JSW Steel Limited
Salem Works : P.O.Pottaneri,
Mecheri, Mettur - Tk,
Salem - Dt. Pin : 636 453
Tamilnadu, India.
CIN No : L27102MH1994PLC152925
GSTIN : 33AAACJ4323N1ZN
Phone : +91 4298 272000
Fax : +91 4298 272272
Website : www.jsw.in

JSWSL/ S&E/HYR/2019-20/163
28th February 2019

Ministry of Environment, Forest and Climate Change
Regional Office (SEZ)
Ist and IInd Floor, Handloom Export Promotion Council,
34, Cathedral Garden Road, Nungambakkam,
Chennai – 600034.

Dear Sir,
Sub: Half Yearly Compliance Report – Reg.

Please find enclosed the half yearly compliance report for the period of July 2019 to December 2019, as per the conditions given in the Environmental Clearance by Ministry of Environment, Forest & Climate Change.

Thanking you,

Best Regards,
For **JSW Steel Limited**

Prakash

B. N. S. Prakash Rao
Sr. Vice President

Encl: As above

Cc: **Central Pollution Control Board, Zonal Office Bangalore,** 1st & 2nd Floors,
Nisarga Bhavan, A-Block, Thimmaiah Main Road, 7th D Cross,
Shivanagar, Opp., Pushpanjali Theatre, Bangalore –560 010.

The Member Secretary, Tamil Nadu Pollution Control Board,
100, Anna Salai, Guindy, Chennai – 600 032.

The Joint Chief Environmental Engineer (M),
Tamil Nadu Pollution Control Board,
Salem Region
No # 9, 4th Cross Street, Brindhavan road,
Fairlands, Salem -16

The Director
Ministry of Environment, Forest and Climate Change
Indira Paryavaran Bhawan
Jor Bagh Road, Aliganj,
New Delhi - 110003

JSW STEEL LTD., Salem Works

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

Half Yearly Compliance Report
for the Environmental Clearance

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

for the period July 2019 to December 2019
issued for 1 to 1.3 MTPA Expansion

Contents

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, Consent to Establish (CTE) was obtained from Tamil Nadu Pollution Control Board (Consent Order # 170629163265 dated 23.09.2017) with validity upto 31.03.2024. Establishment activities are planned in phased manner and after establishment of phase 1 activities, Consent to Operate (Consent Order # 1907222515438 dated 25.06.2019) has been obtained for 1.15 MTPA Steel production with validity upto 31.03.2022 and the remaining establishment activities are under progress. The details of the existing units and remaining 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	In operation
2	Sinter Plant - 1 (20 m^2)	MTPA	0.175	-	0	In operation
3	Sinter Plant - 2 (90 m^2)	MTPA	1.06	-	1.06	In operation
4	Sinter Plant - 3 (90 m^2)	MTPA	-	1.06	1.06	Yet to be installed
5	Blast Furnace - 1 (402 to 650 m^3)	MTPA	0.367	0.316	0.683	Yet to be installed
6	Blast Furnace - 2 (550 to 650 m^3)	MTPA	0.578	0.105	0.683	In operation
7	Energy Optimizing Furnace-1 (45 to 65 T)	MTPA	0.41	0.23	0.64	In operation
S.No	**Manufacturing facilities**	**UOM**	**Existing capacity**	**Proposed Expansion**	**Total Capacity after**	**Present status**

					Expansion	
8	Energy Optimizing Furnace- 2 (45 T)	MTPA	0.62	0	0.62	In operation
9	Ladle Furnace - 1 (45 to 65 T)	Tons/heat	45	20	65	In operation
10	Ladle Furnace - 2 (65 T)	Tons/heat	65	-	65	In operation
11	Ladle Furnace - 3 (65 T)	Tons/heat	65	-	65	In operation
12	Ladle Furnace - 4 (65 T)	Tons/heat	65	-	65	In operation
13	Continuous Casting Machine - 1	MTPA	0.35	-	0.35	In operation
14	Continuous Casting Machine - 2	MTPA	0.5	-	0.5	In operation
15	Continuous Casting Machine - 3	MTPA	-	0.45	0.45	In operation
16	Bar & Rod Mill augmentation	MTPA	0.4	0.08	0.48	In operation
17	Blooming Mill augmentation	MTPA	0.36	0.12	0.48	In operation
18	Pickling & Annealing steel unit	MTPA	-	0.06	0.06	Annealing unit is in operation. Picking unit establishment is under progress
19	Peeled & ground	MTPA	-	0.04	0.04	0.01 MTPA unit is in operation. 0.03 MTPA installation is under progress
20	Air Separation Plant - 1 (150 T/day)	Tons/day	150	-	150	In operation
21	Air Separation Plant - 2 (390 T/day)	Tons/day	390	-	390	In operation
22	Air Separation Plant - 3 (250 T/day)	Tons/day	-	250	250	Yet to be installed
23	Captive power plant - 1	MW	7	-	7	In operation
24	Captive power plant - 2	MW	2 x 30	-	2 x 30	In operation
25	Captive power plant - 3	MW	-	1 x 30	1 x 30	In operation

The compliance status for the EC conditions to the EC Dated 07.07.2017 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 are being covered health survey 100% every year and there are no abnormal findings. All the records are available in OHC for ready reference.
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.	As per the Specific condition ii of the Environmental Clearance Enterprise Social Commitment is provided as CAPEX of Rs.13 Crores and action plans are prepared to the implementation for 5 years from 2017 to 2022. The implementation and annual monitoring are in progress. The details are attached in **Annexure – B** of this report.
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 is installed with the capacity of 5 KW for common areas and parking area. Further implementation will be done for street lights and township in a phased manner.
iv.	The project proponent shall provide for LED lights in their offices and residential areas.	LED based lightings are provided in offices and township area and the replacement of sodium vapour lamp to LED is increased from 350 KW to 750 KW. Further installation will be done in 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 54 nos. as per latest CTO Expansion-I (1.15 MTPA). There are 29 nos. of Process stacks and Dust & Gaseous emission from the above stacks are monitored through online stack monitoring equipment and the real time data of SPM, SO_2 & NO_x are transmitted to the Care Air Centre of Tamil Nadu Pollution Control Board. They are 25 nos. of Non process stacks and dust emission from the above stacks are monitored through online stack monitoring equipment and the real time data of SPM, SO_2 & NO_x are transmitted to the Care Air Centre of Tamil Nadu Pollution Control Board. Apart from the above, TNPCB is conducting bi-annual survey and manual monitoring is

		being conducted by NABL approved external laboratory on a monthly basis. The monitoring results are well within the permissible limits. The latest TNPCB survey details are given in the report as **Annexure – C.**
vi.	The ETP for Blast furnace effluent should be designed to meet Cyanide standards as notified by the MoEFCC.	There are two blast furnaces in our plant. BF#1 is having wet type gas cleaning plant and BF#2 is having dry type GCP. Presence of Cyanide level is not detected in Blast Furnace #1 effluent and the same is periodically ensured with external NABL accredited lab analysis. Sources for cyanide not anticipated in the input material.
vii.	No effluent shall be discharged outside the plant premises and 'zero' discharge shall be adopted.	To eliminate softening plants (High TDS effluent generation during regeneration) a RO plant of 4 MLD Capacity is installed in the upstream of the raw water. Based on the plant operations RO permeate is blended with fresh water and used for cooling applications thereby the existing Cycles of concentration (CoC) in cooling towers is increased to the maximum and the implementation resulted in lower evaporation loss and blown down water. Due to this project implementation about 1000 KLD fresh water consumption is being minimized. Waste water generated from the processes (Blow down water from cooling Towers of Blast Furnace, SMS, Bar and Rod Mill, Blooming Mill, Air Separation Plant & CPP's) are collected in a guard pond (capacity of 30000 m^3) and after the pretreatment, the treated water is reused 100 % in steel plant process to the application of Slag Granulation Plant of BF, Gas Cleaning Plant of BF & EOF, slag quenching, Coke quenching and greenery development. No effluent is discharged outside the plant premises and Zero discharge is ensured. To ensure the same, dedicated EMFM and CCTV camera are installed in the waste water treatment facility 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.	As per EPA notification, effluent standards are prescribed to by-product type coke oven plant and the parameters of cyanide and phenol limits concentration is 0.2 and 1.0

