

Poll/Six Mon/FC-2/9-A: 2685
Date 30.11.2021



To,

The Member Secretary (IA-II)
IA Division (Industry I)
Ministry of Environment, Forest and Climate Change
Indira Paryavaran Bhavan, Aliganj
New Delhi - 110 003

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CIN No.: L27100MH1984PLC034003
GSTIN NO.: 27AACCS3376C1ZH

**Subject : Six Monthly Compliance Report of the Environment Clearance
(Period 01st April 2021 to 30th Sept 2021)**

Reference : 1) MoEF, Govt. Of India Environment Clearance No. F.No.
J-11011/355/2004-IA II (I) dtd 21.02.2006.
2) MoEF, Govt. Of India Environment Clearance No. F.No.
J-11011/355/2004-IA II (I) dtd 02.05.2017.
3) MoEF, Govt. Of India Environment Clearance No. F.No.
J-11011/355/2004-IA II (I) dtd 09.11.2020.

Dear Sir,

With reference to above EC letter, we are submitting herewith the status of progress & Six monthly compliance report of the conditions stipulated in environmental clearance granted to **M/s Sun flag Iron & Steel Co.Ltd, Bhandara Road (Warthi)**

Hope you will find it in order.

Thanking you.

Yours faithfully.
For SUNFLAG IRON & STEEL CO.LTD.

Ramchandra Dalvi
Director-Technical

Encls : as above

CC To : 1. The In charge, CPCB, Vadodara, Gujrat
2. The Regional Officer, MPCB, Nagpur
3. The Sub-Regional Office, MPCB, Bhandara
4. The Regional Office, MoEFCC, Nagpur

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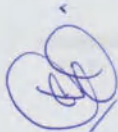
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SIX MONTHLY COMPLIANCE REPORT

PART I : DATA SHEET

1	Project Type: River-valley / Mining / Industry / Thermal / Nuclear / Other (Specify)	Integrated steel Plant
2	Name of the Project	M/s Sunflag Iron & Steel Co.Ltd, Located near Village Eklari, Warthi, Taluka : Mohadi, Bhandara, District of Maharashtra.
3	Clearance Letter (s) / OM No. and date	1) J-11011/355/2004- IA.II (I) dated 21.02.2006 2) J-11011/355/2004- IA.II (I) dated 02.05.2017 3) J-11011/355/2004- IA.II (I) dated 09.11.2020
4	Location	
	a. District (s)	Bhandara
	b. State (s)	Maharashtra
	c. Latitude / Longitude	21°14'5" North / 79°37'50" East
5	Address for correspondence	Director - Technical
	Address of concerned Project Chief Engineer (with Pin Code & Telephone / Telex / Fax Numbers)	M/s Sunflag Iron & Steel Co. Ltd., Village – Warthi, Tah.- Mohadi, District – Bhandara , Pin :441905 Maharashtra Ph. 07184 – 285551 to 285555 Fax No. (0712) 2520360
6	Salient features	

a. Of the Project	M/s Sunflag Iron & Steel Co. Ltd. Is integrated Steel Plant having capacity @1.0 Million Tonnes per Annum of high quality special steel in the form of rolled steel products using iron ore. Coal & Coke as basic inputs. The plant has a Direct Reduction Plant (DRP) to produce sponge iron & Mini Blast Furnace (MBF) to produce hot metal for captive consumption in the Steel Melting Shop(SMS). Further liquid metal is converted to Steel Billets & Blooms at Continuous Casting Machine (CCM). The steel billets are taken to Bar & Section Mill (BSM) & Alloy Steel Mill (ASM) and steel Blooms are taken into Blooming mill to produce rolled steel products. The 30 MW Captive Power Plant (CPP) is also installed along with other ancillary/utility plants in the factory. Sunflag Steel caters to the demands of various core sector industries like Automobiles, Railway Defense, Agriculture Engineering Industry etc. Sunflag Steel is located at 21°14'05" North latitude and 79°37'50" East longitude. The mean height of the plant site is 273 meters above MSL, Plant is located near Bhandara Road railway station at a distance of 53 km to the E-NE direction of Nagpur. More specifically it is located at about 7.5 km as crow flies from Bhandara in S-SE direction. The factory have is certified on ISO 9001:2015, IATF 16949:2016 and TUV-NORD on ISO-14001:2015 and BS OHSAS:45001:2018..
b. Of the Environmental Management Plan	At DRP air pollution control system provided for producing sponge iron from kiln comprises of waste heat recovery boilers and electrostatic precipitators.,nos.of bag filters also have been provided to control secondary emission. At SMS combined fume/dust extraction and control system (i.e. The Primary and Secondary Fume Extraction System for SMS had been installed for improving the Dust & Fume extraction) comprising of Water cooled ducts, ACGC, reverse air bag house, pulse jet bag house have provided for electric arc furnace (EAF) and ladle heating furnace (LHF) and Stainless steel converter. At CPP, air pollution control system comprising of devices i.e. economizer, air pre heater, and electrostatic precipitator have been provided. At MBF, adequate APC system has been provided. from MBF, the dust-laden gas after the dust catcher is cleaned in the GCP. There is two-stage venturi system, first stage provides the pre-cleaning of the gas and the second stage provides the final cleaning of the gas. The Blast Furnace gas after the venturi enters the moisture separator, where the finest water droplets are flung against the scrubber shell and run down into the sump and gas free particle leaves the GCP, the cleaned MBF gas is used at Sinter plant, Reheating furnaces of rolling mills and Hardening furnace.



