JSW STEEL LTD., Salem Works

Pottaneri, M. Kalipatti Village, Mecheri
Mettur Taluk, Salem – Tamilnadu

Half Yearly Compliance Report
for the Environmental Clearance
for the period January 2018 to June 2018

(F.No.J-11011/281/2006-IA.II (I) dated 07.07.2017)

issued for 1 to 1.3 MTPA Expansion

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COMPLIANCE REPORT FOR ENVIRONMENTAL CLEARANCE (EC)

(i) F.No.J-11011/281/2006-IA.II (I) dated 07.07.2017
(ii) F.No.J-11011/281/2006-IA.II (I) dated 02.01.2007
(iii) No, J.11011/28/98-IA II dated 23.11.1998

SIX MONTHLY COMPLIANCE REPORT

PRESENT STATUS OF THE PROJECT:

With respect to the EC F.No.J-11011/281/2006-IA.II (I) dated 7th July 2017, few units are under establishment and the remaining units will be established in a phased manner. For this purpose, Consent to Establish (CTE) was obtained from Tamil Nadu Pollution Control Board (Consent Order # 170629163265 dated 23.09.2017) and valid up to 31.03.2024. For the units under operation, Consent to Operate renewal (Consent Order # 170827952301 dated 21.04.2017) has been obtained and is valid up to 31.03.2022. The details of the existing units and the proposed expansion units along with the present status are given below:

S.No	Manufacturing facilities	UOM	Existing capacity	Proposed Expansion	Total Capacity after Expansion	Present status
1	Coke Oven Plant (Non – Recovery type)	MTPA	0.5	-	0.5	Nil
2	Sinter Plant - 1 (20 m^2)	MTPA	0.175	-	0	Nil
3	Sinter Plant - 2 (90 m^2)	MTPA	1.06	-	1.06	Nil
4	Sinter Plant - 3 (90 m^2)	MTPA	-	1.06	1.06	Construction yet to start
5	Blast Furnace - 1 (402 to 650 m^3)	MTPA	0.367	0.316	0.683	Construction yet to start
6	Blast Furnace - 2 (550 to 650 m^3)	MTPA	0.578	0.105	0.683	Will be commissioned by March 2019
7	Energy Optimizing Furnace-1 (45 to 65 T)	MTPA	0.41	0.23	0.64	Will be commissioned by March 2019

S.No	Manufacturing facilities	UOM	Existing capacity	Proposed Expansion	Total Capacity after Expansion	Present status
8	Energy Optimizing Furnace- 2 (45 T)	MTPA	0.62	0	0.62	Nil
9	Ladle Furnace - 1 (45 to 65 T)	Tons/heat	45	20	65	Will be commissioned by March 2019
10	Ladle Furnace - 2 (65 T)	Tons/heat	65	-	65	Nil
11	Ladle Furnace - 3 (65 T)	Tons/heat	65	-	65	Nil
12	Ladle Furnace - 4 (65 T)	Tons/heat	65	-	65	Nil
13	Continuous Casting Machine - 1	MTPA	0.35	-	0.35	Nil
14	Continuous Casting Machine - 2	MTPA	0.5	-	0.5	Nil
15	Continuous Casting Machine - 3	MTPA	-	0.45	0.45	Will be commissioned by March 2019
16	Bar & Rod Mill augmentation	MTPA	0.4	0.08	0.48	Construction yet to start
17	Blooming Mill augmentation	MTPA	0.36	0.12	0.48	Construction yet to start
18	Pickling & Annealing steel unit	MTPA	-	0.06	0.06	Closer to commissioning stage
19	Peeled & ground	MTPA	-	0.04	0.04	Construction yet to start
20	Air Separation Plant - 1 (150 T/day)	Tons/day	150	-	150	Nil
21	Air Separation Plant - 2 (390 T/day)	Tons/day	390	-	390	Nil
22	Air Separation Plant - 3 (250 T/day)	Tons/day	-	250	250	Construction yet to start
23	Captive power plant - 1	MW	7	-	7	Nil
24	Captive power plant - 2	MW	2 x 30	-	2 x 30	Nil
25	Captive power plant - 3	MW	-	1 x 30	1 x 30	Will be commissioned by December 2018

The compliance status for the conditions of entire Steel complex for the EC Dated 07.07.2018 is given in this report.

A.	SPECIFIC CONDITIONS:	COMPLIANCE STATUS
i.	The occupational health survey of the active workmen involved shall be carried as per the ILO guidelines and all the employees shall cover in every 5 years @ 20% every year.	Occupational health survey of the active workmen involved is being carried out as per the ILO guidelines and all the employees will be covered in every 5 years @ 20% every year.
ii.	The amount allocated for ESC i.e. Rs 13 Crores shall be provided as CAPEX and the ESC shall be treated as project and monitored annually and the report of same shall be submitted to Regional office of MoEF&CC.	Enterprise Social Commitment provided as CAPEX and monitoring is in progress. The details are attached in **Annexure – B.**
iii.	The project proponent shall provide for solar light system for all common areas, street lights, villages, parking around project area and maintain the same regularly.	Solar panel system for Street Lighting at the capacity of 5 KW is installed and for further installation, feasibility study is under progress.
iv.	The project proponent shall provide for LED lights in their offices and residential areas.	LED based lightings are installed about 296 KW and further installation will be done in a phased manner.
v.	The project proponent should install 24X7 air monitoring devices to monitor air emission and submit report to Ministry and its Regional Office.	Total number of stacks in the Steel plant including power plant is 46 nos. The gaseous emission from the stacks attached to the process units are monitored through online stack monitoring equipment and the real time data of SPM, SO_2 & NO_x (as per the condition) is transmitted to the Care Air Centre of Tamil Nadu Pollution Control Board. Apart from that, TNPCB is conducting bi-annual survey and manual monitoring is being conducted by NABL approved external laboratory on a monthly basis. All the monitoring results are well within the permissible limits.
vi.	The ETP for Blast furnace effluent should be designed to meet Cyanide standards as notified by the MoEFCC.	Presence of Cyanide level is not detected in Blast Furnace effluent and the same is periodically ensured with external NABL accredited lab analysis.
vii.	No effluent shall be discharged outside the plant premises and 'zero' discharge shall be adopted.	RO plant of 4 MLD Capacity is installed in the upstream of the raw water thereby the existing Cycles of concentration (CoC) in cooling towers is increased to optimum level thereby conserving raw water and also high TDS effluent generation is eliminated. Trade effluent generated from the processes (blow down water from Bar and Rod Mill, BF 1 & 2, Continuous Casting Machine 1 & 2 Direct Cooling Water, BLM DCW, Air Separation Plant 1 & 2 & CPP II) is collected in the guard pond and after the pretreatment,

		the treated water 100% is reused in BF 1 & 2 Slag Granulation Plant, Gas Cleaning Plant of EOF 1 & II, slag quenching & Coke quenching. Thus, Zero Liquid Discharge (ZLD) is ensured and no effluent is discharged outside the plant premises. To ensure the same, dedicated EMFM and CCTV camera are installed and the real time values are connected to TNPCB & CPCB server.
viii.	The ETP for coke oven by-product should be designed to meet EPA notified standards especially the cyanide and phenol.	Our Coke Oven plant is non-recovery type. Hence, ETP plant is not envisaged.
ix.	Coke oven plant should meet visible emission standards notified by the MoEF&CC.	Our coke oven process works on negative pressure and adequate measures are being taken during coal charging (stamped wet coal charging which is side loading to the ovens) and coke pushing (water spraying) to minimise emission, thereby no visible emission is evidenced.
x.	The standards issued by the Ministry vide G.S.R. 277(E) dated 31st March 2012 shall be strictly adhered to and the standards prescribed for the Coke oven plant shall be monitored and the report should be submitted along with the six-monthly compliance report.	The standards issued by the Ministry vide G.S.R. 277(E) dated 31st March 2012 are adhered and our Coke Oven plant is of non-recovery type. Emission standards with respect to stack and fugitive for Non recovery type coke oven plant are monitored and the results are being submitted along with half-yearly compliance report. The six months monitoring results (maximum, minimum and average) by both Advanced Environmental Laboratory of TNPCB (**Annexure – C)** and NABL accredited laboratory (**Annexure – D)** consisting of stack emission, ambient air quality and noise are enclosed.
xi.	The emission standards specified in the Environmental (Protection) Amendment Rules, 2015 issued by vide S.O. 3305 (E) dated 7th December 2015 for the Thermal Power Plant shall be strictly adhered to.	The parameters of SPM, Mercury & Specific water consumption are well within the standards and actions are initiated for complying SO_2 and NO_x emission as per the standard. (SO_2 by December 2018 & NO_x by 2020) Fly ash generated is 100% disposed to fly ash brick manufacturers.