		mg/ltr respectively. Whereas 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.	As per EPA notification, visible emissions are prescribed to by-product type coke oven. Our plant is non recovery type and also the coke oven process works on i) negative pressure ii) stamped wet coal is being charged to the ovens which is side loading and thereby no visible emission is noticed.
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 related to emission standards to Iron and Steel plant. As per the standard the emission related to coke oven plant is applicable to by product type and our Coke Oven plant is of non-recovery type. Emission standards with respect to stack (COP gas is used for steam generation and COP stacks are functioning as emergency stack) and fugitive for Non recovery type coke oven plant are monitored and the results are being submitted along with half-yearly compliance report. Since, our plant is non recovery type ETP is not anticipated. To the sinter plant the stack emission standard is 150 mg/Nm^3 and all the stacks in sinter plant are being operated below the standard only and there is no effluent generation from sinter plant as it is dry process. To the Blast furnace the stack emission standards are BF stove of SPM,SO_2,NO_x is 50,250 ,150 mg/Nm^3 respectively, CO (v/v) is 1% max and other dedusting system SPM standard is 100 mg/Nm^3. Fugitive emission standards are PM_{10} – 4000, SO_2 – 200, NO_x – 150, CO – 10000 (1 hr) and Lead as Pb at cast house 2 µg/m^3 Effluent standards are pH 6.0-8.5, Suspended solids 50 mg/l, Oil and grease – 10 mg/l, Cyanide as CN – 0.2 mg/l and Ammoniacal Nitrogen is 50 mg/l.

		All the above results are well within the standards. To the Steel making Shop the stack emission standards are PM – Blowing/Lancing – 300 mg/Nm3, Normal operation – 150 mg/Nm3 and Secondary dedusting system SPM – 100 mg/Nm^3. Fugitive emission standards are PM_{10} – 4000, SO_2 – 200, NO_x – 150, CO – 10000 (1 hr) and Lead as Pb in fugitive - 2 µg/m^3 Effluent standards are pH 6.0-8.5, Suspended solids 50 mg/l, Oil and grease – 10 mg/l All the above results are well within the standards. Rolling Mills : Emission standard – 150 mg/Nm^3, Reheating furnaces – 150 mg/Nm^3 Effluent standards are pH 6.0-8.5, Suspended solids 50 mg/l, Oil and grease – 10 mg/l All the above results are well within the standards 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 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 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 is applicable a coal based boiler which is installed in CPP II. The boiler was installed in the year 2006 and the parameters of SPM, SO_2, Mercury are in the range of 35-40, 400-450, BDL against the norms of 50, 600, 0.03 mg/Nm^3 respectively. Specific water consumption is 3.1 m^3/Mwh against the norms of 3.5 m^3/Mwh. To comply NO_x emission as per the norms of 300

		mg/Nm^3, actions are initiated and the same will be complied before the time line given by CPCB. Fly ash generated is 100% disposed to local 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.	To meet the National Ambient Air Quality Emission Standards issued by the Ministry vide G.S.R. No. 826(E) dated 16th November 2009 Continuous Ambient Air Quality monitoring stations of four numbers are installed in the plant peripheral. One station is 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 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 8 locations to the parameters issued by the Ministry vide G.S.R. No. 826(E) dated 16th November 2009. Results (maximum, minimum & average) from July to December 2019 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.	Continuous Ambient Air Quality monitoring stations of four numbers are installed in the plant peripheral. One station is 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 are connected to Care Air Centre of TNPCB Online continuous monitoring systems are installed in process and non process stacks to monitor SPM, SO_2 & NO_x as per the CTO condition. Adequate Air Pollution Control devices are installed in the respective processes. The details are as follows Sinter Plant : APC control devices like ESP, Bag filters are installed in sintering system for process and raw material handling emission control system respectively. Coke oven plant : Quenching tower with grit arrestor is provided to control emission during coke

		quenching (wet type). Emergency stack are provided in coke oven process (all the waste gas is being used in WHRB for steam generation) Blast furnace : Wet & Dry Gas Cleaning Systems are provided in BF I & II respectively for control of dust emission from Blast Furnace. Bag filters are provided in Blast Furnace stock house and cast house dedusting. Steel making Shop : Wet gas cleaning system comprising of quenching chambers, Venturi scrubber and cyclone separator for cleaning of waste gas from Energy Optimizing Furnace I & I. Fumes Extraction System with Bag Filters to control fumes from Ladle furnaces (1 to IV) & 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 bag filters are provided as APC measures. 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.	A statement on carbon budgeting is prepared as per the condition and detailed report is submitted to Ministry dated on 15.02.2018 & 11.06.2019. The quantum of equivalent CO_2 being emitted by the existing plant operations is 2637532 MT/year, The amount of carbon sequestered annually by the existing green belt is 3342 MT/year The proposed green belt for FY 19-20 is 15000 Nos. The quantum of equivalent CO_2 that will be emitted due to the proposed expansion would be 1402474 MT/year. The first report was prepared within a period of 6 months from the date of EC and subsequently the report is being prepared &

		submitted every year.
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 in the range of 45 ^{o}C and of those employees are alternated to other jobs and ensure that no employee is subjected to work in high temperature area for more than 1 hr continuously. They 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 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.	Dust suppression systems are provided to control fugitive emissions from all the vulnerable sources like raw material unloading and storage yards. Bag filters and Dry & Wet fog systems are provided in raw material transfer points, coal handling and coke sorting plant of coke oven. To control the dust emission bag filters are provided in coal handling area of COP. Water sprinkler systems are provided in various locations to control secondary fugitive dust emissions generated during screening, loading, unloading, handling and storage of raw materials. A tyre washing is installed to control vehicular movement dust emission.
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 MoEF&CC 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 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 MoEF&CC dated 22.07.17.

	the particulate emission from WHRB.	
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 (1500 m^3) and town ship (15000 m^3) to harvest rain water. Capacity of the reservoir will 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 the detailed report with summary is 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 blast furnace, sludge from BF & EOF, Coke breeze from coke oven plant are re-used in sinter plant. Pellet plant is not installed in our process. SMS slag is sent for metal recovery system and further reused in cement industries/internal applications in sintering plant, EOF as hearth layer and cooling media respectively. Based on the R& D initiative trail runs are being conducted to make paver from EOF slag. 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 from the process 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.	The total plant area is 237.38 ha and Green belt development is established about 79.52 ha which is 33.5 % and 215534 trees exist throughout the plant (till Dec. 2019) with the survival rate of 90 - 95%. The species are planted in consultation with DFO and some of the important species are Gulmohar, Bamboo, Pungan, Nawar pazham, Neem,

		Eucalyptus, Ficus, Mahogany, Vaagai, Teak, Puvarasu, Baniyan, Vila, Banana, Casuarina, Fabaceae, tectona, saraca asoca. Bamboo,etc. The tree plantation 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 Specific condition ii, Rs.13 Crores is allotted towards ESC have been earmarked. Public Hearing issues, locals need and item-wise details along with time bound action plan is prepared and actions are being taken in a time bound manner. To monitor the same a committee is formed as per the condition and action taken reports are being submitted to the Ministry's Regional Office once in 6 months. The details are given in the **Annexure – B.**
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	CSR plan for 5 years (from 2017 to 2022) is prepared 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 considering and actions are initiated for compliance. As per the Companies Act, 2013 under clause 135, 2% of the average net profits of previous 3 years is earmarked as separate budget head towards CSR activities. The various activities of the plan is submitted to Ministry's Regional Office as part of the RO compliance report and the details of the CSR plan is uploaded in our company website and also provided in our company Annual Report. All the activities are planned and prepared based on SMART (Specific, Measurable, Achievable, Relevant and Time bound) concept. The expenditures are aimed at