		At Sinter plant. The system comprises of Suction Ducting, Dust Settling Chamber, Electrostatic Precipitator, ID Fan and Bag Filters. On-line continuous ambient air quality monitoring system has been installed at three location. On line continuous monitoring system has been installed in stacks to monitor SPM & SO₂ and connected to CPCB server. On-line continuous effluent quality monitoring system has been installed and connected to CPCB server.
7	Breakup of the Project area	
	a. Submergence Area: Forest & Non Forest	Project area is located in non forest land.
	b. Others	---
8	Breakup of the Project affected population with enumeration of those losing houses/dwelling units only, agricultural land only, both dwelling units & both dwelling units & agricultural land & landless labourers/artisan a. SC, ST / Adivasis b. Others	Not Applicable
9	Financial Details	
	a. Project costs as originally planned & subsequent revised estimates and the year of price reference.	Rs.1510 Crores for expansion project, after getting EC vide No.J-11011/355/2004- IA.II (I) dated 02.05.2017. (Total expenditure on entire Sunflag Steel project is Rs.1326.22 crores for existing plant so far) till date the expansion projects completed at cost of Rs.522.23 crores included production units of Pig Iron /Hot Metal, Ingot /Billets, Rolled steel Products and Sinter Plant .



b. Allocations made for Environmental Management Plan with item wise & year wise breakup.	At present under existing unit following expenditure has already been made towards environmental protection, the same are as follows.			
	S.N.	Environmental Component	Capital Cost incurred so far (Rs. in Lacs)	Recurring Cost per annum
	1.	Air Pollution Control (ESP's, Bag filters, water cooled ducts,GCP, ACGC,Silos, stacks,online monitoring system for ambient and stack)	5651.0	1273
	2.	Water Pollution Control (ETP's, STP, WTP, Neutralization tanks and allied equipments, online effluent monitoring system)	185.0	1030
	3.	Noise Pollution Control (acoustic enclosers,instruments for noise measurement & predictive maintenance, CBM instruments)	25.0	10
	4.	Environment Monitoring and Management (regular monitoring of Environmental parameters as per statutory requirement)	112.0	84
	5	Occupational Health	45	14.74
	6	Green Belt	50.0	33
	7	Online Stack Monitoring System	39.0	20
	8	Online Effluent Monitoring system	11.0	14
	9	Others (Pl. Specify)	20.0	20
c. Benefit Cost Ratio / Internal rate of Return and the year of	----			



	assessment.	
	d. Whether (c) includes the cost of Environmental Management as shown in the above.	-----
	b. Actual expenditure incurred on the Project so far	Rs.1510 Crores approved for expansion project after getting EC vide No.J-11011/355/2004- IA.II (I) dated 02.05.2017. (Total expenditure on entire existing Sunflag Steel project is Rs. 1848.45 i.e.1326.22 crores for existing project + Rs.522.23 Crores for Expansion project included Pig Iron /Hot Metal, Ingot /Billets, Rolled steel Products and Sinter Plant so far) till date expansion project completed at cost of Rs.522.23 crores.
	c. Actual expenditure incurred on the Environmental Management Plan so far	Rs. 66.98 Crores including EMP of expansion project.
10	Forest land requirement	Not Applicable
	a. The status of approval for diversion of Forestland for non-forestry use	Not Applicable
	b. The Status of clearing felling	Not Applicable
	c. The status of compensatory Afforestation if any	Not Applicable
11.	The status of clear felling in non-forest areas (such as submergence area of reservoir, Approach roads), if any with quantitative information	Not Applicable



12.	Status of construction (Actual and/or Planned)	
	a. Date of commencement (Actual and/or Planned)	After got EC vide No.J-11011/355/2004- IA.II (I) dated 02.05.2017, start project activities of following units..Pig Iron/Hot Metal, Ingot/Billets, Rolled steel Products and Sinter Plant.
	b. Date of completion (Actual and/or Planned)	Pig Iron/Hot Metal, Ingot/Billets, Rolled steel Products and Sinter Plant project completed in year 2018-19 and 2019-2020.
13.	Reasons for the delay if the project is yet to start	Not Applicable
14.	Dates of site visits	27.06.2016 and 11.12.2020
	a. The dates on which the Project was monitored by Regional Office on previous occasions, if any	
	b. Date of site visit for this monitoring Report	11.12.2020
15.	Details of correspondence with project authorities for obtaining action plan / information on status of compliance to safeguards other than the routine letters for logistic support for site visit.	Scientist 'C' of MoEFCC Nagpur visited on 11.12.2020 for monitoring the status of compliance stipulated in Environment Clearance, submitted status report to The Member Secretary, IA Division (Industry I), MoEFCC, Aliganj, Jorbagh Road, New Delhi - 110003 and copy to M/s Sunflag Iron & Steel Co. Ltd, Village Eklari.




**EC COMPLIANCE REPORT
&
ENVIRONMENTAL STATUS REPORT
(Apr-2021 -Sep- 2021)
of
SUNFLAG IRON & STEEL CO. LTD.**

Located At
**Village – Eklari, Taluka – Mohadi,
Dist. – Bhandara.**

Project Proponent:



**M/S. SUNFLAG IRON & STEEL CO. LTD.
Village – Eklari, Taluka – Mohadi, Dist. – Bhandara, 441905**

1.0 PREAMBLE

1.1 Introduction

Sunflag Iron & Steel Co. Ltd. (Sunflag Steel) has established state-of the-art special Integrated Steel Plant in Bhandara District of Maharashtra State (India) in the year 1989 in technical collaboration with Mannesmann Demag and Krupp, West Germany. This factory is one of the most modern deploying state-of-the-art technologies which won acclaim in the International Exhibition of Steel Plant Equipment & Technology at Dusseldorf (West Germany). Pollution control systems installed for the various sources at the factory are also state-of-the-art. For the last several years, the factory is certified on ISO 9001:2015, IATF 16949:2016 and TUV-NORD on ISO-14001:2015 and BS OHSAS:45001:2018.

Sunflag Steel caters to the demands of various core sector industries like Automobiles, Railways, Defense, Agriculture, Engineering Industry etc.

Sunflag Steel is located at 21°14'5" North latitude and 79°37'50" East longitude. The mean height of the plant site is 273 meters above MSL. The Sunflag Iron & Steel Co. Ltd. is located near Bhandara Road railway station at a distance of 53 km to the E-NE direction of Nagpur. More specifically it is located at about 7.5 km as crow flies from Bhandara in S-SE direction. In the year 2006, MoEFCC has granted for the expansion of the existing integrated steel plant from existing 0.20 million TPA to 0.50 Million TPA. In the year 2017, MoEFCC has granted for the expansion of the existing integrated steel plant from existing 0.5 million TPA to 1.0 Million TPA.