xii.	The National Ambient Air Quality Emission Standards issued by the Ministry vide G.S.R. No. 826(E) dated 16th November 2009 shall be followed.	We have installed four numbers of Continuous Ambient Air Quality monitoring stations (2 in the upstream and 2 in the downstream) in the plant premises in consultation with the TNPCB. One station installed to monitor PM 10, PM 2.5, SO_2, NO_x and CO and other 3 stations are installed to monitor PM 10, PM 2.5, SO_2 as per the CTO condition. The real time data of above parameters are connected to Care Air Centre of TNPCB. Ambient Air Quality is monitored in the surrounding villages by TNPCB during the bi annual survey and also monitored by authorized third party every week for the defined locations. Results (maximum, minimum & average) for the past 6 months are enclosed via **Annexure – E.**
xiii.	On-line ambient air quality monitoring and continuous stack monitoring facilities for all the stacks shall be provided and sufficient air pollution control devices viz. Electrostatic precipitator (ESP), and bag filters etc. shall be provided.	We have installed 4 nos. of Continuous Ambient Air Quality monitoring stations in the plant premises. Online continuous monitoring systems are installed in stacks to monitor SPM, SO_2 & NO_x as per the condition. The gaseous emission from the stacks attached to the process units are monitored through online stack monitoring equipment and the real time data of SPM, SO_2 & NO_x (as per the condition) is transmitted to Care Air Centre of Tamil Nadu Pollution Control Board. Air Pollution Control devices are installed in the respective processes and the details are given below: ESP, Bag filters are installed in sintering system for process and raw material handling emission control system. Quenching tower with grit arrestor is provided to control emission during coke quenching (wet type). Bag filters are provided to extract dust from Blast Furnace stock house, Wet & Dry Gas Cleaning Systems are provided in BF I & II respectively for control of dust emission from Blast Furnace. Wet gas cleaning system comprising of quenching chambers, Venturi scrubber and cyclone separator for cleaning of waste gas

		from Energy Optimizing Furnace, fumes Extraction System with Bag Filters to control fumes from Ladle furnaces& Adequate control system such as Steam exhaust systems are provided in continuous casting machine (CCM) process. As a continual improvement, additional new secondary dedusting systems are installed in Energy Optimizing Furnace (EOF), Ladle Refining Furnace (LRF) and in Blast furnace. The details of Stack and Air Pollution Control measures provided are enclosed vide **Annexure – F**
xiv.	A statement on carbon budgeting including the quantum of equivalent CO_2 being emitted by the existing plant operations, the amount of carbon sequestered annually by the existing green belt and the proposed green belt and the quantum of equivalent CO_2 that will be emitted due to the proposed expansion shall be prepared by the project proponent and submitted to the Ministry and the Regional Office of the Ministry. This shall be prepared every year by the project proponent. The first such budget shall be prepared within a period of 6 months and subsequently it should be prepared every year.	Statement on Carbon budgeting is prepared as per the condition and detailed report is submitted to the Ministry and the Regional Office of the Ministry on 02.02.2018.
xv.	For the employees working in high temperature zones falling in the plant operation areas, the total shift duration will be 4 hrs or less per day where the temperature is more than 50^{o}C. Moreover, the jobs of these employees will be alternated in such a way that no employee is subjected to working in high temperature area for more than 1 hr continuously. Such employees would be invariably provided with proper protective equipment, garments and gears such as head gear, clothing, gloves, eye protection etc. There should also be an arrangement for sufficient drinking water at site to prevent dehydration etc.	Employees working in high temperature zones are provided with proper protective equipment, garments and gears such as head gear, clothing, gloves, eye protection, etc and arrangements are made for sufficient drinking water, butter milk and lime juice at plants to prevent dehydration.
xvi.	In-plant control measures and dust suppression system shall be provided to control fugitive emissions from all the vulnerable sources. Dust extraction and suppression system shall be provided at all the transfer points, coal handling plant and coke sorting plant of coke oven plant. Bag filters shall be provided to hoods and dust collectors to coal and coke handling to control dust	Dust/Fugitive emission suppression systems like water sprinklers, wind screens, tarpaulin covers are provided at raw material storage yards of coal, Iron ore, Lime stone, dolomite, etc. Bag filters are provided to extract dust in the raw material transfer points and Dry &Wet fog systems are installed in all the transfer

	emissions. Water sprinkling system shall be provided to control secondary fugitive dust emissions generated during screening, loading, unloading, handling and storage of raw materials etc.	points of coal and coke handling systems for dust suppression. Water sprinkler systems are installed in various locations to control of secondary fugitive dust emissions generated during screening, loading, unloading, handling and storage of raw materials etc. at a cost of 9.7 crores.
xvii.	Gaseous emission levels including secondary fugitive emissions from all the sources shall be controlled within the latest permissible limits issued by the Ministry vide G.S.R. 414(E) dated 30th May, 2008 and regularly monitored. Guidelines / Code of Practice issued by the CPCB shall be followed.	The G.S.R. 414(E) dated 30th May, 2008 is related to sponge iron plant. Hence, it is not applicable. In this connection, a representation is submitted to MoEFCC dated 22.07.17.
xviii.	Hot gases from DRI Kiln should be passed through dust settling chamber (DSC) to remove coarse solids and After Burning Chamber (ABC) to burn CO completely and used in Waste Heat Recovery (WHRB). The gas then shall be cleaned in ESP before dispersion out into the atmosphere through ID fan and stack. ESP shall be installed to control the particulate emission from WHRB.	The existing and expansion of the steel plant is following blast furnace route and there is no DRI process in our operations. Hence, it is not applicable. In this connection, a representation is submitted to MoEFCC dated 22.07.17.
xix.	Efforts shall further be made to use maximum water from the rain water harvesting sources. If needed, capacity of the reservoir shall be enhanced to meet the maximum water requirement.	Rain water harvesting ponds are provided inside the plant and township area to store rain water. Capacity of the reservoir shall be enhanced based on the needs and requirement.
xx.	Risk and Disaster Management Plan along with the mitigation measures shall be prepared and a copy submitted to the Ministry's Regional Office, SPCB and CPCB within 3 months of issue of environment clearance letter.	Study on Risk and Disaster Management Plan was conducted and detailed report submitted to Ministry's Regional Office, SPCB, and CPCB on 01.02.2018.
xxi.	All the blast furnace (BF) slag shall be granulated and provided to cement manufacturers for further utilization. Flue dust from sinter plant and SMS and sludge from BF shall be re-used in sinter plant. Coke breeze form coke oven plant shall be used in sinter and pellet plant. SMS slag shall be given for metal recovery and properly utilized. All the other solid waste including broken refractory mass shall be properly disposed off in environment-friendly manner.	All the Blast Furnace Slag is converted to Granulated slag and sold to cement industries. Flue dust from sinter plant & SMS and sludge from BF and Coke breeze from coke oven plant is re-used in sinter plant. Pellet plant is not installed in our process. SMS slag is sent for metal recovery system and after crushing, it is reused in cement industries/internal applications. Broken refractory mass is sold to customers involved with recycling and the disposal is in environment friendly manner.

