analysis facilities for air and water pollutants. Also to impart elaborate training to the manpower so that realistic data is obtained in the environmental monitoring laboratories.	We are using the expertise of outside laboratories for monitoring air and water pollutant.	
To Improve overall housekeeping.	Details of housekeeping are given in next page.	
11	Sponge Iron Plants Inventorisation of sponge iron plants to install proper air pollution control equipment to control primary and secondary emissions.	Not applicable

Annexure 3

Health Related Activities under Community Development Programme 2015-16 (Oct 15 to Mar 16)

Sl No	Date	Activity	venue	No of cases	Remarks
1	18.02.2016	Health Check-up Camp No.11 for School Children of Kunjachawk & Chandavilla Primary School	Kunjachawk Primary School	81 Students	<ul style="list-style-type: none"> ➤ Medicines were distributed accordingly. ➤ Leaflets were distributed among students.
2	24.02.2016	HIV/AIDS Awareness Camp	TML Canteen Hall	60 audience	TMLians, TMDIPLians, Contractor's employees, Security personnel, Truck drivers, lifters & helpers.
3.	03.03.2016	11 th Blood Donation Camp	TML Premises	90 donors	➤ Horlicks drinks, tiffin packets were distributed to the donors.
4.	21.03.2016	Gen Health Check-up Camp No. 1 for villagers	Raipara Primary School	98 Villagers	<ul style="list-style-type: none"> ➤ Blood Pressure & Blood Sugar check-up done. ➤ Medicines were distributed accordingly.
5.	28.03.2016	Gen Health Check-up Camp No. 2 for villagers	Ashapur Primary School	117 Villagers	<ul style="list-style-type: none"> ➤ Blood Pressure & Blood Sugar check-up done. ➤ Medicines were distributed accordingly.
6	30.03.2016	Awareness camp on Sex Education for students (girls) No. 1	Gokulpur High School	170 Students	➤ Students of class- IX & X were attended the awareness session.

DETAILS OF HEALTH AWARENESS PROGRAMME FOR EMPLOYEES AND SERVICE PROVIDER and community people.: 2015-2016 (Oct 15 to Mar 16)

Sl No	Name of awareness Programme	Date	Venue	Awareness Session done by	Nos of persons attend
1	Awareness Session on Occupational Health	08.01.16	TML Auditorium.	Dr. S. Barua, Rubi general hosp	25
2	Awareness Session on Occupational Health	22.01.16	TML Auditorium.	Dr. Nilanjan Patranabis, West Bank Hospital	55
3.	HIV/AIDS Awareness Programme	24.02.16	TML Canteen Hall	Dr. P. S. Satpathi. Midnapore Medical College & Hospital	60
4.	Awareness camp on Sex Education for students (girls) No. 1	30.03.16	Gokulpur High School	Ms. Briti Makar, NRS Medical College & Hospital, Kol	170

OCCUPATIONAL HEALTH CHECK-UP REPORT OF TML EMPLOYEES 2015-16

Blood test (Hb%, TC, DC, ESR)

Year	Eligibility(Nos of emp. Working in Hazardous area)				Test done	Compliance	Normal report
2015-2016	311				308	99.03%	63.31% (195)
	High eosinophil	Hb%↓	TLC	ESR	High Blood Sugar	High Cholesterol	
	9.42% (29)	4.22% (13)	3.57% (11)	3.57%(11)	16.88%(52)	5.52%(17)	

PFT (Pulmonary Function Test) 2015-16

Year	Eligibility (Nos of emp. Working in Hazardous area)	Test done	Compliance	Normal report	Abnormal test report		
					Mild (tends to normal)	Moderate	Severe
2015-2016	285	284	99.65%	80.28%(228)	14.43% (41)	5.28%(15)	0.00% (0)

Audiometry Test 2015-16

Year	Eligibility(Nos of emp. Working in Hazardous area)	Test done	Compliance	Normal report	Mild (tends to normal)	Mild to moderate hearing loss	Moderate to severe hearing loss
2015 - 2016	261	259	99.23%	58.69%(152)	35.41% (91)	4.67% (12)	1.56%(4)