At present, this Integrated Steel Plant has a capacity to manufacture 1.0 Million TPA of high quality special steel in the form of rolled steel products using iron ore, coal & coke as basic inputs. The plant has a Direct Reduction Plant (DRP) to produce sponge iron & Mini Blast Furnace (MBF) to produce hot metal for captive consumption in the Steel Melting Shop (SMS). Further liquid metal is converted to steel billets at Continuous Casting Machine (CCM). The steel billets are taken to Bar & Section Mill (BSM), Alloy Steel Mill (ASM) and Blooming Mill to produce rolled steel products. The 30 MW Captive Power Plant (CPP) is existing along with other ancillary/utility plants in the factory.

The compliance status of the conditions of the MoEF, Govt. of India Environmental Clearances No. J-11011/355/2004-IAII (I) dated 21-02-2006 is given below :

COMPLIANCE STATUS OF CONDITIONS IMPOSED BY MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE VIDES THEIR LETTER NO. F No. J-11011/355/2004-I A II (I) dated 21-02-2006.

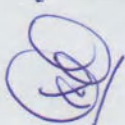
Period: From 1st April - 2021 to 30th – September - 2021.

(A) SPECIFIC CONDITIONS:

Sr No	Conditions	Compliance
i)	The gaseous emissions from various process units shall conform to the load / mass based standards notified by this Ministry on 19 th May, 1993 and standards prescribed from time to time. At no time the emission level shall go beyond the prescribed standards. On line continuous monitoring system shall be installed in stacks to monitor SPM and Interlocking facilities shall be provided so that process can be automatically stopped in case emission level exceeds the limit. Coke oven (non-recovery type) shall be used for power generation. Emissions from the Coke oven plant shall be within permissible limits of CPCB.	Adequate pollution control systems are provided at the existing sources which are in regular operation and modernization of the same is carried out from time to time. The gaseous emissions from various existing process units confirm the load/mass based standards notified by the Ministry from time to time. The emissions from the stacks meet the prescribed standards. Air pollution control system for the rotary kilns producing direct reduced iron comprises of waste heat recovery boilers and electrostatic precipitators. The cleaned gases after ESP are released to atmosphere through a 55 m & 60 m high forced draft chimney. Two separate fume/dust extraction and control system (i.e. The Primary and Secondary Fume Extraction System for SMS was installed & commissioned on July 2012 for further improving the Dust & Fume extraction) comprising of reverse air bag house, pulse jet bag house & common chimney of height 43 m are provided for 50 T capacity electric arc furnace (EAF) and ladle heating furnace (LHF). At CPP, air pollution control system comprising of devices i.e. economizer, air preheater, and electrostatic precipitator are designed for the full production capacity of FBC Boiler. The discharge of the electrostatic precipitator is through a stack of height 55 m with tops diameter 1.6 m. The discharge meets the norms. The waste heat recovered at WHRBs provided at DRI plant is also used for power generation at CPP. At coal washery, crushed coal is conveyed through conveyor belt for washing. Once the coal is mixed water there is no air pollution at the section. However the conveyor belts carrying crushed coal to coal washery section completely covered from top and both sides.



	The Mini Blast Furnace (MBF) (350 M3) is provided with adequate APC system. From MBF, the dust-laden gas after the dust catcher is cleaned in the GCP. There is two-stage venturi system, first stage provides the pre-cleaning of the gas and the second stage provides the final cleaning of the gas. The Blast Furnace gas after the venturi enters the moisture separator, where the finest water droplets are flung against the scrubber shell and run down into the sump and gas free particle leaves the GCP, the cleaned MBF gas is used at Sinter plant, Reheating furnaces of rolling mills and Hardening furnace. There is an effective air pollution control systems at Sinter plant. The system comprises of Suction Ducting, Dust Settling Chamber, Electrostatic Precipitator, ID Fan and Stack. The cleaned gases after ESP are released to atmosphere through forced draft chimney. Online continuous ambient air quality monitoring system has been installed at three locations. On line continuous monitoring system has been installed in stacks to monitor SPM & SO₂. The emissions from the stacks and various units meet the prescribed standards results. Please refer Annexure -1 (A)
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ii)	In plant control measures for checking fugitive emission from all the vulnerable sources like spillage/raw materials/coal handling etc. shall be provided. Further, specific measures like provision of dust suppression system consisting of water sprinkling, suction hoods, fans and bag filters etc. shall be installed at material transfer points, blast furnace stock house and other enclosed raw material handling areas. Centralized De-dusting system i.e. collection of fugitive emission through suction hood and subsequent treatment through bag filter or any other device and finally emitted through a stack of appropriately designed height conforming to the standards for induction furnaces existing in the industry and proposed induction and are furnaces. Fugitive emissions shall be regularly monitored and records maintained.	At the vulnerable fugitive emission sources like spillage/raw materials/coal hand lings etc., in plant centralized de-dusting facility provided. The plant has provided dust suppression system consisting of water sprinklers, suction hood, Covered shed and conveyor, bag filters at various points such as material transfer points, and other enclosed raw material handling areas in the existing plant. Fugitive emissions are being regularly monitored and maintained the records as per guidelines.
iii)	The company shall install Waste Heat recovery Boilers (WHRB) to recover the waste heat and generate power from the steam produced by the WHRB. Char shall be used in the power plant. The particulate emissions from the WHRB and Direct Reduction Iron (DRI) plant shall be controlled by installation of ESP as per the CPCB specifications and particulate emissions shall not exceed 50 mg/Nm³. Further, the company shall install bag filters to control gaseous emissions form the coke oven, wet scrubbers, suction hoods, dust extraction devices and fume extraction system at appropriate places to control gaseous emissions.	At DRP 1 & DRP 2, Waste Heat Recovery Boilers (WHRSG) provided to recover the waste heat from rotary kilns for generation of power from the steam produced by WHRSG at the existing CPP. The exhaust gases from the kiln containing dust, hydrocarbons etc. are burnt in the waste heat recovery Boiler and heat of the gases is recovered in Boiler for steam generation. The gases still containing very fine particulate matter enter the electrostatic precipitator where most of the particulates settle on the electrodes and gases almost free of the dust particles are released to atmosphere at a height of 55 m & 60 m through a chimney. The emissions from various units are within prescribed standard.