xxii.	Coal and coke fines shall be recycled and reused in the process. The breeze coke and dust from the air pollution control system shall be reused in sinter plant. The waste oil shall be properly disposed of as per the Hazardous and Other Waste (Management and Transboundary Movement) Rules, 2016.	Coal and coke fines are recycled and reused in the Sinter plant and Blast Furnace. Coke breeze and dust from the Air Pollution Control systems are collected and reused in the Sinter Plant. The waste oil generated is being disposed to authorized vendor as per the Hazardous and Other Waste (Management and Transboundary Movement) Rules, 2016.
xxiii.	Green belt shall be developed in 33 % of plant area. Selection of plant species shall be as per the CPCB guidelines in consultation with the DFO.	Green belt development is more than 33 % of the total plant areas and so far, 193795 trees exist throughout the plant premises. Some of the important species of trees are Gulmohar, Bamboo, Pungan, Nawar pazham, Neem, Eucalyptus, Ficus, Mahogany, Vaagai, Teak, Puvarasu, Baniyan, Vila, Banana, Casuarina, Fabaceae, tectona, saraca asoca.Bamboo,etc.The details are given in **Annexure – G.**
xxiv.	All the recommendations made in the Charter on Corporate Responsibility for Environment Protection (CREP) for the Steel plants and Coke Oven Plants shall be implemented.	Complied. All the recommendations of the Charter on the Corporate Responsibility for the Environmental Protection (CREP) issued for the steel plants are implemented. Compliance report of CREP is enclosed vide **Annexure – H.**
xxv.	At least 2.5% of the total cost of the project shall be earmarked towards the Enterprise Social Commitment based on Public Hearing issues, locals need and item-wise details along with time bound action plan shall be prepared and submitted to the Ministry's Regional Office. Implementation of such program shall be ensured by constituting a Committee comprising of the proponent, representatives of village Panchayat and District Administration. Action taken report in this regard shall be submitted to the Ministry's Regional Office.	As per the EC (point no. 24), funds towards ESC social commitments have been earmarked and actions are being taken in a time bound manner as indicated in the Annexure – I.

xxvi.	The proponent shall prepare a detailed CSR plan for every year for the next 5 years for the existing-cum-expansion project, which includes village-wise, sector-wise (Health, Education, Sanitation, Health, Skill Development and infrastructure requirements such as strengthening of village roads, avenue plantation, etc) activities in consultation with the local communities and administration. The CSR plan will include the amount of 2% retain annual profits as provided for in Clause 135 of the Companies Act, 2013 which provides for 2% of the average net profits of previous 3 years towards CSR activities for life of the project. A separate budget head shall be created and the annual capital and revenue expenditure on various activities of the plan shall be submitted as part of the compliance report to RO. The details of the CSR plan shall also be uploaded on the company website and shall also be provided in the Annual Report of the company. The plan so prepared shall be based on SMART (Specific, Measurable, Achievable, Relevant and Time bound) concept. The expenditure should be aimed at sustainable development and direct free distribution and temporary relief should not be included.	CSR plan for the next 5 years is prepared and actions are initiated for compliance. The details are enclosed vide **Annexure - I.**
xxviii	All the commitments made to the public during the Public Hearing /Public Consultation meeting shall be satisfactorily implemented and a separate budget for implementing the same shall be allocated and information submitted to the Ministry's Regional Office at Bhubaneswar.	The issues raised during the public hearing have been addressed. Budget for the projects has been earmarked as given in the Annexure – I and projects are in progress.
xxviii.	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.	Provisions are made for the expansion project activities and as per the condition temporary structure will be removed after the completion of expansion activities

B.	GENERAL CONDITIONS	COMPLIANCE STATUS
i.	The project authorities must strictly Adhere to the stipulations made by the concerned State Pollution Control Board and the State Government.	This is being followed as per the conditions.
ii.	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forests and Climate Change (MoEF&CC).	There is no further expansion or modification in the plant is carried out without prior approval.
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 PM_{10}, $PM_{2.5}$, 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 at Chennai and the SPCB/CPCB once in six months.	Four Continuous Ambient Air Quality monitoring stations are installed in the plant premises and one station installed to monitor PM 10, PM 2.5, SO_2, NO_x and CO and other 3 stations installed to monitor PM 10, PM 2.5, SO_2 as per the CTO. The real time data are connected to Care Air Centre of TNPCB. Ambient Air Quality and Stack emission are monitored by TNPCB during the bi annual survey and also Ambient Air Quality and stack emission is monitored by NABL approved external laboratory on monthly basis. The reports are being submitted to Regional Office at Chennai and the SPCB/CPCB once in six months.
iv.	Industrial waste water 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 waste water shall be utilized for plantation purpose.	Industrial waste water is being collected, treated and reused 100 % in the processes for cooling application and parameters conform the prescribed standards under GSR 422 (E) dated 19th May, 1993 and 31st December 1993.
v.	The overall noise levels in and around the plant shall be kept well within the standards (85 dB(A)) by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels should conform to the standards prescribed under EPA Rules, 1989 viz. 75 dB(A) during day time and 70 dB(A) during night time.	Source and Ambient noise levels are measured in and around the plant areas and control measures like acoustic hoods, silencers, and enclosures are provided wherever required. The noise levels of source and ambient is well within the standards prescribed under EPA Rules, 1989. The noise monitoring results by NABL approved laboratory is enclosed vide **Annexure - F**
vi.	Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.	Annual Health Check-ups are conducted for all employees on regular basis and records are being maintained in the Occupational Health Centre.
vii.	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.	Rain water and water from the storm water drains are diverted to rainwater harvesting ponds for recharging the ground water table. Collected rain water is reused in the process.

viii.	The project proponent shall also comply with all the environmental protection measures and safeguards recommend 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.	Environmental protection measures and safeguards recommend in the EIA/EMP report are being implemented.
ix.	Requisite funds shall be earmarked towards capital cost and recurring cost/annum for environment pollution control measures to implement the conditions stipulated by the Ministry of Environment, Forest and Climate Change (MoEF&CC) as well as the State Government. An implementation schedule for implementing all the conditions stipulated herein shall be submitted to the Regional Office of the Ministry at Chennai. The funds so provided shall not be diverted for any other purpose.	Capital cost and recurring cost/annum for environment pollution control measures are being initiated as stated in the EIA report.
x.	A copy of clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parishad/ Municipal Corporation, Urban Local Body and the local NGO, if any, from whom suggestions/representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the company by the proponent.	Copy of clearance letter is submitted to local administration on 14.07.2017 and EC copy is uploaded in our website.
xi.	The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the MoEF&CC at Chennai. The respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels namely; PM_{10}, SO_2, NO_X (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.	The compliance of the stipulated environment clearance conditions including results of monitored data on our website is periodically uploaded. The criteria pollutant levels namely; PM_{10}, SO_2, NO_X are displayed near the entrance of main gates of our company in the public domain.

xii.	The project proponent shall also submit six monthly reports on the status of the compliance of the stipulated environmental conditions including results of monitored data (both in hard copies as well as by e-mail) to the Regional Office of MoEF&CC, the respective Zonal Office of CPCB and the SPCB. The Regional Office of this Ministry at Chennai/CPCB/SPCB shall monitor the stipulated conditions.	Environmental conditions and compliance status report including results of monitored data is being submitted to the Regional Office of MoEF &CC, Chennai, CPCB and SPCB once in six months.
xiii.	The environmental statement for each financial year ending 31st 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 compliance of environmental conditions and shall also be sent to the respective Regional Office of the MoEF&CC at Chennai by e-mail.	The environmental statement for each financial year ending 31st March in Form-V and status of compliance of environmental conditions is being sent to the Regional Office of the MoEF & CC at Chennai. For the FY 2017-18, the report was submitted on 06.07.2018
xiv	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 SPCB and may also be sent at website of the Ministry of Environment, Forests, and Climate Change (MoEF&CC) 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 should be forwarded to the Regional office at Bhubaneshwar.	Environmental Clearance accorded details have been advertised in Dinamani and The Indian Express on 14.07.2017 and a copy of the same submitted to the Regional office at Chennai on 15.07.2017.
xv	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.	Date of financial closure and land development work is informed to Regional Office vide letter dated 12.10.2017.