Chest X-ray report

Year	Eligibility(Nos of emp. Working in Hazardous area)	Test done	Compliance	Normal Report	Mild Abnormal report	Moderate abnormal report
2015 - 2016	286	285	99.65%	95.08% (271)	4.60%(13)	0.35% (1)

Eye Check Up 2015-16

Year	Eligibility(Nos of emp.)	Test done	Compliance	Normal Report	Refractive Error	Other defective vision
2015 -16	54	52	96.29%	36.54 % (19)	61.54% (32)	1.92% (1)

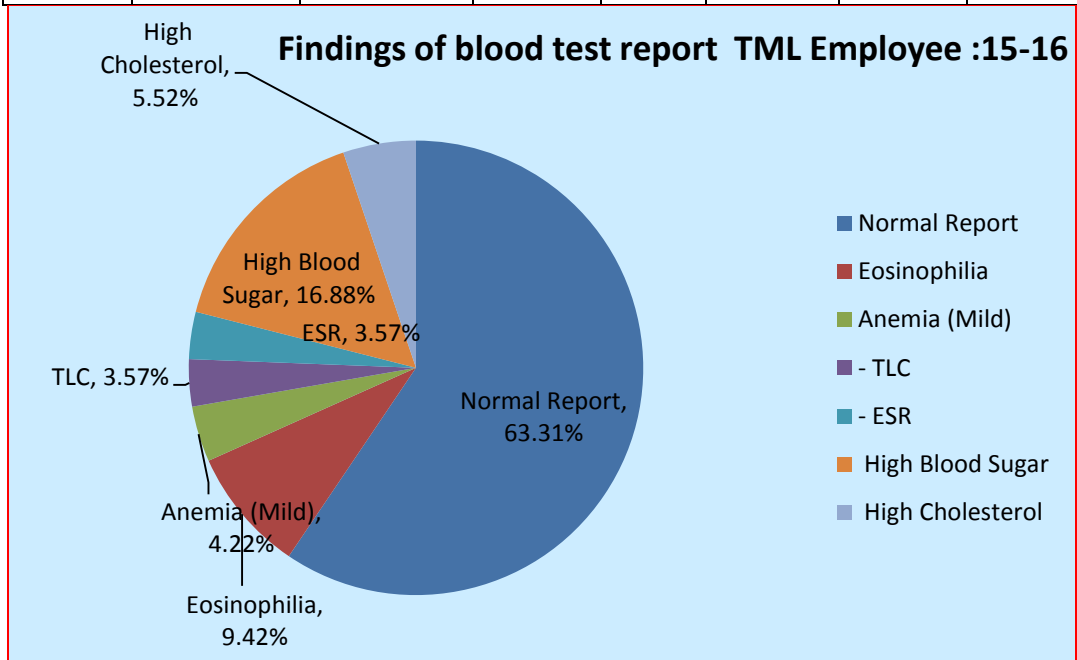
PHC (Physical and clinical examination status):2015-2016

Year	Eligibility (Nos of emp)	Test done	Compliance	Normal		
2015-2016	311	291	97.96%	37.45%(109)		
	Obese	Over wt	Under wt	High BP	T2 DM on medication	Low BP
	5.84% (17)	46% (134)	1.03%(03)	26.80% (78)	6.18%(18)	0.00% (0)