	sustainable development and direct free distribution and temporary relief should not be included.	sustainable development and direct free distribution. The details are enclosed vide **Annexure - I.**
xxvi i	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 Chennai	Commitments made to the public during the Public Hearing is satisfactorily implemented.
xxvi ii.	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.	Stipulations made by the Tamil Nadu Pollution Control Board and the State Government is strictly adhered to compliance.
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 of Ministry of Environment, Forests and Climate Change (MoEF&CC)
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.	With the consultation of TNPCB four numbers of Continuous Ambient Air Quality monitoring stations are installed in the plant premises where maximum ground level concentration of PM_{10}, $PM_{2.5}$, SO_2 and NO_x is taking place. Data on Ambient Air Quality and Stack emission reports are being submitted to Ministry, MoEF&CC, 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	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

	waste water shall be utilized for plantation purpose.	December 1993. The treated waste water is utilized for process makeup and plantation purpose. The analysis report of the same is given in **Annexure – J.**
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 in BF and BLM. The noise levels of source and ambient are well within the standards prescribed under EPA Rules, 1989. The noise monitoring results by NABL approved laboratory is enclosed vide **Annexure – K.**
vi.	Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.	Health surveillance (Annual Health Check-up) is being conducted for all employees on yearly basis and records are being maintained in the Occupational Health Centre. There is no abnormality found.
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. Recharging ground water table will be monitored and recorded.
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.	To comply the environmental protection measures and safeguards as per the recommendation of EIA/EMP report, dust suppression systems like water sprinklers and dry fog systems for control of fugitive emissions arising from material handling. Bag filters are provided in the Sinter plant for dust control during crushing of raw materials. ESPs are provided for dust control in the Sintering process and Coal based boiler. Cast house dedusting systems are installed in both the Blast Furnace I & II for fugitive dust control in the casting process. Wet Gas cleaning systems are provided in Blast Furnace I and Dry Gas cleaning systems are provided in Blast Furnace II. Quenching tower with grit arrestor is provided to control emission during coke quenching (wet type). Secondary dedusting system (bag filters) are provided in Energy Optimizing Furnaces I & II, Ladle Refining Furnaces. Apart from the above we undertake socio-economic development activities in the surrounding villages like community development programmes, educational

		programmes, drinking water supply and health care etc. The details are given the CSR details.
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.	For environment pollution control measures capital cost and recurring cost/annum for environment pollution control measures are being implemented to the completed projects. As stated in the EIA report cost of 54 crores has been spent for environment pollution control measures as capital cost. Phase I expansion activity completed recently and the plant is being operated recently. Recurring cost/annum to the environment pollution control measures of 6.79 crores has been spent. The funds provided will not be diverted for any other purpose.
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. The copy of clearance letter 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 is uploaded on our website once in six months. Simultaneously the compliance reports are being submitted (email) to the Regional Office of the Mo EF&CC at Chennai and the Zonal Office of CPCB, Bangalore and the TNPCB, Chennai. The criteria pollutant levels namely; PM_{10}, SO_2, NO_X and stack emission are displayed near the entrance of east gate 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 Regionleal 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 once in six months to the Regional Office of MoEF&CC, Chennai (by email), and Zonal Office of CPCB, Bangalore and TNPCB, Chennai

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.	As prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, the environmental statement for each financial year ending 31st March in Form-V and status of compliance of environmental conditions is being submitted to the Regional Office of the MoEF&CC at Chennai. For the FY 2018-19, the report was submitted on 04.07.2019. The same is put on our company website periodically.
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 Chennai.	Environmental Clearance accorded from MoEF&CC dated on 07.07.2017 and the details have been advertised in Dinamani and The Indian Express on 14.07.2017. The same was advertised two local newspapers (Dinamani and The Indian Express) which are widely circulated in the region of which Tamil is the vernacular language of the locality concerned. A copy of the same is submitted to the MoEF&CC 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 July to December 2019

Month	Pig Iron (Metric Ton)	Steel production (Metric Ton)	Power generation (MW)
July 2019	1222.58	80291	2.37
August 2019	662.72	79628	3.467
September 2019	3458.94	72707	3.097
October 2019	3456.49	47391	3.136
November 2019	1887.48	57273	3.283
December 2019	3752.74	95024	3.351
Total	**14440.95 MT**	**432314 MT**	**18.704 MW**
Consent order quantity	**0.3 MTPA**	**1.15 MTPA**	**7.0 MW**
July to December 2019 production	**0.014 MT**	**0.432 MT**	**3.117 MW**

Note:

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

ANNEXURE - B
ESC SPENT

ESC - Fund Allocation & Spent (in Crs.)												
S.No	**Description of activities**	**No's**	**Year I (Jul'17 to Dec'17)**		**Year II (Jan'18 to Dec'18)**		**Year III (Jan'19 to Dec'19)**		**Year IV**	**Year V**	**Total Rs . (in Crs)**	
			Committed	**Spent**	**Committed**	**Spent**	**Committed**	**Spent**	**Committed**		**Committed**	**Spent**
1	Toilets	2000	0.50	0.32	0.75	0.19	0.75	0.04	0.50	0.50	**3.00**	**0.55**
2	Health center	1	0.25	0.00	0.25	0.00	0.25	0.22	0.25	0.00	**1.00**	**0.05**
3	Community hall	2	0.00	0.00	0.50	0.00	0.50	0.00	0.00	0.00	**1.00**	**0.00**
4	Hospital	1	0.50	0.00	0.50	0.00	0.50	0.00	0.25	0.25	**2.00**	**0.00**
5	Modern school New with GYM and Play ground	1	0.00	0.00	0.00	0.00	1.00	0.00	0.50	0.50	**2.00**	**0.00**
6	Watershed program	1	0.00	0.24	0.25	0.00	0.25	0.21	0.25	0.25	**1.00**	**0.30**
7	Water body strengthening/ Drinking water bore well drilling		0.00	0.00	0.25	0.20	0.25	0.20	0.25	0.25	**1.00**	**0.20**
8	Drainage		0.25	0.00	0.25	0.39	0.25	0.10	0.25	0.00	**1.00**	**0.49**
9	Government school improvement	1	0.00	0.47	0.25	0.34	0.25	0.17	0.25	0.25	**1.00**	**0.87**
Total			**1.50**	**1.03**	**3.00**	**1.12**	**4.00**	**0.94**	**2.50**	**2.00**	**13.00**	**3.09**
Note: At present many projects are under progress towards the ESC spent and the committed allocation will be completed as per the timeline												

Annexure - C

TNPCB survey report summary (Dated: 21.08.2019)

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)	96	26	32
02.	Malamanoor	81	23	31
03.	Goundanoor	76	22	29
04.	Solaiyur	65	20	26
05.	Mecheri Road, R.S.	62	19	24
06.	New Guest house	58	18	22
07.	Kuttapatty Pudur	50	15	20
08.	Ervadi.	51	14	20
09.	Amarathankadu	48	12	16
10.	Kaattuvalavu	52	16	21
11.	Pottaneri	57	18	23

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

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	81817	65	45	14
2	Sinter Plant – I - Cooling System	68177	62	25	7.0
3	Sinter Plant – I Dedusting System	540108	68	-	-
4	Sinter Plant – I RMHS	22233	80	-	-
5	Sinter Plant - II - Sinter Machine	388813	86	30	4.0
6	Sinter Plant - II - Cooling & De-dusting System	496240	66	-	-
7	Sinter Plant - II - RMHS	112797	42	-	-
8	Blast Furnace - I - Hot stove	81027	38	31	3.6

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	49336	75	-	-
10	Blast Furnace - I - RMHS	18520	72	-	-
11	Blast Furnace - I - Cast House	210746	90	-	-
12	Blast Furnace - II - Hot stove	123151	23	22	10.0
13	Blast Furnace - II - Stock House	123291	82	-	-
14	Blast Furnace - II - Cast House	336400	58	17	6.0
15	Blast Furnace - II - PCI	29074	95	35	7.0
16	CPP - I - Boiler	64959	47	52	3.2
17	VD boiler	10207	42	35	17.0
18	Energy Optimizing Furnace -I	70776	76	88	15.0
19	Energy Optimizing Furnace -II	38393	72	82	13.0
20	EOF Secondary dedusting system I & II	321572	95	-	-
21	Ladle Refining Furnace - 1	28490	46	16	5.0
22	Ladle Refining Furnace - 2,3,4	91359	74	23	9.0
23	CCM-I Steam Exhaust	13220	75	-	-
24	CCM-II Steam Exhaust - I	14907	92	-	-
25	CCM-II Steam Exhaust - II	17019	88	-	-
26	CCM-II Cut fumes Exhaust	31146	46	-	-
27	BRM – Re Heating Furnace	37977	55	82	5.0
28	BLM – Re Heating Furnace -I	34667	72	39	6.0
29	LRF –secondary de dusting system	354226	75	15	4.0
30	Coke Oven - WHRB -I	37200	46	152	5.0
31	Coke Oven - WHRB -II	47729	42	165	6.0
32	Coke Oven - WHRB -III	30178	48	180	9.0
33	BF Gas Fired Boiler	33420	22	95	5.0
34	DG Set (625 KVA)	555	47	25	9.1