ANNEXURE # A

Production details from January to June 2018

Month	**Pig Iron (Metric Ton)**	**Steel production (Metric Ton)**	**Power generation (MW)**
January 18	2343	89192	3.47
February 18	1326	78603	3.25
March 18	769	94561	3.51
April 18	4443	77666	3.14
May 18	1980	76997	2.90
June 18	2307	81897	3.25
Total	**13168**	**498916**	**19.51**
Consent order quantity	**0.3 MTPA**	**1.0 MTPA**	**7.0 MW**
January to June 2018 production	**0.013 MT**	**0.498 MT**	**3.25 MW**

Note:

- MTPA – Million Ton Per Annum
- MT – Million Ton

ANNEXURE # B

Enterprise Social Commitment (ESC) Expenses

	Fund Allocation for each area In crs		Commitment period (Year)							Total
B	**Description of activities**	**Numbers**	**Plan for Year I**	**Spent for Year I (from 07.07.2017 to till 31Dec 17)**	**Spent for Year I (from 01.01.2018 to till 30.06.2018)**	**II**	**III**	**IV**	**V**	
1	Toilets	2000	0.50	0.32	-	0.75	0.75	0.50	0.50	3.32
2	Health centre	1	0.25	-	-	0.25	0.25	0.25		1.00
3	commmunity hall	2				0.50	0.50			1.00
4	Hospital	1	0.50	-	-	0.50	0.50	0.25	0.25	2.00
5	Modern school New with GYM and Play	1					1.00	0.50	0.50	2.00
6	Watershed program	1			0.24	0.25	0.25	0.25	0.25	1.24
7	Water body strengthening					0.25	0.25	0.25	0.25	1.00
8	Drainage		0.25			0.25	0.25	0.25		1.00
9	Government school improvement	1		0.44	0.03	0.25	0.25	0.25	0.25	1.47
Total			**1.50**	**0.76**	**0.27**	**3.00**	**4.00**	**2.50**	**2.00**	**14.03**

Annexure # C

TNPCB survey report summary (Dated: 28.03.2018)

I. Ambient Air Quality Survey Results

Sl. No.	Location	Pollutants Concentration (µg/m^3)		
		PM_{10}	SO_2	NO_X
01.	New Land area (Opp. to BF-II Stack)	54	8	14
02.	Malamanoor	40	7	12
03.	Goundanoor	61	8	15
04.	Solaiyur	52	8	13
05.	Mecheri Road, R.S.	78	10	28
06.	New Guest house	62	8	23
07.	Kuttapatty Pudur	54	8	20
08.	Ervadi.	62	8	17
09.	Amarathankadu	94	12	35
10.	Kaattuvalavu	48	9	15
11.	Pottaneri	85	12	30

National Ambient Air Quality Standards: PM_{10} – 100 µg/m^3, SO_2 – 80 µg/m^3, NO_x – 80 µg/m^3.

II. Stack Monitoring Survey Results (March 2018)

Sl. No	Stack attached to	Discharge rate in (Nm^3/Hr)	Pollutants Concentration (mg/Nm^3)		
			PM	SO_2	NO_x
1	Sinter Plant - I - Sinter Machine	83560	70	37	17.7
2	Sinter Plant – I - Cooling System	70342	62	16	0.28
3	Sinter Plant – I Dedusting System	179273	55	NR	NR
4	Sinter Plant – I RMHS	23644	72	NR	NR
5	Sinter Plant - II - Sinter Machine	386306	62	27	2.8
6	Sinter Plant - II - Cooling & De-dusting System	493675	53	NR	NR
7	Sinter Plant - II - RMHS	120430	41	NR	NR
8	Blast Furnace - I - Hot stove	90831	27	21	1.9

Sl. No	Stack attached to	Discharge rate in (Nm^3/Hr)	Pollutants Concentration (mg/Nm^3)		
			PM	SO_2	NO_x
9	Blast Furnace - I - Stock House	51577	81	NR	NR
10	Blast Furnace - I - RMHS	17852	47	NR	NR
11	Blast Furnace - I - Cast House	205225	89	NR	NR
12	Blast Furnace - II - Hot stove	123277	42	19	4.1
13	Blast Furnace - II - Stock House	131401	61	NR	NR
14	Blast Furnace - II - Cast House	340949	67	13.3	0.29
15	Blast Furnace - II - PCI	31424	65	24	1.7
16	CPP - I - Boiler	70725	29	59	2.3
17	VD boiler	9067	25	32	19.9
18	Energy Optimizing Furnace -I	44603	81	51	4.3
19	Energy Optimizing Furnace -II	69672	33	56	3.9
20	EOF Secondary dedusting system I & II	320410	79	NR	NR
21	Ladle Refining Furnace - 1	29212	45	10.7	2.3
22	Ladle Refining Furnace - 2,3,4	88312	63	18.7	3.6
23	CCM-I Steam Exhaust	NR	77	NR	NR
24	CCM-II Steam Exhaust - I	15908	33	NR	NR
25	CCM-II Steam Exhaust - II	15474	72	NR	NR
26	CCM-II Cut fumes Exhaust	48950	39	NR	NR
27	BRM – Re Heating Furnace	37635	61	120	5.3
28	BLM – Re Heating Furnace -I	36335	32	34.7	4.1
29	LRF –secondary de dusting system	430130	65	1.5	0.23
30	Coke Oven - WHRB -II	52942	43	170	3.2
31	Coke Oven - WHRB -III	34341	47	200	7.8
32	Coke Oven Chimney - III	176123	40	37.6	10.6
33	BF Gas Fired Boiler	34265	21	85	22
34	DG Set (625 KVA)	596	40	16	8.3

ANNEXURE # D

Environment Analysis Report by NABL lab for the period January to June 2018

I. Ambient air quality results for the period from January to June 2018

Month	AQ-1				AQ-2			
	PM 10	PM 2.5	NO_x	SO_2	PM 10	PM 2.5	NO_x	SO_2
JAN -18	56.5	24	17.7	8.275	57.3	24.5	18.4	8.05
FEB-18	58	25	18.7	8.68	60.3	26.8	18.6	8.7
MAR -18	59	25.25	18.9	8.88	59.3	25.5	18.7	9.18
APR-18	62.75	27.25	19	9.1	59.8	25.5	18.7	9
MAY-18	56.25	21.75	18.3	8.28	53.8	20.3	17.9	7.68
JUN-18	56.7	21.5	18.4	7.68	57.8	21.8	18.5	8.63
Average	59.01	23.35	18.24	8.11	56.81	24.35	17.1	8.1
Month	AQ-3				AQ-4			
	PM 10	PM 2.5	NO_x	SO_2	PM 10	PM 2.5	NO_x	SO_2
JAN -18	57.3	21.5	17.8	8.225	53.25	21.25	17.7	7.85
FEB-18	58.3	23.3	18.4	8.63	56.75	22.5	18.1	8.38
MAR -18	59	23.8	18.5	8.95	55.8	21.5	18.4	8.68
APR-18	59.5	26.3	18.8	8.85	57.5	21.5	17.9	8.38
MAY-18	57	22.3	18.2	7.95	56.25	23.5	18	7.5
JUN-18	59.8	21	18.3	8.6	55.5	19.5	17.7	8.33
Average	55.65	22.4	18.4	8.8	55.4	21.7	17.7	8.07
Month	AQ-5				AQ-6			
	PM 10	PM 2.5	NO_x	SO_2	PM 10	PM 2.5	NO_x	SO_2
JAN -18	55.8	24	17.7	7.53	52.5	19.75	17.8	7.55
FEB-18	58.5	25.8	18.3	8.13	55	21.3	18	8.48
MAR -18	59.5	24.3	18.1	8.23	53.5	22.8	18.1	8.73
APR-18	57.5	24	18.3	8.5	52.8	20.5	18.4	8.8
MAY-18	50.8	18.5	18.5	7.28	56.3	20.8	17.9	7.93
JUN-18	54	17.5	17.9	8.2	58.8	23	17.4	7.4
Average	56.01	22.35	18.24	9.11	54.81	24.35	17.95	8.11
Month	AQ-7				AQ-8			
	PM 10	PM 2.5	NO_x	SO_2	PM 10	PM 2.5	NO_x	SO_2
JAN -18	51.75	18	17.3	7.45	58	25	17.4	8.05
FEB-18	55	20.3	18	8.48	61	26.5	18.4	8.2
MAR -18	54.8	20.8	17.7	8.45	62.5	27.5	18.7	9.2
APR-18	55.25	22	18.3	8.58	63	27	18.2	8.88
MAY-18	55.5	21	16.6	6.95	57.5	19.25	16.6	6.95
JUN-18	55.75	20.8	16.7	7.23	54.75	23	17.2	7.18
Average	54.65	20.2	18.2	7.65	62.1	25.6	17.9	8.2