iv)	Total requirement of water shall not exceed 12,000 m³/d as per agreement signed with the Govt. of Maharashtra. Out of 3,000 m³/d waste water generated. 2,400 m³/d treated waste water shall be recycled and reused in the process and excess shall be used for gardening and irrigation purpose. The domestic waste water after treatment in STP shall be used for green belt development.	The plant meets its water requirement from Wainganga River. The river flows at a distance of 7.0 Km from the plant. Maximum water requirement for the existing steel plant is 12,000 m³/day. SISCO has been granted permission to draw water from Wainganga River @ 15,098 m³/day. Industrial effluent generation from the existing plant at rated capacity is 2616.50 m³/day. Existing practice of Boiler blow down recycle, dilution of neutralized DM Plant effluent, cooling tower blow down effluent, disposal for 100 % reuse / recycled in the process; green belt development is continued for the additionally generated effluent as well. Domestic effluent from the plant is conveyed through drains to septic tanks followed by soak pits and sewage treatment plant. Treated domestic effluent is 100 % recycled for firefighting, used for gardening and green belt development.
v)	The solid waste generated shall be in the form of ash, slag, mill scale, dust, sludge and iron scrap, Mill scale, coke breeze, iron ore fines, dust and sludge from Mini blast furnace (MBF), Gas cleaning plant (GCP) shall be reused in the Sinter plant. Iron sponge, iron scrap and grinder waste shall be recycled to SMS section for melting and reuse. DRP ash and dust collected from ESP of gas cleaning system of DRP shall be used in the Boiler of CPP whereas bed ash and MBF slag shall be either used for land filling or sold to cement plants. The entire quantity of fly ash, mill scale and DRP sludge from the scrubber shall be utilized for making brick in company's own brick manufacturing plant. Non-granulated slag shall be used for road making. Dust from dust extraction system shall be recycled to the Sinter plant for reuse. Dust collected from DRI plant shall be reused in sinter plant. Used / spent oil generated shall be used as anti-rusting agent and excess sold to authorized re processors.	The generated solid mill scale, dust, sludge and iron scrap, Mill scale, coke breeze, iron ore fines, dust and sludge from Mini blast furnace (MBF), Gas cleaning plant (GCP) is being reused in the Sinter plant. Sponge iron, iron scrap and grinder waste is being recycled to SMS section for melting and reuse DRP ash and dust collected from ESP of gas cleaning system being used in the FBC Boiler of CPP, whereas bed ash is being used for land filling and MBF slag is being sold to cement plants. The fly ash is being utilized for making brick /Paver blocks at brick manufacturing plant and if balance is used for filling low lying area. Non-granulated slag shall be used for road making and paver block manufacturing at brick plant. Dust from dust extraction system being recycled to the Sinter plant for reuse. Dust collected from DRI plant being reused in Sinter plant. Used / spent oil generated being used as anti-rusting agent and excess sold to authorize re processors.

vi)	The solid waste shall be generated in the form of char, kiln accretions, fly ash from ESP and bottom ash etc. Char generated shall be used in FBC Boiler having sufficient capacity to utilize the char expected to be generated after the expansion. Kiln accretions generated presently and the quality further enhanced during expansion project, shall be utilized for filling low lying areas. ETP sludge shall be used in Sinter Plant.			
		S.N.	Type of Waste	Disposal/ Utilization
		1.	Fly Ash (CPP)	Brick manufacturer / sale to cement plant.
		2.	Bed Ash (CPP)	Brick manufacturer / sale to cement plant.
		3.	Dust from Bag Filter (DRP & SMS)	Reused at Sinter Plant.
		4.	DRP Sludge	Reuse as a fuel.
		5.	Mill Scale (Rolling Mill)	Reuse in Sinter Plant
		6.	EAF & SS Refining Converter Slag(SMS)	Brick manufacturer / Landfill.
		7.	Iron/Steel/Scrap/Rejects Billets (SMS/Rolling Mill)	Recycle in Steel Melt Shop.
		8.	Grinder Waste (SMS/Rolling Mill)	Recycle
		9.	Coal Rejected Stone & Shell (Coal Washer y)	Landfill
		10.	Granulated MBF Slag	Reuse / By sale
		11.	Granulated Residue at MBF Gas Cleaning plant	Reuse in Sinter plant.
		12.	Coke Fines (MBF Plant)	Reuse in Sinter plant.
		13.	Iron Ore Fines & Sinter (DRI & MBF Plant)	Reuse in Sinter plant
		14.	Dusts/Sludge (ETP & WTP)	Reuse
		15.	Hot returned ore (Sinter Plant)	Reuse in Sinter plant
		16.	Removed Dust (& Sinter Plant)	Reuse in Sinter plant
		17.	Sinter return fines from Sinter plant	Reuse in Sinter plant
		18.	Hot Scrap	Recycle in Steel Melt Shop
		19.	DRI Ash / Char (By product)	Reuse in Captive Power plant.

vii)	Mill scale shall be reused in Sinter plant, ESP fly ash shall be made available to the cement plants and brick making plants whereas bottom ash shall be disposed off in a suitably designed landfill as per CPCB guidelines to prevent leaching to the sub-soil and underground aquifer. Solid waste generated in the form of Iron ore fines, blast furnace slag, BF scrap scales from slab caster and scales from steel mill will be sold to the scrap dealers except for BF slag which will be sold to the cement manufacturers.	Mill scale is used in the Sinter plant. Fly ash is used in brick making plants and bottom ash is disposed off at designated landfill. BF Slag is disposed off by sale to cement manufacturers. Iron ore fines, BF Scrap scales from slab caster and scales from steel mill are used at Sinter plant.
viii)	The company shall be developing surface water harvesting structure to harvest the rain water for utilization in the lean season besides recharging the ground water table.	Rain water harvesting ponds are existing in the plant premises and channels are provided for collection of rain water of the plant into the pond. The collected rain water is utilized for various plant activities in lean season. Also it helps in recharge of ground water table.
ix)	Green belt shall be developed in at least 71.5 ha area within and around the plant premises as per the CPCB guidelines in consultation with DFO.	Sunflag Iron & Steel Co. Ltd. has 200 Ha of land covering factory, colony and other amenities. Presently, land available for green belt is about 72 Ha and green belt has covered the maximum portion of land. From the last two decade, factory is regularly carrying out tree plantation and green belt development within the factory and colony premises as per CPCB guidelines. Till date, the factory has planted approx 5,22,758 trees covering 47 varieties such as Neem, Pipal, Casia, Mango, Gulmohor, Eucalyptus, Khair, Chichwa, Shisam, Ashoka, Karanj, Teak, Jamun, Palas, Hiwar, Dhaora, Bamboo, Royal Palm, Coconut, Guahava, etc. and the survival rate is about 96 %. The green belt is spread in and around the plant area.
x)	Occupational health Surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.	Medical examinations of workers are carried out regularly. A dispensary with regular medical practitioner and auxiliary nursing facility is available in the plant premises. Additionally, a panel of doctors regularly visits to the factory for checkup the health of workers & staff, the records of same is being maintained.