ANNEXURE - D
Environment Analysis Report by NABL lab for the period

I. Ambient air quality results for the period from JULY TO DECEMBER 2019

Month	AQ-1				AQ-2			
	PM_{10}	$PM_{2.5}$	SO_2	NO_x	PM_{10}	$PM_{2.5}$	SO_2	NO_x
JULY-19	52.7	22.6	16.07	6.88	44.2	16.7	15.6	6.7
AUG-19	53	22.4	6.82	16	43.9	16.3	6.89	15.83
SEP-19	60.4	21.8	6.34	15.73	44.1	16.47	6.33	16.12
OCT-19	51.9	21.8	6.01	15.24	44.1	16.3	5.78	14.76
NOV-19	53	22.9	6.77	16.13	46.4	17	5.82	15.37
DEC-19	55.7	24.4	6.46	16.13	44.9	15.7	5.79	15.87
Average	54.45	22.65	8.07	14.35	44.6	16.41	7.7	14.11

Month	AQ-3				AQ-4			
	PM_{10}	$PM_{2.5}$	SO_2	NO_x	PM_{10}	$PM_{2.5}$	SO_2	NO_x
JULY-19	52	22.2	15.9	6.32	52.4	22.9	16.3	6.59
AUG-19	54.7	23.8	6.39	16.43	54.1	23.6	6.44	16.49
SEP-19	55.7	24.4	6.46	16.13	53.7	23	6.43	16.1
OCT-19	50.9	20.9	6.2	15.21	50.4	21.4	6.08	14.96
NOV-19	54.3	23.6	6.2	16.37	56.4	25.4	6.57	16.32
DEC-19	53.7	23	6..43	16.1	54.4	23.2	5.82	16.4
Average	53.55	22.98	7.94	14.42	53.57	23.25	7.94	14.48

Month	AQ-5				AQ-6			
	PM_{10}	$PM_{2.5}$	SO_2	NO_x	PM_{10}	$PM_{2.5}$	SO_2	NO_x
JULY-19	52.6	23.9	16.04	6.41	43.1	17.9	16	6.62
AUG-19	63.7	22	6.5	15.97	43.2	17.2	6.32	15.86
SEP-19	51	20.9	6.16	15.83	44.7	15.7	5.79	15.87
OCT-19	61.4	24.8	5.98	15.41	42.6	15.8	5.58	14.58
NOV-19	53.6	22.9	6.67	16.03	45.8	16.4	5.98	15.78
DEC-19	51.8	21.6	6.34	15.77	44.3	16.7	6.33	16.12
Average	55.68	22.68	7.94	14.24	43.95	16.61	7.67	14.14

Month	AQ-7				AQ-8			
	PM_{10}	$PM_{2.5}$	SO_2	NO_x	PM_{10}	$PM_{2.5}$	SO_2	NO_x
JULY-19	52.4	21.7	16	6.54	53.4	22.7	16.3	6.53
AUG-19	54.1	21.6	6.37	16.19	53.6	23.3	6.3	16.06
SEP-19	53	22.1	5.89	16.36	53.2	23	6.08	15.83
OCT-19	49.3	20.8	5.84	14.94	51	21	5.95	15.1
NOV-19	53	22	6.74	16.57	55.4	25.4	6.11	16.33
DEC-19	50.9	20.9	6.16	15.83	53.2	23	6.08	15.83
Average	52.12	21.51	7.83	14.4	53.3	23.06	7.8	14.28

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

II. Analysis of Ambient Air Quality Results - JULY TO DECEMBER 2019

Location	AQ-1	AQ-2	AQ-3	AQ-4	AQ-5	AQ-6	AQ-7	AQ-8
PM_{10} in µg/m^3								
Minimum	51.9	43.9	50.9	50.4	51	42.6	49.3	51
Maximum	60.4	46.4	55.7	56.4	63.7	45.8	54.1	55.4
Average	54.45	44.6	53.55	53.57	55.68	43.95	52.11	53.3
Standard deviation	3.2	0.9	17.5	2.0	5.4	1.2	1.7	1.4

Location	AQ1	AQ-2	AQ-3	AQ-4	AQ-5	AQ-6	AQ-7	AQ-8
$PM_{2.5}$ in µg/m^3								
Minimum	21.8	15.7	20.9	21.4	20.9	15.7	20.8	21
Maximum	24.4	17	24.4	25.4	24.8	17.9	22.1	25.4
Average	22.65	16.41	22.98	23.25	22.68	16.61	21.51	23.06
Standard deviation	0.96	0.43	1.26	1.29	1.47	0.84	0.5	1.4

Location	AQ-1	AQ-2	AQ-3	AQ-4	AQ-5	AQ-6	AQ-7	AQ-8
NO_x in µg/m^3								
Minimum	6.88	6.7	6.32	6.59	6.41	6.62	6.54	6.53
Maximum	16.13	16.12	16.43	16.49	16.03	16.12	16.57	16.33
Average	14.35	14.1	14.42	14.47	14.23	14.13	14.4	14.28
Standard deviation	3.67	3.66	3.99	3.90	3.84	3.72	3.89	3.81

Location	AQ-1	AQ-2	AQ-3	AQ-4	AQ-5	AQ-6	AQ-7	AQ-8
SO_2 in µg/m^3								
Minimum	6.01	5.78	6.2	5.82	5.98	5.58	5.84	5.95
Maximum	16.07	15.61	15.94	16.29	16.04	16.04	15.97	16.28
Average	8.07	7.7	7.93	7.93	7.94	7.67	7.82	7.8
Standard deviation	3.92	3.89	3.92	4.1	3.97	4.1	4.0	4.15

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 JULY TO DECEMBER 2019

Stack No.	Source	Average in mg/Nm^3			Discharge in m^3/day
		SPM	SO_2	NO_x	
1	Sinter Machine (Sinter Plant I)	76.2	43.4	38.4	77822
2	Cooling System (Sinter Plant I)	43.5	29.2	24.2	77440
3	Dedusting System (Sinter Plant I)	39.1	-	-	100929
4	Dust Extraction System For RMHS (Sinter Plant I)	31.0	-	-	15129
5	Hot Stove (Blast Furnace I)	24.8	36.4	33.9	50183
6	GCP Flare (Blast Furnace I)	29.7	39.4	28.9	9239
7	Stock House Dedusting System (Blast Furnace I)	39.2	-	-	58448
8	Dust Extraction System for RMHS (Blast Furnace I)	33.2	-	-	14824
9	Cast House Dedusting System (Blast Furnace I)	29.9	-	-	237374
10	CPP I Boiler 2 Nos of 25 TPH each (Common Stack)	28.9	41.9	37.7	62635
11	Energy Optimizing Furnace (Steel Melting Shop I)	42.1	40.8	35.4	37935
12	Ladle Furnaces (Steel Melting Shop I)	41.8	36.7	35.4	32640
13	Continuous Casting Machine (Steel Melting Shop I)	33.5	-	-	25929
14	Energy Optimizing Furnace (Steel Melting Shop II)	42.9	40.9	35.3	68995
15	Secondary Dedusting System EOF I&II (Combined SMS II)	46.6	-	-	391010
16	Sec. Dedusting System of LRF IV(Common) (SMS II)	44.0	-	-	348061
17	Ladle Furnaces(Common Stack) (Steel Melting Shop II)	40.5	35.4	34.8	49804
18	Vacuum Degasing Unit (Boiler) (Steel Melting Shop II)	29.8	35.8	32.7	15568
19	Steam Exhaust System (2 Nos) (Bloom Caster	32.6	-	-	23520