Tolerance limit: PM 10: 100 µg/m^3, PM 2.5: 60 µg/m^3, NO_x: 80 µg/m^3, SO_2: 80 µg/m^3

AQ1- Udayanur, AQ2-Temple Gate, AQ3-Township STP, AQ4- Kuttapattipudur
AQ5- Parry Nagar, AQ6- Guest House, AQ7- Pottaneri, AQ8- Pump House

I. A. Analysis of Ambient Air Quality Results

Location	AQ-1	AQ-2	AQ-3	AQ-4	AQ-5	AQ-6	AQ-7	AQ-8
PM 10 in µg/m^3								
Min	50.8	52.5	51.8	54.8	50.80	52.50	51.75	54.75
Max	59.5	58.8	55.8	63.0	59.50	58.80	55.75	63.00
Mean	55.2	54.8	54.7	58.9	55.18	54.82	54.68	58.92
Std. dev.	4.1	2.9	1.5	4.1	4.06	2.92	1.54	4.06
98th percentile	59.4	58.6	55.7	63.0	59.40	58.55	55.73	62.95

Location	AQ-1	AQ-2	AQ-3	AQ-4	AQ-5	AQ-6	AQ-7	AQ-8
PM 2.5 in µg/m^3								
Min	17.5	19.8	18.0	19.2	17.50	19.75	18.00	19.23
Max	25.8	23.0	203.0	27.5	25.80	23.00	203.00	27.50
Mean	21.3	21.4	50.9	23.7	21.27	21.36	50.93	23.74
Std. dev.	3.8	1.5	74.5	4.0	3.83	1.46	74.51	4.00
98th percentile	25.7	23.0	184.9	27.5	25.65	22.98	184.90	27.45

Location	AQ-1	AQ-2	AQ-3	AQ-4	AQ-5	AQ-6	AQ-7	AQ-8
NO_x in µg/m^3								
Min	17.7	17.4	16.6	16.6	17.70	17.40	16.60	16.60
Max	19.0	18.4	18.3	18.7	18.97	18.40	18.30	18.70
Mean	18.2	17.9	17.3	17.6	18.25	17.87	17.32	17.62
Std. dev.	0.5	0.5	0.8	1.0	0.54	0.45	0.83	0.99
98th percentile	18.9	18.4	18.3	18.7	18.92	18.37	18.27	18.67

Location	AQ-1	AQ-2	AQ-3	AQ-4	AQ-5	AQ-6	AQ-7	AQ-8
SO_2 in µg/m^3								
Min	7.3	7.4	7.0	7.0	7.28	7.40	6.95	6.95
Max	18.6	8.8	8.6	9.2	18.60	8.80	8.58	9.20
Mean	9.7	8.1	7.8	7.9	9.67	8.12	7.77	7.89
Std. dev.	5.6	0.7	0.8	1.1	5.59	0.69	0.83	1.14
98th percentile	17.6	8.8	8.6	9.2	17.59	8.79	8.57	9.17

Tolerance limit: PM 10: 100 µg/m^3, PM 2.5: 60 µg/m^3, NO_x: 80 µg/m^3, SO_2: 80 µg/m^3

The results are within the norms prescribed by CPCB.

II. Stack Results for the Period January to June 2018

Stack No.	Source	Average in mg/Nm^3			Discharge in m^3/day
		SPM	SO_2	NO_x	
1	Sinter Machine (Sinter Plant I)	122.47	75.55	73.49	106419
2	Cooling System (Sinter Plant I)	68.93	36.75	34.50	96630
3	Dedusting System (Sinter Plant I)	59.94	NR	NR	120071
4	Dust Extraction System For RMHS (Sinter Plant I)	39.79	NR	NR	23478
5	Hot Stove (Blast Furnace I)	32.79	55.31	52.88	65110
6	GCP Flare (Blast Furnace I)	22.10	35.08	32.93	8782
7	Stock House Dedusting System (Blast Furnace I)	65.79	NR	NR	81613
8	Dust Extraction System for RMHS (Blast Furnace I)	44.61	NR	NR	18713
9	Cast House Dedusting System (Blast Furnace I)	42.16	NR	NR	299043
10	CPP I Boiler 2 Nos of 25 TPH each (Comn Stack)	29.71	61.55	60.81	64760
11	Energy Optimizing Furnace (Steel Melting Shop I)	42.45	59.33	54.48	38993
12	Ladle Furnaces (Steel Melting Shop I)	52.81	47.57	45.20	32597
13	Continuous Casting Machine (Steel Melting Shop I)	32.13	NR	NR	29336
14	Energy Optimizing Furnace (Steel Melting Shop II)	46.27	58.17	54.35	71618
15	Secondary Dedusting System EOFI&II(Combined SMSII)	49.09	NR	NR	381385
16	Sec. Dedusting System of LRF IIV(Common) (SMS II)	47.28	NR	NR	403197
17	Ladle Furnaces(Comn Stack) (Steel Melting Shop II)	53.37	47.22	41.99	50163
18	Vacuum Degasing Unit(Boiler)(Steel Melting ShopII)	34.76	44.85	42.07	15053

19	Steam Exhaust System (2 Nos) (Bloom Caster	30.81	NR	NR	19135
20	Cut Fumes Exhaust System (Bloom Caster)	34.05	NR	NR	57131
21	Reheating Furnace(Furnace 1 No2 Chimney) (BLM)	37.43	57.3	53.12	26409
22	Reheating Furnace(Furnace 1 No1 Chimney) (BLM)	32.60	37.63	35.96	24023
23	Coke Oven Chimney I (Coke Oven)	29.53	251.19	240.53	844
24	Coke Oven Chimney II (Coke Oven)	28.78	260.25	242.78	844
25	Coke Oven Chimney III (Coke Oven)	26.43	218.35	210.60	585
26	Waste Heat Recovery Boiler I (Coke Oven)	33.05	264.04	251.26	62040
27	Waste Heat Recovery Boiler II (Coke Oven)	33.16	263.01	250.45	61556
28	Waste Heat Recovery Boiler III (Coke Oven)	35.00	266.96	257.38	62142
29	BF Gas Fired Boiler	28.76	20.62	18.45	41024
30	Reheating Furnace (Bar & Rod Mill)	49.19	61.55	59.55	33406
31	Sinter Machine (Sinter Plant II)	123.02	75.34	74.22	535601
32	Plant Dedusting and Cooling (Sinter Plant II)	70.79	NR	NR	459098
33	Crushing of Fuel & Raw Materials (Sinter Plant II)	34.05	NR	NR	95832
34	Hot Stove (Blast Furnace II) Stack	33.67	55.37	51.03	90885
35	GCP Flare (Blast Furnace II)	23.70	36.75	33.15	24202
36	Stock House Dedusting & RMHS (Blast Furnace II)	72.73	NR	NR	253002
37	Cast House Dedusting System (Blast Furnace II)	47.18	NR	NR	515200
38	Pulverized Coal Injection (Blast Furnace)	44.86	40.20	34.04	37916