xi)	The project authorities shall undertake eco-development measures including community welfare measures in and around the project site. An action plan indicating proposed activities under this shall be performed and submitted to the Maharashtra Pollution Control Board (MPCB) within three months from the date of issuing this letter.	Action plan for undertaking eco - development measures including community welfare measures in & around the plant indicating the activities to be performed and undertaken is submitted to Maharashtra Pollution Control Board.
xii)	Recommendations made in the corporate Responsibility for Environment Protection (CREP) for the steel plants shall be implemented and report submitted to the Ministry/CPCB/ MPCB.	M/s. Sun-flag Iron & Steel Co. Ltd. is one of the leading Corporate Houses in the country and always emphasizes on its Corporate Responsibility for Environment Protection (CREP) for steel plant. Recommendations made in the CREP for steel plant are implemented by the plant on priority basis and regularly submit the report to Ministry/CPCB/MPCB.

(B) General Conditions

SN	Conditions	Compliance
i	The project authorities must strictly adhere to the stipulations made by the Maharashtra Pollution Control Board (MPCB) and the State Government.	Consent to Operate is obtained from Maharashtra Pollution Control Board for existing set-up and it is valid up to 31-05-2022. Compliance of the stipulations indicated in the MPCB Consent to Operate, are regularly complied.
ii	No further expansion or modifications in the plant should be carried out without prior approval of the Ministry of Environment and Forests.	Factory will not carry out further expansion or modification in the plant without prior approval of Ministry of Environment and Forests.
iii	At least four ambient air quality monitoring stations should be established in the downward direction as well as where maximum ground level concentration of SPM, SO ₂ and NO _x are anticipated in consultation with the MPCB. Data on ambient air quality and stack emission should be regularly submitted to this Ministry including its Regional office at Bhopal and MPCB/CPCB once in six months.	Factory has an established Four Ambient Air Quality Monitoring Stations in consultation with MPCB. Factory is regularly monitoring and analyzing pollution sources. The programme includes stack sampling, ambient air quality monitoring, noise level measurement, fugitive dust monitoring and treated effluent at various locations. The plant is regularly submitting the monitored data to MPCB. Please refer Annexure - 1 (A to E) .



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.	For the treatment of industrial effluent generated from the existing plant activities, an ETP is provided with flash mixer, Clarifier, pH correction tank, sludge storage tank, sludge transfer pump, thickener, sludge drying beds, Vacuum filter etc is provided at steel plant. For CPP effluent, a neutralization pit is provided. At Centralized Pickling Plant, separate effluent treatment plant is provided with units as Collection cum neutralization Tank for Spent Acid, Collection cum Neutralization Tank for Rinse Water, Lime Solution Tank, Gravity Sand Filters, Filter press, Clariflocculator and treated Effluent Tank. Finally treated effluent is being recycle/reused for cleaning of pickling product. At MBF, water is sprayed in venture scrubbers used for cleaning MBF gases. The water from scrubbers is collected in thickener. The clear overflow from the thickener is recycled back for scrubbing. The thickened sludge from the bottom is dewatered in vacuum drier and the disposed water is sent back to the thickener. Dried Sludge is being use in the Sinter plant. Effluent discharge from MBF is nil.
v	The project authorities must strictly comply with the provisions made in Manufacture, storage and import of Hazardous chemicals Rules 1989 as amended in 2000 for handing of hazardous chemicals etc. the project authorities must also strictly comply with the rules and regulations with regards to handing and disposal of hazardous wastes in accordance with regard to handing and disposal of hazardous wastes in accordance with the Hazardous Wastes (Management and Handing) Rules, 2003. Authorization from the State Pollution Control Board must be obtained for collection/ treatment/ storage / disposal of hazardous wastes.	Hazardous Chemicals handled in the factory are the Liquid Nitrogen and Liquid Oxygen. Both the chemicals are listed in the List of Hazardous Chemicals of Manufacture, Storage and Import of Hazardous Chemicals (Amendment) Rules, 2000. Both chemicals are stored in separate isolated storage tanks & used through pipeline in the manufacturing process. The necessary permissions for storage of these chemicals from concerned department are taken by the factory. Safety Audit and On-site Emergency Plan are already prepared by the factory and follow it regularly. Oxygen & Nitrogen are stored as per Explosive Rules and all the conditions will be followed meticulously. As per Hazardous Waste (MH & TM) Rules, 2008 of the Environment Protection Act, 1986 and Amendments thereto, the steel plant complies with all the stipulated norms. Membership of Common Hazardous Waste Treatment Storage and Disposal Facility (CHWTSDF), Butibori has been taken, reuse & disposal of hazardous wastes generated at factory is carried as per MPCB directions.