20	Cut Fumes Exhaust System (Bloom Caster)	39.3	-	-	56453
21	Reheating Furnace (Furnace 1 No2 Chimney) (BLM)	28.5	36.9	34.5	24008
22	Reheating Furnace (Furnace 1 No1 Chimney) (BLM)	25.9	35.6	29.4	22553
23	Coke Oven Chimney I (Coke Oven)	26.7	308.7	249.7	868
24	Coke Oven Chimney II (Coke Oven)	25.1	312.0	268.9	834
25	Coke Oven Chimney III (Coke Oven)	26.1	283.6	227.7	812
26	Waste Heat Recovery Boiler I (Coke Oven)	29.2	267.3	202.3	57379
27	Waste Heat Recovery Boiler II (Coke Oven)	27.4	261.6	201.5	57560
28	Waste Heat Recovery Boiler III (Coke Oven)	26.8	275.2	200.4	59848
29	BF Gas Fired Boiler	20.1	13.1	10.9	30581
30	Reheating Furnace (Bar & Rod Mill)	31.5	38.1	34.8	33381
31	Sinter Machine (Sinter Plant II)	117.5	49.4	44.1	497988
32	Plant Dedusting and Cooling (Sinter Plant II)	48.3	-	-	447843
33	Crushing of Fuel & Raw Materials (Sinter Plant II)	44.7	-	-	103195
34	Hot Stove (Blast Furnace II)	27.2	42.4	38.0	83562
35	GCP Flare (Blast Furnace II)	26.6	37.7	28.9	25343
36	Stock House Dedusting & RMHS (Blast Furnace II)	39.2	-	-	58448
37	Cast House Dedusting System (Blast Furnace II)	41.7	-	-	516882
38	Pulverized Coal Injection (Blast Furnace)	54.6	32.6	28.0	38895

III. Ambient Noise Level

Day and Night time noise level from **JULY TO DECEMBER 2019**

Location	Main gate	Guest House	BF II Ground hopper	ASP I & II	Temp gate	New Reser voir	RS Gate	Raw water pump house	Rail way Qua rters	South East corner	Rail end
Month	Day Time Noise Level in dB (A)										
JULY 19	63.4	62.8	68.1	66.1	65.0	64.3	67.5	61.2	65.9	69.2	68.0
AUG 19	63.4	62.8	68.1	66.1	65	64.3	67.5	61.2	65.9	69.2	68
SEP 19	61.5	59.2	66.9	67.4	68.3	66.8	65.1	63.5	62	66.5	63.2
OCT 19	66.4	62.1	66	65.4	68	67.2	66.7	65	62.8	64.3	65.6
NOV 19	64.5	63.2	68.3	67.1	66.7	67.9	69.2	63.6	62.5	65	66.8
DEC 19	65.3	62	65.2	66.8	68.3	66.5	68.4	65.2	67.3	66.4	64
Max	68.5	68.2	68.3	67.4	68.3	67.9	69.3	67	68.7	69.2	68
Min	61.5	59.2	65.2	65.4	65	64.3	65.1	61.2	62	64.3	63.2
Average	64.93	62.92	66.82	66.40	67.20	66.63	67.70	64.25	64.87	66.55	65.57
Std. dev.	2.422	2.944	1.209	0.822	1.284	1.236	1.619	1.965	2.820	1.807	1.764

Location	Main gate	Guest House	BF II Ground hopper	ASP I & II	Temp gate	New Reser voir	RS Gate	Raw water pump house	Rail way Qua rters	South East corner	Rail end
Month	Night Time Noise Level in dB (A)										
JULY 19	52.7	53.4	58.6	59.3	57.8	58.2	56	54.9	52.6	61.2	59.5
AUG 19	53	52.3	57.4	58.1	59.3	59.6	58.5	57.2	54.9	58.8	60.4
SEP 19	54.8	55.3	57.6	57.2	61.4	60.7	59.3	54.1	55.9	58	59.2
OCT 19	52.4	54.2	59.8	58.2	60.4	59	57.8	52.6	51.9	60.3	57.5
NOV 19	53	51.9	56.4	57.1	59.3	60.5	58.7	53.2	53.6	59.4	55.8
DEC 19	59.2	57.5	56	58.4	57.3	58.9	60.2	57.7	55.1	56.8	53.2
Max	59.2	57.5	59.8	59.3	61.4	60.7	60.2	57.7	55.9	61.2	60.4
Min	52.4	51.9	56	57.1	57.3	58.2	56	52.6	51.9	56.8	53.2
Average	54.18	54.10	57.63	58.05	59.25	59.48	58.42	54.95	54.00	59.08	57.60
Std. dev.	2.597	2.077	1.405	0.817	1.540	0.975	1.433	2.095	1.559	1.583	2.706

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.

Source noise levels for the period JULY TO DECEMBER 2019

S.No	Plant	Location	Unit	Std	July 19	Aug 19	Sep 19	Oct 19	Nov 19	Dec 19
1	SP-1	Mixing & Nodulizing Drum area	dB	90	87.0	87.6	85.9	86.3	86.9	86.1
2		Waste Gas fan area	dB	90	862	86.9	86.2	86.8	86.5	85.5
3		Cooling air fan area	dB	90	85.5	86.3	87.5	85.5	862	85.9
4		RMHS	dB	90	86.4	87.1	87.7	83.4	82.4	85.7
5	SP-2	Near de-dusting fan area	dB	90	86.6	86.0	86.8	86.0	86.7	86.3
6		Near circular cooler area	dB	90	83.8	82.5	85.3	87.1	87.5	87.0
7		Near Crusher house area	dB	90	86.1	85.9	85.1	85.9	86.8	87.4
8		Near waste gas fan area	dB	90	87.7	86.4	84.4	85.5	85.0	86.1
9		Product Screen House Area	dB	90	86.3	86.8	85.7	84.3	86.4	86.8
10	BF-1	Stock House area	dB	90	85.5	86.6	82.5	81.2	85.1	85.4
11		Furnace area	dB	90	851	85.7	84.8	86.1	86.9	87.6
12		Snort Valve area	dB	90	86.0	82.0	85.5	84.0	85.5	86.1
13		GCP area	dB	90	87.8	87.0	84.3	85.9	85.2	86.5
14	BF-2	Blower house area	dB	90	83.3	84.5	85.6	86.4	86.8	86.0
15		GCP area	dB	90	85.4	86.1	84.0	85.2	83.4	86.7
16		Near Furnace area	dB	90	83.1	85.0	86.4	87.5	87.9	87.1
17		Stock house area	dB	90	86.5	85.9	84.7	82.0	85.2	86.6
18		Snort valve area	dB	90	84.9	84.2	83.9	85.3	86.4	87.2
19		PCI Inner area	dB	90	86.2	87.3	86.1	87.7	87.1	87.6
20	CPP-I	Near Boiler area	dB	90	85.6	86.5	85.7	86.3	86.8	85.7
21		Near Turbine area	dB	90	85.5	85.9	85.1	85.9	86.4	87.1
22		Near Condenser area	dB	90	87.1	86.0	87.4	85.2	86.2	86.6
23		Near ID fan area	dB	90	86.4	85.4	84.8	85.8	87.0	87.8
24	EOF-I	Near Furnace area	dB	90	85.2	82.5	84.5	86.2	87.5	86.9
25		Near ID fan area	dB	90	85.7	84.2	85.9	84.4	85.2	85.6
26	EOF-II	Near Furnace area	dB	90	86.8	85.0	84.2	87.0	85.9	86.4
27		Near ID fan area	dB	90	84.5	83.7	85.9	86.8	87.3	86.2
28	CCM	Near Tundish area	dB	90	85.9	85.2	86.7	87.2	87.8	87.1
29	LRF	Furnace area	dB	90	87.0	86.3	85.0	84.5	85.2	86.8
30	BRM	Near Furnace area	dB	90	86.4	87.1	84.9	86.7	86.0	86.3