OCCUPATIONAL HEALTH CHECK-UP REPORT TML EMPLOYEE : 2015-2016

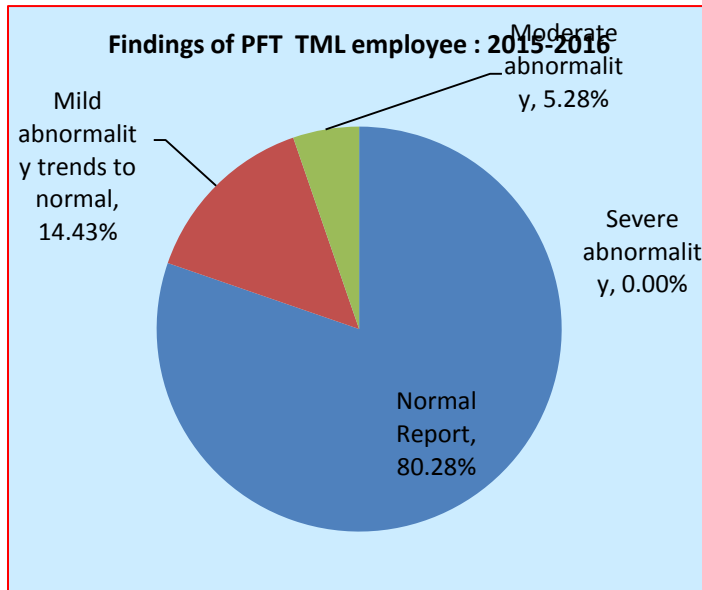
A. Findings of Blood test report (TC DC Hb%, ESR)

Year	Normal Report	Eosinophilia	Anemia (Mild)	TLC	ESR	High Blood Sugar	High Cholesterol
2015-2016	63.31%	9.42%	4.22%	3.57%	3.57%	16.88%	5.52%



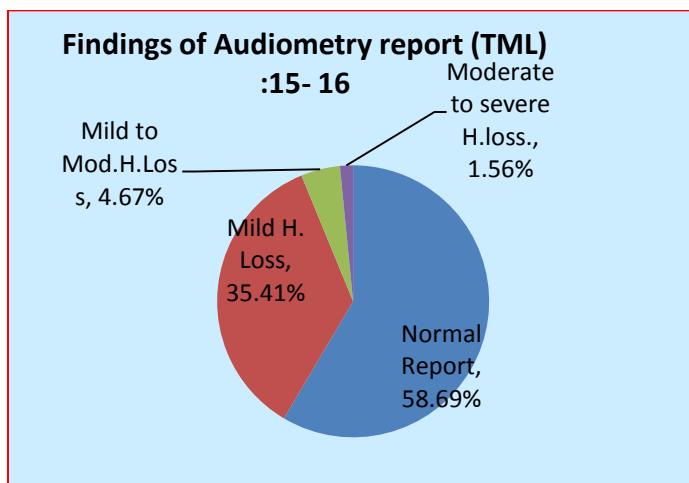
B. Pulmonary Function Test (PFT)

Year	Normal Report	Mild abnormality trends to normal	Moderate abnormality	Severe abnormality
2015-2016	80.28%	14.43%	5.28%	0.00%



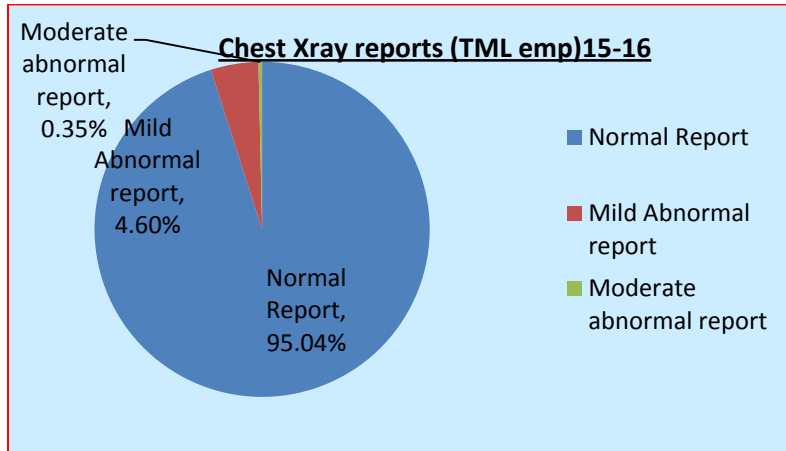
C. Audiometry report

Year	Normal Report	Mild H. Loss	Mild Mod.H.Loss to H.	Moderate to severe H.loss.
2015-2016	58.69%	35.41%	4.67%	1.56%