vi	The overall noise levels in and around the plant area shall be kept well within the standards (85 dBA) by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels should conform to the standards prescribed under EPA Rules, 1989 viz. 75 dBA (daytime) and 70 dBA (night time).	Plant has provided noise control measures including acoustic hoods, silencers, enclosures etc. on all noise generating sources to maintain the noise level within the prescribed standards under EPA Rules, 1989. The report of the monitored noise level data please refer Annexure – 1 C.
vii	The project proponent shall also comply with all the environmental protection measures and safeguards recommended in the EIA / EMP report. Further, the company must undertake socio- economic development activities in the surrounding villages like community development programmes, educational programmes, drinking water supply and health care etc.	SISCO comply with the recommendations made by the Public Hearing Panel for expansion project. Compliance of the safeguards recommended in the EIA/EMP report is a regular feature of the plant. The company is undertaking socioeconomic development activities in the surrounding villages like community development programmes, educational programmes, Skill development programmes for unemployed youth & women's, drinking water supply, and health checkup camps.
viii	As committed, Project authorities shall provide funds of Rs. 20.54 Crores recurring and non-recurring to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government along with the implementation schedule for all the conditions stipulated herein. The funds so provided should not be diverted for any other purpose.	In order to implement the conditions stipulated by the Ministry of Environment and Forests, Govt. of India as well as the Maharashtra Government, factory has carried out capital expenditure on pollution control facilities and providing adequate funds for capital & recurring expenditure.
ix	The regional office of this Ministry at Bhopal/ MPCB/ CPCB will monitor the stipulated conditions. A six monthly compliance report and the monitored data along with statistical interpretation shall be submitted to them regularly.	Noted. Six monthly EC compliance report is being submitted on regular basis.

x	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 MPCB/ Committee and may also be seen at website of the Ministry of Environment and Forests at http://ensfor.nic.in . This should be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region 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.	Complied.
xi	Project authorities should 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.	The factory has already informed the Regional Office as well as Ministry about the date of financial closure and final approval of the project and the date of commencing the land development work.
5.	The Ministry may revoke or suspend the clearance, if implementation of any of the above condition is not satisfactory	Noted.
6.	The Ministry reserve the right to stipulate additional conditions if found necessary. The company in a time bound manner will be implement these condition.	Noted.
7.	The above condition will be enforced, inter-alia under them provision of the water (Prevention & Control of Pollution) Act 1974, the Air (Prevention & Control of Pollution) Act 1981, The Environment Protection Act 1986, Hazardous wastes (Management and handling) Rules 2003 and the Public (Insurance) Liability Act,1991 along with their amendments and rules.	Noted and Implemented.

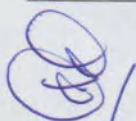
COMPLIANCE STATUS OF CONDITIONS IMPOSED BY MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE VIDE THEIR LETTER NO. J-11011/355/2004-IAII (I) dated 02-05-2017

Period: From 1st April - 2021 to 30th – September - 2021.

(A) SPECIFIC CONDITIONS :

Sr No	Conditions	Compliance
i)	The project proponent shall install 24x7 air monitoring devices to monitor air emissions, as provided by the CPCB and submit report to Ministry and its Regional Office.	Complied. Online monitoring devices provided for checking ambient air quality, Stack emissions and ETP. It is connected to pollution control board server, the emissions level are within prescribed limit.
ii)	The canal passing through the project site should be fenced on both the sides, leaving a passage for maintenance related activities by the concerned department. No effluent should be discharged into the canal. No water from the canal should be abstracted without permission.	Complied. Effluent has not been discharge in to the canal and water has not been withdrawal from the canal.
iii)	The natural drainage passing through the site should not be disturbed or diverted and no solid waste or liquid effluent should be discharged into the drain.	Complied. Natural drainage passing through the site have not been diverted and effluents were not discharge into the canal.
iv)	A statement on carbon budgeting including the quantum of equivalent Co2 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 Co2 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.	Complied. GHG emission of M/s Sunflag steel was accounted and submitted for previous year and for year 2020-2021 a statement of Carbon budgeting and amount of carbon sequestered by the existing green belt is calculated and attached herewith as per Annexure-3 . Adequate green belt have been developed in and around the plant to reduce the Co2 emissions. The existing green belt is found to be good, also increase the green belt by planting maximum trees along the railway line, waste dump areas, loading and unloading area etc and wherever possible.

v)	For the employees working in high temperature zones falling in the plant operation areas, the total shift duration would be 4 hrs or less per day where the temperature is more than 50°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 equipments, garments and gears such as head gear, clothing, gloves, eye protection etc.	Complied. Shift duration for the employees working in high temperature zone have been followed, necessary PPE's provided for the employees.
vi)	Continuous stack monitoring facilities for all the stacks shall be provided and sufficient air pollution control devices viz. Electrostatic Precipitator (ESP), bag house, bag filters etc. shall be provided to keep the emission levels below 50 mg/Nm³ and installing energy efficient technology.	Complied. Two separate fume / dust extraction and control system comprising of reverse air bag house, pulse jet bag house and common chimney of height 43 m has been provided to AOD converter, Electric Arc Furnace and Ladle Heat Furnace. Electrostatic Precipitator has been provided for the Captive Power Plant (CPP). Waste heat recovered from various processes has been used for power generation at CPP. Closed conveyor has been used for coal transportation. Adequate air pollution control system has been provided at Mini Blast Furnace. Bag filters provided for all APC's of material handling areas, wherever required. Suction dusting, dust settling chamber and ESP has been provided for Sinter plant. Online stack monitoring system has been provided for stacks for monitoring of Particulate Matter (PM), NO_x and Sulphur Di Oxide (SO₂). As per the monitoring data emission levels found to be within the prescribed limits.
vii)	Efforts shall further be made to use maximum water from the rain water harvesting sources. Use of air cooled condensers shall be explored and closed circuit cooling system shall be provided to reduce water consumption and water requirement shall be modified accordingly. All the effluent should be treated and used for ash handling, dust suppression and green belt development. A revised water balance statement should be submitted by the Project Proponent with the 6 monthly compliance report.	Complied. Water requirement is being met from Wainganga river located at 7.0 km from the project. Water requirement of the existing plant was restricted within prescribed limit. Effluent generated from the steel plant have been treated in the ETP and reused for ash handling, dust suppression, green belt development and internal use. Domestic waste water have been treated in the sewage treatment plant and reused for green belt development.