S.No	Plant	Location	Unit	Std	July 19	Aug 19	Sep 19	Oct 19	Nov 19	Dec 19
31		Three High Rod mill area	dB	90	86.8	87.4	86.1	87.4	87.1	87.9
32		Near Blower area	dB	90	85.5	86.0	85.3	84.8	85.9	86.7
33	ASP-2	LOX Pump area	dB	90	87.3	86.4	86.6	86.0	87.2	87.5
34		Main Compressor House area	dB	90	86.2	86.8	84.8	85.4	83.9	84.8
35		Air Compressor area - Inner	dB	90	84.9	85.5	85.0	87.1	86.4	85.2
36	COP	Coke Cutter area - during operation	dB	90	86.6	86.1	87.5	87.9	87.2	87.6
37		Double duct screen house area	dB	90	86.4	87.3	86.2	85.4	86.4	86.9
38		Warf area	dB	90	85.9	86.7	85.8	86.6	85.8	86.0
39		Hammer Mill area	dB	90	87.1	86.0	86.4	86.0	84.5	85.5
40		Stamping Station Area - I	dB	90	83.5	84.9	85.1	85.8	86.3	85.1
41		Stamping Station Area - II	dB	90	82.0	83.7	84.6	83.1	83.6	84.7
42		Single Duct Screen	dB	90	86.2	84.2	85.7	84.5	83.2	88.1
43	BLM	UV Bag Inspection area	dB	90	87.9	82.0	87.4	87.9	88.4	88.5
44		Near CP-6 Hacksaw	dB	90	87.4	87.0	88.1	88.3	88.0	88.3
45		Near CP-5 Mill area	dB	90	88.0	88.2	87.9	87.5	88.2	88.5
46	CPP-2	Near Admin Building area	dB	90	70.6	68.4	72.9	74.0	75.6	76.8
47		Near STG building Inner area	dB	90	85.0	76.1	70.4	72.3	73.4	74.5
48		Near Turbine area - 1	dB	90	86.2	84.9	84.0	82.2	84.0	85.7
49		Near Cooling Tower area	dB	90	84.3	85.5	83.6	81.9	83.5	86.1
50		Near ID fan area	dB	90	85.8	86.3	86.1	85.1	81.9	83.4
51		Near Turbine area - 2	dB	90	83.4	84.8	85.5	83.7	82.3	84.0
52		Near ESP Area	dB	90	82.5	83.2	84.7	85.4	86.8	82.5

ANNEXURE # E

Environment Analysis Report by NABL lab for the period

I. Ambient air quality results for the period from JULY TO DECEMBER 2019

Month	AQ-1				AQ-2			
	PM_{10}	$PM_{2.5}$	SO_2	NO_x	PM_{10}	$PM_{2.5}$	SO_2	NO_x
JULY-19	52.7	22.6	16.07	6.88	44.2	16.7	15.6	6.7
AUG-19	53	22.4	6.82	16	43.9	16.3	6.89	15.83
SEP-19	60.4	21.8	6.34	15.73	44.1	16.47	6.33	16.12
OCT-19	51.9	21.8	6.01	15.24	44.1	16.3	5.78	14.76
NOV-19	53	22.9	6.77	16.13	46.4	17	5.82	15.37
DEC-19	55.7	24.4	6.46	16.13	44.9	15.7	5.79	15.87
Average	54.45	22.65	8.07	14.35	44.6	16.41	7.7	14.11

Month	AQ-3				AQ-4			
	PM_{10}	$PM_{2.5}$	SO_2	NO_x	PM_{10}	$PM_{2.5}$	SO_2	NO_x
JULY-19	52	22.2	15.9	6.32	52.4	22.9	16.3	6.59
AUG-19	54.7	23.8	6.39	16.43	54.1	23.6	6.44	16.49
SEP-19	55.7	24.4	6.46	16.13	53.7	23	6.43	16.1
OCT-19	50.9	20.9	6.2	15.21	50.4	21.4	6.08	14.96
NOV-19	54.3	23.6	6.2	16.37	56.4	25.4	6.57	16.32
DEC-19	53.7	23	6..43	16.1	54.4	23.2	5.82	16.4
Average	53.55	22.98	7.94	14.42	53.57	23.25	7.94	14.48

Month	AQ-5				AQ-6			
	PM_{10}	$PM_{2.5}$	SO_2	NO_x	PM_{10}	$PM_{2.5}$	SO_2	NO_x
JULY-19	52.6	23.9	16.04	6.41	43.1	17.9	16	6.62
AUG-19	63.7	22	6.5	15.97	43.2	17.2	6.32	15.86
SEP-19	51	20.9	6.16	15.83	44.7	15.7	5.79	15.87
OCT-19	61.4	24.8	5.98	15.41	42.6	15.8	5.58	14.58
NOV-19	53.6	22.9	6.67	16.03	45.8	16.4	5.98	15.78
DEC-19	51.8	21.6	6.34	15.77	44.3	16.7	6.33	16.12
Average	55.68	22.68	7.94	14.24	43.95	16.61	7.67	14.14

Month	AQ-7				AQ-8			
	PM_{10}	$PM_{2.5}$	SO_2	NO_x	PM_{10}	$PM_{2.5}$	SO_2	NO_x
JULY-19	52.4	21.7	16	6.54	53.4	22.7	16.3	6.53
AUG-19	54.1	21.6	6.37	16.19	53.6	23.3	6.3	16.06
SEP-19	53	22.1	5.89	16.36	53.2	23	6.08	15.83
OCT-19	49.3	20.8	5.84	14.94	51	21	5.95	15.1
NOV-19	53	22	6.74	16.57	55.4	25.4	6.11	16.33
DEC-19	50.9	20.9	6.16	15.83	53.2	23	6.08	15.83
Average	52.12	21.51	7.83	14.4	53.3	23.06	7.8	14.28

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

II. Analysis of Ambient Air Quality Results - JULY TO DECEMBER 2019

Location	AQ-1	AQ-2	AQ-3	AQ-4	AQ-5	AQ-6	AQ-7	AQ-8
PM_{10} in µg/m^3								
Minimum	51.9	43.9	50.9	50.4	51	42.6	49.3	51
Maximum	60.4	46.4	55.7	56.4	63.7	45.8	54.1	55.4
Average	54.45	44.6	53.55	53.57	55.68	43.95	52.11	53.3
Standard deviation	3.2	0.9	17.5	2.0	5.4	1.2	1.7	1.4

Location	AQ1	AQ-2	AQ-3	AQ-4	AQ-5	AQ-6	AQ-7	AQ-8
$PM_{2.5}$ in µg/m^3								
Minimum	21.8	15.7	20.9	21.4	20.9	15.7	20.8	21
Maximum	24.4	17	24.4	25.4	24.8	17.9	22.1	25.4
Average	22.65	16.41	22.98	23.25	22.68	16.61	21.51	23.06
Standard deviation	0.96	0.43	1.26	1.29	1.47	0.84	0.5	1.4

Location	AQ-1	AQ-2	AQ-3	AQ-4	AQ-5	AQ-6	AQ-7	AQ-8
NO_x in µg/m^3								
Minimum	6.88	6.7	6.32	6.59	6.41	6.62	6.54	6.53
Maximum	16.13	16.12	16.43	16.49	16.03	16.12	16.57	16.33
Average	14.35	14.1	14.42	14.47	14.23	14.13	14.4	14.28
Standard deviation	3.67	3.66	3.99	3.90	3.84	3.72	3.89	3.81

Location	AQ-1	AQ-2	AQ-3	AQ-4	AQ-5	AQ-6	AQ-7	AQ-8
SO_2 in µg/m^3								
Minimum	6.01	5.78	6.2	5.82	5.98	5.58	5.84	5.95
Maximum	16.07	15.61	15.94	16.29	16.04	16.04	15.97	16.28
Average	8.07	7.7	7.93	7.93	7.94	7.67	7.82	7.8
Standard deviation	3.92	3.89	3.92	4.1	3.97	4.1	4.0	4.15

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.