*NR – Not Required

III. Ambient Noise Level

Day and Night time noise level from January to June 2018

Location	Main gate	Guest House	BF II Ground hopper	ASP I & II	Temp gate	New Reservoir	RS Gate	Raw water pump house	Railway Quarters	South East corner	Rail end
Month	DAY TIME NOISE LEVEL IN dB (A)										
JAN -18	53.5	52.8	53.0	52.4	53.2	52.9	52.6	51.4	52.5	52.7	53.2
FEB-18	61.4	64.6	59.8	63.7	60.9	62.3	64.1	63.5	66.2	65.0	61.7
MAR-18	68.5	61.0	67.2	68.0	65.8	68.3	69.6	61.9	58.7	69.4	68.3
APR-18	68.4	65.2	66.7	67.9	62.4	65.0	66.8	63.6	62.5	67.1	66.7
MAY-18	67.0	62.5	65.0	66.4	68.2	67.6	68.1	63.7	61.9	64.3	67.4
JUN-18	68.5	61.0	67.2	68.0	65.8	68.3	69.9	61.9	58.7	69.4	68.3
Max	68.5	65.2	67.2	68	68.2	68.3	69.9	63.7	66.2	69.4	68.3
Min	53.5	52.8	53	52.4	53.2	52.9	52.6	51.4	52.5	52.7	53.2
Average	64.5	61.2	63.1	64.4	62.7	64.0	65.2	61	60	64.6	64.2
Std. dev.	6.02	4.57	5.64	6.26	5.67	6.10	6.75	4.80	4.65	6.53	6.00

Location	Main gate	Guest House	BF II Ground hopper	ASP I & II	Temp gate	New Reservoir	RS Gate	Raw water pump house	Railway Quarters	South East corner	Rail end
Month	NIGHT TIME NOISE LEVEL IN dB (A)										
JAN -18	42.9	41.2	43.0	42.1	42.7	42.5	43.0	42.8	41.5	42.4	42.6
FEB-18	50.8	51.4	48.9	52.6	53.1	54.7	50.3	53.2	51.9	52.5	50.0
MAR-18	65.0	56.4	629	63.8	59.6	60.5	59.4	57.8	56.5	61.2	62.6
APR-18	59.2	56.3	57.5	58.2	55.4	55.6	54.9	53.0	52.8	56.4	55.2
MAY-18	61.2	58.9	60.5	61.7	63.0	58.9	57.6	56.4	59.7	56.4	59.1
JUN-18	65.0	56.4	62.9	63.8	59.6	60.5	59.4	57.8	56.5	61.2	62.6
Max	65	58.9	629	63.8	63	60.5	59.4	57.8	59.7	61.2	62.6
Min	42.9	41.2	43	42.1	42.7	42.5	43	42.8	41.5	42.4	42.6
Average	57.3	53.4	56	57	55.5	55.4	54.1	53.5	53.1	55	55.3
Std. dev.	8.59	6.72	7.79	8.52	7.65	7.08	6.43	5.92	6.84	7.28	7.85

Standard limit for Ambient noise level at Daytime is 55 dB (A),
Standard limit for Ambient noise level at Nighttime is 45 dB (A).
The ambient noise level readings are within the CPCB norms.

ANNEXURE # E

Ambient air quality results for the period from January to June 2018

Month	AQ-1				AQ-2			
	PM 10	PM 2.5	NO_x	SO_2	PM 10	PM 2.5	NO_x	SO_2
JAN -18	56.5	24	17.7	8.275	57.3	24.5	18.4	8.05
FEB-18	58	25	18.7	8.68	60.3	26.8	18.6	8.7
MAR -18	59	25.25	18.9	8.88	59.3	25.5	18.7	9.18
APR-18	62.75	27.25	19	9.1	59.8	25.5	18.7	9
MAY-18	56.25	21.75	18.3	8.28	53.8	20.3	17.9	7.68
JUN-18	56.7	21.5	18.4	7.68	57.8	21.8	18.5	8.63
Average	59.01	23.35	18.24	8.11	56.81	24.35	17.1	8.1

Month	AQ-3				AQ-4			
	PM 10	PM 2.5	NO_x	SO_2	PM 10	PM 2.5	NO_x	SO_2
JAN -18	57.3	21.5	17.8	8.225	53.25	21.25	17.7	7.85
FEB-18	58.3	23.3	18.4	8.63	56.5	22.5	18.1	8.38
MAR -18	59	23.8	18.5	8.95	55.8	21.5	18.4	8.68
APR-18	59.5	26.3	18.8	8.85	57.5	21.5	17.9	8.38
MAY-18	57	22.3	18.2	7.95	56.25	23.5	18	7.5
JUN-18	59.8	21	18.3	8.6	55.5	19.5	17.7	8.33
Average	55.65	22.4	18.4	8.8	55.4	21.7	17.7	8.07

Month	AQ-5				AQ-6			
	PM 10	PM 2.5	NO_x	SO_2	PM 10	PM 2.5	NO_x	SO_2
JAN -18	55.8	24	17.7	7.53	52.5	19.75	17.8	7.55
FEB-18	58.5	25.8	18.3	8.13	55	21.3	18	8.48
MAR -18	59.5	24.3	18.1	8.23	53.5	22.8	18.1	8.73
APR-18	57.5	24	18.97	8.5	52.8	20.5	18.4	8.8
MAY-18	50.8	18.5	18.5	7.28	56.3	20.8	17.9	7.93
JUN-18	54	17.5	17.9	8.2	58.8	23	17.4	7.4
Average	56.01	22.35	18.24	9.11	54.81	24.35	17.95	8.11

Month	AQ-7				AQ-8			
	PM 10	PM 2.5	NO_x	SO_2	PM 10	PM 2.5	NO_x	SO_2
JAN -18	51.75	18	17.3	7.45	58	25	17.4	8.05
FEB-18	55	20.3	18	8.48	61	26.5	18.4	8.2
MAR -18	54.8	20.8	17.7	8.45	62.5	27.5	18.7	9.2
APR-18	55.25	22	18.3	8.58	63	27	18.2	8.88
MAY-18	55.5	21	16.6	6.95	57.5	19.225	16.6	6.95
JUN-18	55.75	20.8	16.7	7.23	54.75	23	17.2	7.18
Average	54.65	20.2	18.2	7.65	62.1	25.6	17.9	8.2

Tolerance limit: PM 10: 100 µg/m3, PM 2.5: 60 µg/m3, NO_x: 80 µg/m3, SO_2: 80 µg/m3

AQ1- Udayanur, AQ2-Temple Gate, AQ3-Township STP, AQ4- Kuttapattipudur
AQ5- Parry Nagar, AQ6- Guest House, AQ7- Pottaneri, AQ8- Pump House

Analysis of Ambient air quality results

Location	AQ-1	AQ-2	AQ-3	AQ-4	AQ-5	AQ-6	AQ-7	AQ-8
PM 10 in µg/m^3								
Min	50.8	52.5	51.8	54.8	50.80	52.50	51.75	54.75
Max	59.5	58.8	55.8	63.0	59.50	58.80	55.75	63.00
Mean	55.2	54.8	54.7	58.9	55.18	54.82	54.68	58.92
Std. dev.	4.1	2.9	1.5	4.1	4.06	2.92	1.54	4.06
98^{th} percentile	59.4	58.6	55.7	63.0	59.40	58.55	55.73	62.95

Location	AQ-1	AQ-2	AQ-3	AQ-4	AQ-5	AQ-6	AQ-7	AQ-8
PM 2.5 in µg/m^3								
Min	17.5	19.8	18.0	19.2	17.50	19.75	18.00	19.23
Max	25.8	23.0	203.0	27.5	25.80	23.00	203.00	27.50
Mean	21.3	21.4	50.9	23.7	21.27	21.36	50.93	23.74
Std. dev.	3.8	1.5	74.5	4.0	3.83	1.46	74.51	4.00
98^{th} percentile	25.7	23.0	184.9	27.5	25.65	22.98	184.90	27.45

Location	AQ-1	AQ-2	AQ-3	AQ-4	AQ-5	AQ-6	AQ-7	AQ-8
NO_x in µg/m^3								
Min	17.7	17.4	16.6	16.6	17.70	17.40	16.60	16.60
Max	19.0	18.4	18.3	18.7	18.97	18.40	18.30	18.70
Mean	18.2	17.9	17.3	17.6	18.25	17.87	17.32	17.62
Std. dev.	0.5	0.5	0.8	1.0	0.54	0.45	0.83	0.99
98th percentile	18.9	18.4	18.3	18.7	18.92	18.37	18.27	18.67

Location	AQ-1	AQ-2	AQ-3	AQ-4	AQ-5	AQ-6	AQ-7	AQ-8
SO_2 in µg/m^3								
Min	7.3	7.4	7.0	7.0	7.28	7.40	6.95	6.95
Max	18.6	8.8	8.6	9.2	18.60	8.80	8.58	9.20
Mean	9.7	8.1	7.8	7.9	9.67	8.12	7.77	7.89
Std. dev.	5.6	0.7	0.8	1.1	5.59	0.69	0.83	1.14
98th percentile	17.6	8.8	8.6	9.2	17.59	8.79	8.57	9.17

Tolerance limit: PM 10: 100 µg/m^3, PM 2.5: 60 µg/m^3, NO_x: 80 µg/m^3, SO_x: 80 µg/m^3

The results are within the norms prescribed by CPCB.