viii)	All the coal fines and char shall be utilized within the plant and no char shall be used for briquette making or disposed off anywhere else. Scrap shall be used in steel melting shop (SMS) and SMS slag and kiln accretions shall be properly utilized. All the other solid waste including broken refractory mass shall be properly disposed off in environment-friendly manner.	Complied . Coal fines and char are used within the plant in CPP and Sinter plant. Scrap used in the SMS plant. SMS slag and Kiln accretions are disposed off in environment friendly manner.
ix)	All internal roads shall be black topped/Concretized/Paver blocked or shall be any other type of pucca road. The roads shall be regularly cleaned with mechanical sweepers. A 3-tier avenue plantation using native species shall be developed along the roads. Facilities for parking of trucks carrying raw coal from the linked coal mines shall be created within the Unit.	Complied. All the internal roads are concreted / paver blocked or. Road are being regularly cleaned with mechanical road sweepers. Green plantations using native plantations are planted around road side. Separate parking area for trucks are provided in plant area. Coal and Iron ore transportation by railway mode. Sprinklers are provided at unloading area and raw material storage area to control the dust emissions.
x)	The Standards issued by the Ministry vide G.S.R. No. 277(E) dated 31st March, 2012 regarding integrated iron and steel plant shall be followed.	Standard followed as per MoEFCC /SPCB Guidelines.
xi)	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.	Ambient air quality monitored as per Guidelines.
xii)	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.	Gaseous emission levels (SO ₂ , Nox, CO) are monitored as per stipulations. The monitored parameters are within prescribed limits.
xiii)	Vehicular pollution due to transportation of raw material and finished product shall be controlled. Proper arrangements shall also be made to control dust emissions during loading and unloading of the raw material and finished product.	Complied, Coal and Iron ore are transported through railway mode. Dolomite and Lime are transported by road. Finished products are transported by road and railway. Internal roads are concretised. Arrangement has been made to control dust emission during loading & Unloading of finished products and raw materials trucks.
xiv)	'Zero' effluent discharge shall be strictly followed and no waste water shall be discharged outside the premises. The calculations to this effect shall be submitted.	Complied. Zero effluent discharge has been implemented.

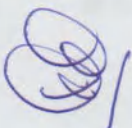


xv)	Regular monitoring of in-fluent and effluent surface, sub-surface and ground water shall be ensured and treated waste water shall meet the norms prescribed by the State Pollution Control Board (SPCB) or described under the E(P) Act whichever are more stringent.	Complied. Regular monitoring of in-fluent, effluent, surface and ground water is carried out as per guidelines. Waste water is treated and met the norms prescribe by authority & reuse in the process of plant.
xvi)	Proper handling, storage, utilization and disposal of all the solid waste shall be ensured and regular report regarding toxic metal content in the waste material and its composition, end use of solid/hazardous waste shall be submitted to the Ministry's Regional Office, SPCB and CPCB.	Complied. Fly ash, bed ash, DRP sludge, Mill scale, EAF & SS refining Converter slag, Rejected billets, Grinder wastes, Rejected coal, Granulated MBF slag, Coke fines, Iron ore fines wastes from ETP and WTP, Hot returned ore, Hot scrap, DRI ash, Removed dust from sinter plant are identified as solid waste material generated from the plant. The disposal of all the solid wastes are carried out by as per guidelines given in MPCB CTO.
xvii)	A time bound action plan shall be submitted to reduce solid waste generated due to the project related activities, its proper utilization and disposal.	Complied. The disposal of all the solid waste is carried out as per guidelines given in MPCB CTO.
xviii)	Proper utilization of fly ash shall be ensured as per Fly Ash Notification, 1999 and subsequent amendment in 2003 and 2009. All the fly ash shall be provided to cement and brick manufacturers for further utilization and Memorandum of Understanding shall be submitted to the Ministry's Regional Office at Chennai.	At present there is no fly ash generation, as new Power plant has not been installed against approval in EC 02.05.2017, this condition will be full filled after installation & commissioning of new Captive Power Plant.
xix)	A Risk and Disaster Management Plan 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.	Complied. Risk and disaster management plan has been submitted along with six monthly compliance reports. Mock drills and awareness programme to the employees are conducted periodically.
xx)	Green belt shall be developed in at least 33% of the project area by planting native and broad leaved species in consultation with local DFO and local communities as per the CPCB guidelines.	Complied . Existing green belt is found to be sufficient. 72 ha. Land area is provided for green belt. About 5,22,758 trees are planted so far also increase the green belt by planting maximum trees along the railway line, waste dump areas, loading and unloading area etc and wherever possible.

xxi)	At least 5 % of the total cost of the project shall be earmarked towards the Enterprise Social Commitment based on 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.	Complied. Enterprise Social Commitment work has been taken based on local need as per requirement of Gram / Village panchayat and District administration
xxii)	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 Budget for spending under CSR activities for the year 2019-20 was approved by the Board of Directors of the Company at its meeting held on 21st May, 2019 of Rs. 1,48,37,673/- and budget for the year 2020-21 was Rs. 2,65,98,308/- as per the CSR Policy of the Company. The amount has been incurred for social welfare, training of unemployment local, medical facility, women empowerment, plantation, education, drinking water, sports, helping to handicapped persons, roads, etc. The details of CSR expenditure incurred has been published in the Annual Report 2019-20 and 2020-2021. As per Section 135 of the Companies Act, 2013, the amount required to be spent on Corporate Social Responsibility (CSR) activities for the financial year is derived by formula i.e. 2% of the average net profits of the Company for immediately three (3) preceding financial years. As per this clause xxii, the CSR budget for the future five (5) years is required, which at this point of time is neither possible nor permitted to be arrived at as this is a future event. However, the same can be furnished on the yearly basis after adoption of the Audited Annual Accounts by the Board of Directors of the Company, which may kindly be noted. Please refer Annexure 2