ANNEXURE - F

Details of Stacks & Air Pollution Control measures

S. No.	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		Stock House Dedusting System	Non- Process	Bag filter
8		Dust Extraction System for RMHS	Non- Process	Bag filter
9		Cast House Dedusting System	Non- Process	Bag filter
10	**Captive Power Plant I**	Power Plant Boiler 2 Nos of 25 TPH each (Common Stack)	Process	Stack
11	**Steel Melting Shop I**	Energy Optimizing Furnace	Process	Venturi Scrubber
12		Ladle Furnaces	Process	Bag filter
13		Continuous Casting Machine (Billet Cast)	Process	Stack
14	**Steel Melting Shop II**	Energy Optimizing Furnace	Process	Venturi Scrubber
15		Secondary Dedusting system of Energy Optimizing Furnace I & II (Common)	Non- Process	Bag filter
16		Secondary Dedusting System of LRF I to IV (Common)	Non- Process	Bag filter
17		Ladle Furnaces (Common Stack)	Process	Bag filter
18		Vacuum Degassing Unit (Boiler)	Process	Stack
19	**Bloom Caster**	Steam Exhaust System (2Nos) (Bloom Caster)	Process	Stack
20	**Bloom Caster**	Cut Fumes Exhaust System	Non Process	Stack
21	**CCM III**	Steam Exhaust System (CCM-3)	Process	Stack
22	**Blooming Mill**	Reheating Furnaces (Furnace - 1 Chimney No. 1 & No. 2)	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		Waste Heat Recovery Boiler -IV	Process	Stack
32		Waste Heat Recovery Boiler -V	Process	Stack
33		BF Gas Fired Boiler	Process	Stack
34	**Lime Calcining Plant**	Lime Kiln	Process	Bag filter
35	**Bar & Rod Mill**	Re-heating Furnace	Process	Stack
36		Intermediate Furnace	Process	Stack
37	**Sinter Plant II**	Sinter Machine	Process	ESP
38		Plant De-dusting and Cooling	Non- Process	ESP
39		Crushing of fuel and Raw materials	Non- Process	Bag filter
40	**Blast Furnace II**	Hot Stove	Process	Stack
41		GCP Flare	Non- Process. Emergency Flaring	Stack
42		Stack House Dedusting and RMHS	Non- Process	Bag filter
43		Cast house Dedusting system	Non- Process	Bag filter
44		Pulverized Coal Injection	Process	Bag filter
45	**Captive Power Plant II**	Coal fired Boiler (127 TPH)	Process	ESP with stack

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
21	01.07.2013 to 31.12.2013	3300
22	01.01.2014 to 30.06.2014	6300
23	01.07.2014 to 31.12.2014	7300
23	01.01.2015 to 31.06.2015	9600
24	01.07.2015 to 31.12.2015	10000
25	01.01.2016 to 30.06.2016	1400
26	01.07.2016 to 31.12.2016	4600
27	01.01.2017 to 30.06.2017	700
28	01.07.2017 to 31.12.2017	3250
29	01.01.2018 to 30.06.2018	3650
30	01.07.2018 to 31.12.2018	11385
31	01.01.2019 to 30.06.2019	4490
32	01.07.2019 to 31.12.2019	5864
Total		**215534**

Annexure - H

Corporate Responsibility for Environmental Protection (CREP)

Compliance status / actions to the conditions mentioned in the 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

	- 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).	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.
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 55 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.	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.

	- Suppression of fugitive emissions using nitrogen gas or other inert gas.	Water sprinkling system and the compressed air is used in the de-dusting for 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 MoEF & CC.
	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

RESULTS OF TRADE EFFLUENT ANALYSIS BY NABL ACCREDITED LABORATORY

S.No	Parameter	Unit	December 2019	As per JSW Steel Ltd., Salem works Consent order No. 1907122515438 Dated : 25/06/2019
1	pH @ 25 °C	-	7.48	5.5 - 9.0
2	Colour	Hazen	20	-
3	Odour	-	Unobjectionable	-
4	Temperature	°C	29	Shall not exceed 5 °C above the receiving water temperature
5	Particle size of Suspended Solids	-	Passes through 850 µ I.S. Sieve	Shall pass 850 µ I.S. Sieve
6	Total Dissolved Solids	mg/l	1291	2100
7	Suspended Solids	mg/l	28	100
8	Chloride as Cl	mg/l	184	1000
9	Sulphate as SO_4	mg/l	408	1000
10	BOD 3 Days @ 27 °C	mg/l	15	30
11	Oil & Grease	mg/l	BDL (DL:1.0)	10
12	COD	mg/l	147	250
13	Arsenic as As	mg/l	BDL (DL:0.005)	0.2
14	Mercury as Hg	mg/l	BDL (DL:0.001)	0.01
15	Lead as Pb	mg/l	BDL (DL:0.01)	0.1
16	Zinc as Zn	mg/l	BDL (DL:0.005)	1.0

17	Copper as Cu	mg/l	BDL (DL:0.01)	3.0
18	Cadmium as Cd	mg/l	BDL (DL:0.005)	2.0
19	Nickel as Ni	mg/l	BDL (DL:0.01)	3.0
20	Cyanide as CN	mg/l	BDL (DL:0.1)	0.2
21	Phenolic compounds as C_6H_5OH	mg/l	BDL (DL:0.01)	1.0
22	Percent Sodium, %	%	29	-
23	Residual Sodium Carbonate	mg/l	Nil	-
24	Sulphide as S	mg/l	BDL (DL:0.5)	2.0
25	Boron as B	mg/l	BDL (DL:0.1)	2.0
26	Total Chromium as Cr	mg/l	BDL (DL:0.03)	2.0
27	Hexavalent Chromium (Cr^{6+})	mg/l	BDL (DL:0.03)	0.1
28	Fluoride as F	mg/l	BDL (DL:0.1)	2.0
29	Dissolved Phosphate as P	mg/l	0.61	5.0
30	Total Residual Chlorine	mg/l	BDL (DL:0.1)	1.0
31	Free ammonia as NH_3	mg/l	0.75	5.0
32	Ammoniacal Nitrogen as N	mg/l	8.03	50
33	Total Kjeldahl Nitrogen as N	mg/l	13.24	100

ADVANCED ENVIRONMENTAL LABORATORY,
TAMILNADU POLLUTION CONTROL BOARD,
SALEM – 636 004.

Accredited by NABL – (ISO/IEC 17025:2005)

ULR-TC68741800002124 F

ROA NO.371 /AEL – SLM/2019 – 20 Dt.18.11.2019

1.	Name and address of the sender	The District Environmental Engineer
		Tamilnadu Pollution Control Board
		Salem.
2.	Date and time of collection	24.10.2019 at 03.30 PM - 03.45 PM
3.	Date and time of receipt at Lab.	25.10.2019 at 01.00 PM
4.	Condition of seal, fastening and Container	Unsealed/Unfastened Condition in Polythene carbuoy 2.5 lits X 1 No.
5.	Nature and Number of samples	1 No. of Trade Effluent Sample.

DEE Code No.	Lab Code No.	Point of Collection	Whether Untreated/ Treated
AB-15/10-19	1348	Guard Pond	Treated

Sl. No.	Parameters	Unit	Sample No.	Test Method
			1348/ AB-15/10-19	
01.	pH at 25°C	Number	7.79	APHA 23rd Edi.2017 4500 – H
02.	TSS at 103°C – at 105°C	mg/l	12	APHA 23rd Edi.2017 - 2540 - D
03.	Total Dissolved Solids at 180°C	mg/l	724	APHA 23rd Edi.2017 2540 - C
04.	Chloride as Cl	mg/l	230	APHA 23rd Edi.2017 4500-ClB
05.	Sulphates as SO_4	mg/l	10	APHA 23rd Edi.2017 - 4500 E
06.	Oil & Grease	mg/l	<4	APHA 23rd Edi.2017 5520 - D
07.	BOD (at 27°C for 3 days)	mg/l	3.6	IS3025 (P44) 1993 Reaffirmed 2009
08.	COD	mg/l	24	APHA 23rd Edi.2017 5220
09.	Ph.Compounds	mg/l	<0.05	APHA 23rd Edi. 2017 5530 C
10.	Ammonical Nitrogen as NH_3-N	mg/l	5.04	APHA 23rd Edi. 2017 4500 – NH_3 C
11.	Cyanide	mg/l	<0.05	APHA 23rd Edi.2017 4500-CN E

Note: < = Indicates Less than Minimum Detectable Limit.