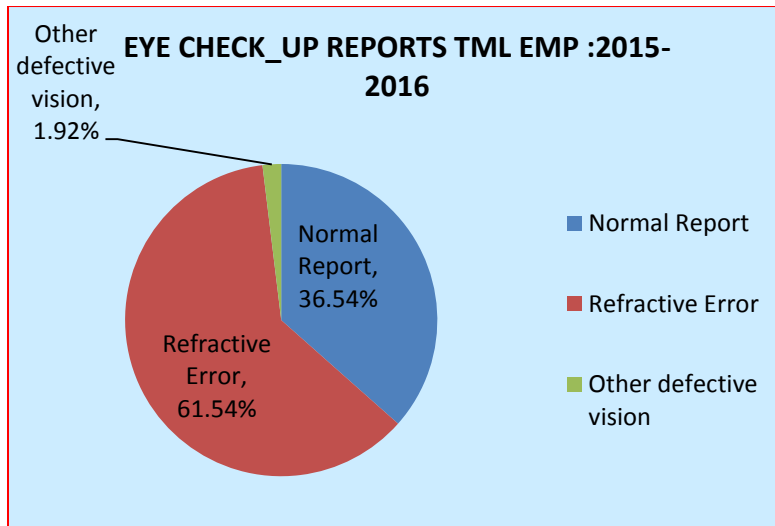
D. Chest x-ray report

Year	Normal Report	Mild report Abnormal	Moderate abnormal report
2015-2016	95.04%	4.60%	0.35%



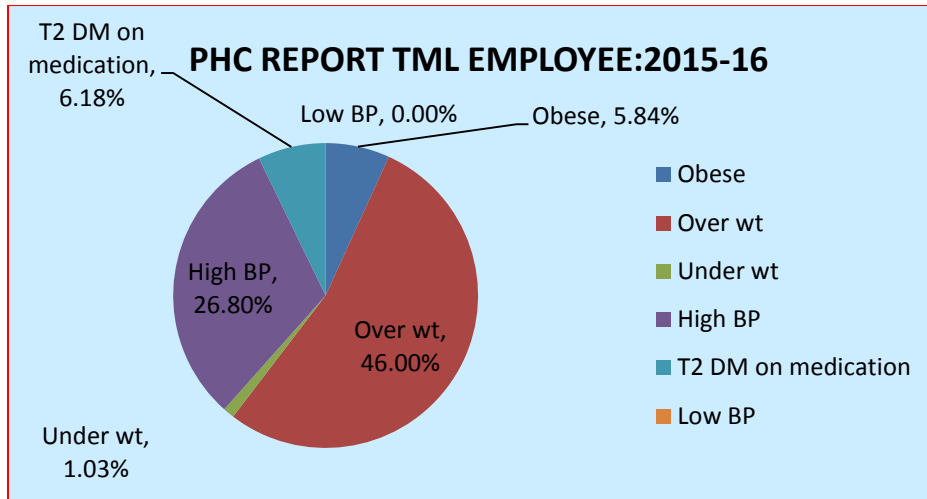
E. Eye test report

Year	Normal Report	Refractive Error	Other defective vision
2015-2016	36.54%	61.54%	1.92%



PHC (Physical and clinical examination status):2015-2016

Year	Normal	Obese	Over wt	Under wt	High BP	T2 DM on medication	Low BP
2015-2016	37.45%(109)	5.84%	46.00%	1.03%	26.80%	6.18%	0.00%



Annexure 4

Traffic Density Survey

The traffic studies have been conducted to know the prevailing traffic volumes on the roads in the study area. It is essential to consider these details for assessing the anticipated future traffic volumes as a part of overall impacts assessment for the project.