ANNEXURE # F

Details of Stacks & Air Pollution Control measures

Stack No. As per TNPCB Amendment	PLANT	Stack Attached to	STACK TYPE	TYPE OF APC (ESP/ BAG FILTER/ OTHERS)
1	**Sinter Plant I**	Sinter Machine	Process	ESP
2		Cooling System	Process	Multi clone
3		Dedusting System	Non- Process	Bag filter
4		Dust Extraction System for RMHS	Non- Process	Bag filter
5	**Blast Furnace I**	Hot Stove	Process	Stack
6		GCP Flare	Non- Process. Emergency Flaring	Venturi Scrubber
7		Slag Granulation Plant	Non- Process	Stack
8		Stock House Dedusting System	Non- Process	Bag filter
9		Dust Extraction System for RMHS	Non- Process	Bag filter
10		Cast House de dusting system	Non- Process	Bag filter
11	**Captive Power Plant I**	Power Plant Boiler 2 Nos of 25 TPH each (Common Stack)	Process	Stack
12	**Steel Melting Shop I**	Energy Optimizing Furnace	Process	Venturi Scrubber
13		Ladle Furnaces	Process	Bag filter
14		Continuous Casting Machine	Process	Stack
15	**Steel Melting Shop II**	Energy Optimizing Furnace	Process	Venturi Scrubber
16		Secondary de dusting system of Energy Optimizing Furnace I & II (Combined)	Non- Process	Bag filter
17		Secondary de dusting system of ladle refining furnace I - IV (Common)	Non- Process	Bag filter
18		Ladle Furnaces (Common Stack)	Process	Bag filter
19		Vacuum Degassing Unit (Boiler)	Process	Stack
20	**Bloom Caster**	Steam Exhaust System (2Nos)	Process	Stack

Stack No. As per TNPCB Amendment	PLANT	Stack Attached to	STACK TYPE	TYPE OF APC (ESP/ BAG FILTER/ OTHERS)
21	**Bloom Caster**	Cut Fumes Exhaust System	Non Process	Stack
22	**Blooming Mill**	Reheating Furnaces (Furnace - 1No-2 Chimney)	Process	Stack
23			Air stack	Stack
24	**Coke Oven**	Coke Quenching Tower	Process	Grit Arrester
25		Coke Oven Chimney - I	Process - Standby - Emergency Stack	Stack
26		Coke Oven Chimney - II	Process - Standby - Emergency Stack	Stack
27		Coke Oven Chimney - III	Process - Standby - Emergency Stack	Stack
28		Waste Heat Recovery Boiler -I	Process	Stack
29		Waste Heat Recovery Boiler -II	Process	Stack
30		Waste Heat Recovery Boiler -III	Process	Stack
31		BF Gas Fired Boiler	Process	Stack
32	**Lime Calcining Plant**	Lime Kiln	Process	Bag filter
33	**Bar & Rod Mill**	Re-heating Furnace	Process	Stack
34		Intermediate Furnace	Process	Stack
35	**Sinter Plant II**	Sinter Machine	Process	ESP
36		Plant De-dusting and Cooling	Non- Process	ESP
37		Crushing of fuel and Raw materials	Non- Process	Bag filter
38	**Blast Furnace II**	Hot Stove	Process	Stack
39		GCP Flare	Non- Process. Emergency Flaring	Stack
40		Stack House Dedusting and RMHS	Non- Process	Bag filter
41		Cast house de dusting system	Non- Process	Bag filter
42		Pulverized Coal Injection	Process	Bag filter

ANNEXURE - G

Greenery Development Details

Sl.No.	Years	Quantity
1	1997 - 99	30600
2	1999 - 00	15000
3	2000 - 01	20000
4	2001 - 02	4940
5	2002 - 03	10400
6	2003 - 04	13400
7	2004 - 05	100
8	2005 - 06	1100
9	2006 - 07	200
10	2007 - 08	4395
11	2008 - 09	5120
12	01.04.2009 to 30.06.2009	820
13	01.07.2009 to 31.12.2009	2240
14	01.01.2010 to 30.06.2010	5590
15	01.07.2010 to 31.12.2010	9250
16	01.01.2011 to 30.06.2011	4000
17	01.07.2011 to 31.12.2011	4930
18	01.01.2012 to 30.06.2012	3700
19	01.07.2012 to 31.12.2012	5500
20	01.01.2013 to 30.06.2013	2410
20	01.07.2013 to 31.12.2013	3300
21	01.01.2014 to 30.06.2014	6300
22	01.07.2014 to 31.12.2014	7300
23	01.01.2015 to 31.06.2015	9600
23	01.07.2015 to 31.12.2015	10000
24	01.01.2016 to 30.06.2016	1400
25	01.07.2016 to 31.12.2016	4600
26	01.01.2017 to 30.06.2017	700
27	01.07.2017 to 31.12.2017	3250
27	01.01.2018 to 30.06.2018	3650
Total		**193795**

ANNEXURE # H

Compliance progress / status / actions to the conditions mentioned in the Corporate Responsibility for Environmental Protection (CREP) issued to our Plant.

Sl. No	Condition	Compliance status/Action
1.0	**Coke Oven Plants** To meet the parameters PLD (% leaking doors), PLL (% leaking lids), PLO (% leaking off take) of the notified standards under EPA. To rebuild at least 40% of the coke oven batteries* in next 10 years by December 2012.	It is Non-recovery type coke oven and this requirement is not applicable.
2.0	**Steel Melting Shop** Fugitive Emission Status To reduce 30% by March 2004 and 100% by March 2008 (including installation of secondary de-dusting facilities).	SMS comprises of an Energy Optimizing Furnace wherein a "wet scrubbing system" comprising of a Down comer, quench chamber, venturi scrubber and cyclone separator and the cleaned gas sent through a chimney. The secondary steel making unit viz. Ladle Furnace is already equipped with a dry scrubbing system comprising of bag filters, belt conveyors and dust silo. The dust is being collected and reused in the Sinter Plant. Fugitive emission is controlled by operating secondary dedusting system.
3.0	**Blast Furnace** - Direct inject of reducing agents in blast furnace.	Pulverized Coal injection system installed and commissioned along with bag filter as an air pollution control measures to reduce emission during direct inject.
4.0	**Solid Waste/Hazardous Waste Management** Utilization of Steel Melting Shop (SMS) / Blast Furnace (BF) slag as per the following. • By 2004 – 70% • By 2006 – 80% and • By 2007 – 100% **Hazardous Waste:** - Charge of tar sludge/ETP sludge to coke oven by June 2003.	All the Blast Furnace Slag is converted to Granulated slag and sold to cement industries. Flue dust from sinter plant & SMS and sludge from BF and Coke breeze from coke oven plant is re-used in sinter plant. Pellet plant is not installed in our process. SMS slag is sent for metal recovery system and after crushing, it is reused in cement industries/internal applications. Broken refractory mass is sold to customers involved with recycling and the disposal is in environment friendly manner. Coal and coke fines are recycled and reused in the Sinter plant and Blast Furnace. Coke breeze and dust from the Air Pollution Control systems are collected and