- End of Test Report -

Checked by

N. Vadivu 11/12/19

Dy. Chief Scientific Officer

Authorized signatory

D. Mohanraj 11/12/19

Assistant Director (Lab)

Annexure #K

Ambient noise level (Day and Night time) Report for the period JULY to DECEMBER 2019

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)										
JULY 19	63.4	62.8	68.1	66.1	65.0	64.3	67.5	61.2	65.9	69.2	68.0
AUG 19	63.4	62.8	68.1	66.1	65	64.3	67.5	61.2	65.9	69.2	68
SEP 19	61.5	59.2	66.9	67.4	68.3	66.8	65.1	63.5	62	66.5	63.2
OCT 19	66.4	62.1	66	65.4	68	67.2	66.7	65	62.8	64.3	65.6
NOV 19	64.5	63.2	68.3	67.1	66.7	67.9	69.2	63.6	62.5	65	66.8
DEC 19	65.3	62	65.2	66.8	68.3	66.5	68.4	65.2	67.3	66.4	64
Max	68.5	68.2	68.3	67.4	68.3	67.9	69.3	67	68.7	69.2	68
Min	61.5	59.2	65.2	65.4	65	64.3	65.1	61.2	62	64.3	63.2
Average	64.93	62.92	66.82	66.40	67.20	66.63	67.70	64.25	64.87	66.55	65.57
Std. dev.	2.422	2.944	1.209	0.822	1.284	1.236	1.619	1.965	2.820	1.807	1.764

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)										
JULY 19	52.7	53.4	58.6	59.3	57.8	58.2	56	54.9	52.6	61.2	59.5
AUG 19	53	52.3	57.4	58.1	59.3	59.6	58.5	57.2	54.9	58.8	60.4
SEP 19	54.8	55.3	57.6	57.2	61.4	60.7	59.3	54.1	55.9	58	59.2
OCT 19	52.4	54.2	59.8	58.2	60.4	59	57.8	52.6	51.9	60.3	57.5
NOV 19	53	51.9	56.4	57.1	59.3	60.5	58.7	53.2	53.6	59.4	55.8
DEC 19	59.2	57.5	56	58.4	57.3	58.9	60.2	57.7	55.1	56.8	53.2
Max	59.2	57.5	59.8	59.3	61.4	60.7	60.2	57.7	55.9	61.2	60.4
Min	52.4	51.9	56	57.1	57.3	58.2	56	52.6	51.9	56.8	53.2
Average	54.18	54.10	57.63	58.05	59.25	59.48	58.42	54.95	54.00	59.08	57.60
Std. dev.	2.597	2.077	1.405	0.817	1.540	0.975	1.433	2.095	1.559	1.583	2.706

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.

Source noise levels for the period JULY TO DECEMBER 2019

S.No	Plant	Location	Unit	Std	July 19	Aug 19	Sep 19	Oct 19	Nov 19	Dec 19
1	SP-1	Mixing & Nodulizing Drum area	dB	90	87.0	87.6	85.9	86.3	86.9	86.1
2		Waste Gas fan area	dB	90	862	86.9	86.2	86.8	86.5	85.5
3		Cooling air fan area	dB	90	85.5	86.3	87.5	85.5	862	85.9
4		RMHS	dB	90	86.4	87.1	87.7	83.4	82.4	85.7
5	SP-2	Near de-dusting fan area	dB	90	86.6	86.0	86.8	86.0	86.7	86.3
6		Near circular cooler area	dB	90	83.8	82.5	85.3	87.1	87.5	87.0
7		Near Crusher house area	dB	90	86.1	85.9	85.1	85.9	86.8	87.4
8		Near waste gas fan area	dB	90	87.7	86.4	84.4	85.5	85.0	86.1
9		Product Screen House Area	dB	90	86.3	86.8	85.7	84.3	86.4	86.8
10	BF-1	Stock House area	dB	90	85.5	86.6	82.5	81.2	85.1	85.4
11		Furnace area	dB	90	851	85.7	84.8	86.1	86.9	87.6
12		Snort Valve area	dB	90	86.0	82.0	85.5	84.0	85.5	86.1
13		GCP area	dB	90	87.8	87.0	84.3	85.9	85.2	86.5
14	BF-2	Blower house area	dB	90	83.3	84.5	85.6	86.4	86.8	86.0
15		GCP area	dB	90	85.4	86.1	84.0	85.2	83.4	86.7
16		Near Furnace area	dB	90	83.1	85.0	86.4	87.5	87.9	87.1
17		Stock house area	dB	90	86.5	85.9	84.7	82.0	85.2	86.6
18		Snort valve area	dB	90	84.9	84.2	83.9	85.3	86.4	87.2
19		PCI Inner area	dB	90	86.2	87.3	86.1	87.7	87.1	87.6
20	CPP-I	Near Boiler area	dB	90	85.6	86.5	85.7	86.3	86.8	85.7
21		Near Turbine area	dB	90	85.5	85.9	85.1	85.9	86.4	87.1
22		Near Condenser area	dB	90	87.1	86.0	87.4	85.2	86.2	86.6
23		Near ID fan area	dB	90	86.4	85.4	84.8	85.8	87.0	87.8
24	EOF-I	Near Furnace area	dB	90	85.2	82.5	84.5	86.2	87.5	86.9
25		Near ID fan area	dB	90	85.7	84.2	85.9	84.4	85.2	85.6
26	EOF-II	Near Furnace area	dB	90	86.8	85.0	84.2	87.0	85.9	86.4
27		Near ID fan area	dB	90	84.5	83.7	85.9	86.8	87.3	86.2

S.No	Plant	Location	Unit	Std	July 19	Aug 19	Sep 19	Oct 19	Nov 19	Dec 19
28	CCM	Near Tundish area	dB	90	85.9	85.2	86.7	87.2	87.8	87.1
29	LRF	Furnace area	dB	90	87.0	86.3	85.0	84.5	85.2	86.8
30	BRM	Near Furnace area	dB	90	86.4	87.1	84.9	86.7	86.0	86.3
31		Three High Rod mill area	dB	90	86.8	87.4	86.1	87.4	87.1	87.9
32		Near Blower area	dB	90	85.5	86.0	85.3	84.8	85.9	86.7
33	ASP-2	LOX Pump area	dB	90	87.3	86.4	86.6	86.0	87.2	87.5
34		Main Compressor House area	dB	90	86.2	86.8	84.8	85.4	83.9	84.8
35		Air Compressor area - Inner	dB	90	84.9	85.5	85.0	87.1	86.4	85.2
36	COP	Coke Cutter area - during operation	dB	90	86.6	86.1	87.5	87.9	87.2	87.6
37		Double duct screen house area	dB	90	86.4	87.3	86.2	85.4	86.4	86.9
38		Warf area	dB	90	85.9	86.7	85.8	86.6	85.8	86.0
39		Hammer Mill area	dB	90	87.1	86.0	86.4	86.0	84.5	85.5
40		Stamping Station Area - I	dB	90	83.5	84.9	85.1	85.8	86.3	85.1
41		Stamping Station Area - II	dB	90	82.0	83.7	84.6	83.1	83.6	84.7
42		Single Duct Screen	dB	90	86.2	84.2	85.7	84.5	83.2	88.1
43	BLM	UV Bag Inspection area	dB	90	87.9	82.0	87.4	87.9	88.4	88.5
44		Near CP-6 Hacksaw	dB	90	87.4	87.0	88.1	88.3	88.0	88.3
45		Near CP-5 Mill area	dB	90	88.0	88.2	87.9	87.5	88.2	88.5
46	CPP-2	Near Admin Building area	dB	90	70.6	68.4	72.9	74.0	75.6	76.8
47		Near STG building Inner area	dB	90	85.0	76.1	70.4	72.3	73.4	74.5
48		Near Turbine area - 1	dB	90	86.2	84.9	84.0	82.2	84.0	85.7
49		Near Cooling Tower area	dB	90	84.3	85.5	83.6	81.9	83.5	86.1
50		Near ID fan area	dB	90	85.8	86.3	86.1	85.1	81.9	83.4
51		Near Turbine area - 2	dB	90	83.4	84.8	85.5	83.7	82.3	84.0
52		Near ESP Area	dB	90	82.5	83.2	84.7	85.4	86.8	82.5