The variations of traffic densities depend upon the working days and time and also vary in day and night times. In order to assess the prevailing traffic volumes on the roads, the survey was conducted during normal working days of the week by avoiding local holidays or abnormal situations to reflect the true picture of the traffic densities. The traffic study was conducted at two locations for 12 hours.

Selection of Sampling Location

The traffic density study was conducted at Saha Chowk NH-6 (Kolkata to Bombay) which is about 2 km away from the project site and Tata Metaliks Road to Saha Chowk which is about 1/2 km away from project site.

Methodology

Vehicular Count

The vehicles plying in both the directions were counted continuously for 12 hours at two locations. The vehicles were counted every hour and recorded under respective category. The maximum traffic count in an hour is termed as peak hour traffic. The vehicles were categorized under various heads like trucks/tankers, buses, multi axles, cars, 2/3 wheelers, cycles and bullock carts.

Categorization of Traffic

The engine driven vehicles were categorized into various heads viz. light motor vehicles (LMV) as two wheelers (scooters, motor cycles etc.), three wheelers (auto rickshaws, 3-wheel tempo etc.), medium motor vehicles (cars, jeeps), tractors (6 wheelers), minibuses and mini trucks (8 wheelers); heavy motor vehicles such as buses, trucks and tankers (10 wheelers).

Results and Discussion

The summary of daily traffic count for the location was monitored during the study period is summarized in **Table-1** and % of composition of the vehicles is given in the **Table-2**.

It was observed that the 2/3 wheelers, cars/jeeps and trucks/buses forms the major volume of the traffic. The total traffic PCU of this road is minimal.

Presentation of Results

The present level of traffic has been converted to Passenger Car Units (PCU) at this location as per the conversion factors stipulated by Indian Road Congress (IRC). The Passenger Car Unit (PCU) recorded at the selected traffic location, which is towards Saha Chowk NH-6 (Kolkata to Bombay) is about 9068 PCU, Saha Chowk NH-6 (Bombay to Kolkata) is about 8235 PCU, Tata Metaliks Road to Saha Chowk is about 1337 PCU and Saha Chowk to Tata Metaliks Road is about 1412 PCU.

TABLE-1
TRAFFIC DENSITY (VEHICLES/DAY)

Code	Location	Two Wheelers (Bicycle/ Scooter/ Motorcycle)	Four Wheelers (Car/Jeep)	Tractors/ Trucks	Buses	Multi Axles	Total PCU'S
1	Saha Chowk NH-6 (Kolkata to Bombay)	1471	1039	461	70	1900	9068
2	Saha Chowk NH-6 (Bombay to Kolkata)	1700	1148	506	86	1487	8235
3	Saha Chowk to Tata Metaliks Road	488	73	167	10	163	1337
3	Tata Metaliks Road to Saha Chowk	1100	58	157	15	96	1412

Note: PCU rating: (2/3 wheelers: 0.5, Car/Jeep: 1.0, Tractor: 3.0, Buses: 3.0, Trucks/HMV: 3.0)

TABLE-2
RECOMMENDATIONS ON TRAFFIC CAPACITY – IRC

Sr. No.	Category of Road	Maximum Carrying Capacity (PCU/day)
1	Two lane roads (7-m) with earthen shoulders	15,000
2	4-lane highway with earthen shoulders	35,000

The Kolkata to Bombay and Bombay to Kolkata National Highway-6 in front of the Saha Chowk is at present a two lane highway. It can take a maximum density of 15,000 PCU per day. The current density based on the primary survey is observed during two day that about ranged from 4941 moving towards Kolkata to Bombay, 4927 moving towards Bombay to Kolkata, 901 moving towards Saha Chowk to Tata Metaliks Road and 1426 moving towards Tata Metaliks Road to Saha Chowk.