	- Inventorization of Hazardous waste as per Hazardous waste (M & H) Rules, 1989 as amended in 2000 and implementation of the rules by December 2003. (Tar sludge, acid sludge, waste lubricating oil and type fuel fall in the category of HZ).	reused in the Sinter Plant. The waste oil generated is being disposed to authorized vendor as per the Hazardous and Other Waste (Management and Transboundary Movement) Rules, 2016.
5.0	**Water Conservation / Water Pollution** - To reduce specific water consumption to 5 m3/ t for long products and 8m3/ t for flat products by December 2005.	We are presently manufacturing only long products and our specific water consumption is well within the prescribed limit.
6.0	Installation of continuous stack monitoring	Total number of stacks in the Steel plant including power plant is 46 nos. The gaseous emission from the stacks attached to the process units are monitored through online stack monitoring equipment and the real time data of SPM, SO_2& NO_x (as per the condition) is transmitted to Care Air Centre of Tamil Nadu Pollution Control Board. Apart from that, TNPCB is conducting bi-annual survey and manual monitoring is being conducted by NABL approved external laboratory on monthly basis. All the monitoring results are well within the permissible limits.
7.0	The unit shall 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 TNPCB every three months.	Complied.
8.0	To implement the recommendations of Life Cycle Assessment (LCA) Study sponsored by MOEF by December 2003.	Complied.
9.0	The industry will initiate the steps to adopt the following clean technologies/measures to improve the performance of industry towards production, energy and environment. Energy recovery of top blast furnace (BF) gas. - Use of tar – free runner linings. - De-dusting of cast house at tap holes, runners, skimmers ladle and charging points. - Suppression of fugitive emissions using nitrogen gas or other inert	The entire blast furnace gas is being used in the Captive Power Plant to produce steam/power. To heat the cold blast in stoves, sinter plant ignition hood and Bar & Rod Mill re-heating furnace as fuel. Not Applicable The de-dusting system commissioned at BF-II cast house covering tap holes, runners, skimmers ladles and charging points. Water sprinkling system and the compressed air is used in the de-dusting for

	gas.	dust extraction.
	- 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.	Since we are purchasing raw materials from outside sources, it is not applicable.
	- Processing of the waste containing flux & ferrous wastes through waste recycling plant.	The waste containing flux & ferrous waste is utilized to the maximum extent possible in the sinter plant. 100 % of waste containing flux and ferrous is utilized in the plant.
	- To implement rainwater Harvesting	Three rain water harvesting ponds are provided. Two are in the plant premises and third one in township.
	- Reduction of green house gases by, • Reduction in power consumption.	Installed a capacitor bank at the Main Receiving Sub Station (MRSS) for improvement of power factor and to reduce the power consumption.
	• Use of by-products gases for power generation.	By product BF gas is being used as fuel in Power Plant for power generation.
	• Promotion of energy optimization technology including energy audit.	Steel Melting Shop has been provided with Energy Optimization Furnace, where facilities are available for scrap preheating using waste heat gas.
	- To set targets for resource conservation such as raw material, energy and water consumption to match International Standards.	Raw material, Energy and water targets are being planned to match the international standards (Best Available Technology).
	Up-gradation in the monitoring and analysis facilities for air and water pollutants. Also to impact elaborate training to the manpower so that realistic data is obtained in the environmental monitoring laboratories.	A separate Environment cell is already available and full-fledged lab set up and need based training is being imparted to the monitoring personnels as and when required. Presently the monitoring and analysis being done through M/s Green Chem Solution Pvt. Ltd. Chennai, certified by NABL and MoEFCC.
	To improve over all house keeping.	5S system is followed to maintain and improve housekeeping throughout the plant.

ANNEXURE # I

CSR Long Term Plan

		YEAR				
S. No	**Programmes**	**2017-18**	**2018-19**	**2019-20**	**2020-21**	**2021-22**
1	**Health**					
1.1	Health camps in rural areas					
1.2	Improvement of Hospital Infrastructure					
1.3	New Hospital					
2	**Education**					
2.1	Scholarship Programmes					
2.2	Sanitation drive in Government Schools					
2.3	School Infrastructure improvement					
2.4	Remedial Classes to Government School Children					
2.5	Modern School with Gym and playground					
3	**Women Empowerment**					
3.1	Tailoring Course					
3.2	Entrepreneurship support to women					
4	**Environment**					
4.1	Watershed Development					
4.2	Environment greening initiative					
4.2	Water bodies strengthening					
5	**Sports**					
5.1	Identifying and encouraging young talents in cricket					
5.2	Improving Sports infrastructure					
6	**Rural Infrastructure Development**					
6.1	Providing drinking water to remote villages by water tankers					
6.2	RO water for Safe drinking water					
6.3	Lighting facilities					
6.4	Sanitation for Pottaneri and M. Kalipatti Panchayats					
6.5	Drainage for Pottaneri and M. Kalipatti Panchayats					

Annexure # J

Ambient noise level (Day and Night time) Report for the period January to June 2018

Location	Main gate	Guest House	BF II Ground hopper	ASP I & II	Temp gate	New Reservoir	RS Gate	Raw water pump house	Railway Quarters	South East corner	Rail end
Month	DAY TIME NOISE LEVEL in dB (A)										
Jan-18	53.5	52.8	53.0	52.4	53.2	52.9	52.6	51.4	52.5	52.7	53.2
Feb-18	61.4	64.6	59.8	63.7	60.9	62.3	64.1	63.5	66.2	65.0	61.7
Mac-18	68.5	61.0	67.2	68.0	65.8	68.3	69.6	61.9	58.7	69.4	68.3
Apr-18	68.4	65.2	66.7	67.9	62.4	65.0	66.8	63.6	62.5	67.1	66.7
May-18	67.0	62.5	65.0	66.4	68.2	67.6	68.1	63.7	61.9	64.3	67.4
June-18	68.5	61.0	67.2	68.0	65.8	68.3	69.9	61.9	58.7	69.4	68.3
Max	68.5	65.2	67.2	68	68.2	68.3	69.9	63.7	66.2	69.4	68.3
Min	53.5	52.8	53	52.4	53.2	52.9	52.6	51.4	52.5	52.7	53.2
Average	64.55	61.18	63.15	64.40	62.72	64.07	65.18	61.00	60.08	64.65	64.27
Std dev	6.02	4.57	5.64	6.26	5.67	6.10	6.75	4.80	4.65	6.53	6.00

Location	Main gate	Guest House	BF II Ground hopper	ASP I & II	Temp gate	New Reservoir	RS Gate	Raw water pump house	Railway Quarters	South East corner	Rail end
Month	NIGHT TIME NOISE LEVEL in dB (A)										
Jan-18	42.9	41.2	43.0	42.1	42.7	42.5	43.0	42.8	41.5	42.4	42.6
Feb-18	50.8	51.4	48.9	52.6	53.1	54.7	50.3	53.2	51.9	52.5	50.0
Mac-18	65.0	56.4	62.9	63.8	59.6	60.5	59.4	57.8	56.5	61.2	62.6
Apr-18	59.2	56.3	57.5	58.2	55.4	55.6	54.9	53.0	52.8	56.4	55.2
May-18	61.2	58.9	60.5	61.7	63.0	58.9	57.6	56.4	59.7	56.4	59.1
June-18	65.0	56.4	62.9	63.8	59.6	60.5	59.4	57.8	56.5	61.2	62.6
Max	65	58.9	629	63.8	63	60.5	59.4	57.8	59.7	61.2	62.6
Min	42.9	41.2	43	42.1	42.7	42.5	43	42.8	41.5	42.4	42.6
Average	57.35	53.43	55.95	57.03	55.57	55.45	54.10	53.50	53.15	55.02	55.35
Std dev	8.59	6.72	7.79	8.52	7.65	7.08	6.43	5.92	6.84	7.28	7.85

Standard limit for Ambient noise level at Daytime is 55 dB (A), Standard limit for Ambient noise level at Nighttime is 45 dB (A). The ambient noise level readings are within the CPCB norms.