Annexure 5

CSR Activity for community Development Fy 15-16*

EXPECTATIONS	PROPOSED INTERVENTIONS	LOCATION	EXPENDITURE Fy 15-16*	REMARKS
DRINKING WATER	To provide clean & hygienic drinking water in villages through deep bore well and piped water supply .	KUNJOCHAK	26.67	Piped Drinking Water Projects at Kunjochak & Raipara villages completed and handed over to community on 02 Jan 2016..
		RAIPARA		
		MAHESHPUR & MODIPARA		
LIVELIHOOD & ENTERPRENEURSHIP	Provide technical education for Matric pass students belonging to BPL category.	ITI Pratapchandra, Gopiballabhpur.	4.89	10 nos of matriculate boys out of which 06 nos are from AA Community have been sponsored for 02 Year ITI Course in Fitter / Electrician trade from Pratapchandra ITC, Gopiballabhpur which commenced from 13 Aug '15.
	Improve employability of local youth post ITI / Diploma / B.Sc. education by providing 01 year "On the Job" Training.	TML / TMDIPL	5.79	14 nos. of "Sadhbhavna Trainee" wherein ITI / Diploma / Science Graduates were provided one year "On the Job" training in plant. Out of these 03 were from AA community and the training concluded in Jan '16.
	Improve employability of mariculate girls	Chittaranjan Institue of Health, Medinipur.	0.76	10 nos of girls, out of which 04 are from AA community have been sponsored for a 02 Year Mid Wifery for the course from Chittaranjan Institute of Health, Medinipur which commenced from 07 Jul 2015.
	Sponsor Project "SABLA"	Kolkata	2.00	CII coordinated project of providing 120 hours of job oriented vocational training for girls.
	Provide "Loader cum Operator Training" for heavy / earth moving equipments.	Tata Hitachi Operator Training School, Kharagpur.	1.17	Provided one month residential training at Tata Hitachi operator taining school, Kharagpur.
EDUCATION	Encourage Primary School education by providing stationery items.	PRIMARY SCHOOLS OF IDENTIFIED 6 VILLAGES	1.34	Distribution of stationery items for 600 children of Primary school consisting of exercise books with cover & name labels, pen & pencil, eraser, hard board etc.
	Scholarship to meritorious students of Std. VIII – XI.	GOKULPUR HIGH SCHOOL.	2.08	Scholarships amounting to Rs. 1.08 lakhs were given to 24 meritorious students studying Std. X & XII of Gokulpur Bidhanchandra Vidhya Bhawan on 27 Jul '15. Of these 24 students, 50 % scholarship was given to boys & girls in equal numbers belonging to AA community. Remaining scholarship for 24 students of Std. VIII & IX were given in Feb '16.
	Improve infrastructure of Primary Schools	AMBA, MAHESHPUR & KENDUAPAL	41.72	Carry out repair of school building including class - room providing desks & benches, ceiling fan, electrical wiring repairs etc along with construction of separate toilet blocks for boys & girls, drinking water facility etc in 3 Primary Schools.Completion of civil jobs expected by Apr '16.
	Improve quality of education for high school students through EXTRA COACHING CLASSES.	GOKULPUR HIGH SCHOOL.	1.82	With a view to provide extra academic coaching to students from AA Community studying in Std. VIII – X, Sadhbhavna Trust has engaged the services of a coaching institute " SHIKSHA DIKSHA" to impart coaching classes for nearly 150 students in English, Maths & Science from 07:00 – 09:00 A.M. for 5 days a week in Gokulpur Bidhanchandra High School from 01 Sep'15.
HEALTH	Carry out health awareness / check-up camps in villages, blood donation camps, HIV / AIDS / sex education awareness camps.	MAHESHPUR & KUNJOCHAK	1.82	03 nos of General Health Check – up Camps with distribution of free medicines were organised during this period for the local community.
ASSISTING COMMUNITY AFTER NATURAL CALAMITY	Promote rural game amongst villagers.	ALL IDENTIFIED 6 VILLAGES	2.3	As part of our initiative of helping the community during a natural calamity, 200 nos of polythene sheets were distributed to affected families which enabled them to rebuild their damaged homes after cyclone KOMEN in Aug'15.