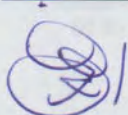
xxiii)	The Company shall submit within three months their policy towards Corporate Environment Responsibility which shall inter-alia address (i) Standard operating process/procedure to being into focus any infringement/deviation/ violation of environmental or forest norms/conditions, (ii) Hierarchical system or Administrative order of the Company to deal with environmental issues and ensuring compliance to the environmental clearance conditions and (iii) System of reporting of non-compliance/violation environmental norms to the Board of Directors of the company and/or stakeholders or shareholders.	Complied. Company has submitted policy towards CER along with previous compliance reports. Separate environment cell has been provided under Section and Unit Head, Environment.
xxiv)	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.	Complied . Solar lights has been provided for common area, street lights, villages and parking places of the project area.
xxv)	The project proponent shall provide for LED lights in their offices and residential areas.	Complied. LED lights has been installed in and around the project area.
xxvi)	The project proponent shall install bio gas plant for kitchen waste utilization generated in their plant canteen and township (If any). The generated gas shall be utilized in their canteen and manure shall be used in their garden.	Complied. Biocomposting machine has been provided In stead of bio gas plant. Manures have been produced by kitchen waste and used for nursery and plantations.
xxvii)	Provision shall be made for the housing of construction labours within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, Safe drinking water, medical health care, creche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.	Complied. The project has been completed partially. Necessary facilities such as fuel for cooking, mobile toilets, STP, drinking water and medical healthcare has been provided to the workers.
xxviii)	Public health center of the factory should be strengthened and also extend medical facilities to the villagers inhabiting surrounding areas. A report in this regard to be submitted along with the 6 monthly compliance report.	Complied. Separate occupational health centre with doctors available for 24x7 hrs has been provided at project site.



(B) General Conditions : -

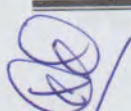
S.No.	Conditions	Compliance
i)	The project authorities must strictly adhere to the stipulations made by the Maharashtra Pollution Control Board and the State Government.	Noted and complied.
ii)	No further expansion or modifications in the plant should be carried out without prior approval of the Ministry of Environment and Forests and Climate Change (MoEF & CC).	Noted
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 PM10, PM2.5 SO2 and NOx are anticipated in consultation with the SPCB. Data on ambient air quality and stack emission should be regularly submitted to this Ministry including its Regional office at Nagpur and MPCB/CPCB once in six months.	Complied. Four ambient air quality monitoring stations have been installed at Eklari gate, Pump House-2, STP and Guest House in consultation with MPCB. Measurement of SPM, SO2 and NOx levels are monitored. As per guidelines the monitored parameters are within prescribed limits.
iv)	Industrial waste water shall be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19 th May, 1993 and 31 st December, 1993 or as amended from time to time the treated waste water shall be utilized for plantation purpose.	Complied. Industrial waste water has been collected and treated in the existing Effluent Treatment Plant, maintained parameters within permissible limit of CPCB & SPCB. The treated water reused in the process and for green belt development. Zero water discharge is implemented.
v)	The overall noise levels in and around the plant area shall be kept well within the standards (85 dBA) by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels should conform to the standards prescribed under EPA Rules, 1989 viz. 75 dBA (daytime) and 70 dBA (night time).	Complied. Noise level are monitored., noise levels are within prescribed limits. Necessary PPE's are provided to the workers.
vi)	Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.	Complied . Periodical medical examinations of all employees is being carried out with frequency of once in three months. The medical examination records are available at plant site.

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.	Complied. Rain water harvesting ponds are made in the plant premises and channels are provided for collection of rain water of the plant into the pond. The collected rain water is utilized for various plant activities in lean season. Also it helps in recharge of ground water table.
viii)	The project proponent shall also comply with all the environmental protection measures and safeguards recommended in the EIA / EMP report. Further, the company must undertake socio economic development activities in the surrounding villages like community development programmes, educational programmes, drinking water supply and health care etc.	Complied, SISCO comply with the recommendations made by the Public Hearing Panel for expansion project. Compliance of the safeguards recommended in the EIA/EMP report is a regular feature of the plant. The company is undertaking socio economic development activities in the surrounding villages like community development programmes, educational programmes, Skill development programmes for unemployed youth & women's, drinking water supply, and health check up camps.



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 (MoEFCC) 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 Nagpur. The funds so provided shall not be diverted for any other purpose.	At present under existing unit following expenditure has already been made towards environmental protection, the same are as follows.			
		S.N.	Environmental Component	Capital Cost incurred so far (Rs. in Lacs)	Recurring per annum
		1.	Air Pollution Control (ESP's, Bag filters, water cooled ducts,GCP, ACGC,Silos, stacks,online monitoring system for ambient and stack)	5651.0	1273
		2.	Water Pollution Control (ETP's, STP, WTP, Neutralization tanks and allied equipments, online effluent monitoring system)	185.0	1030
		3.	Noise Pollution Control (acoustic enclosers,instruments for noise measurement & predictive maintenance, CBM instruments)	25.0	10
		4.	Environment Monitoring and Management (regular monitoring of Environmental parameters as per statutory requirement)	112.0	84
		5	Occupational Health	45	14.74
		6	Green Belt	50.0	33
		7	Online Stack Monitoring System	39.0	20
		8	Online Effluent Monitoring system	11.0	14
		9	Others (Pl. Specify)	20.0	20
		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 web site of the company by the proponent.	Complied. A copy of clearance letter was circulated to concerned local bodies.	

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 MOEFCC at Nagpur. The respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels namely; PM10, SO2, NOx (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.	Complied. Copy of environment clearance letter, monitoring reports, six monthly compliance reports etc. are uploaded on company web site link https://sunflagsteel.com/1695-2/. Ambient air quality has been monitored and displayed at main gate of the company.
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 MOEFCC, the respective Zonal Office of CPCB and the SPCB. The Regional Office of this Ministry at Nagpur / CPCB / SPCB shall monitor the stipulated conditions.	Noted & Complied. As per guidelines, Six monthly EC compliance report has been submitted on regular basis.
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 MOEFCC at Nagpur by e-mail.	Complied. Copy of environment statement has been submitted along with six monthly compliance report



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 seen at Website of the Ministry of Environment, Forests and Climate Change (MoEFCC) 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 Nagpur.	Complied. Advertisement have been made in the local news paper within prescribed period.
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.	The company have approached prospective lenders for tie-up of funding the proposed projects and have received part sanction. However, the sanction formalities are yet to be Complied. Accordingly, financial closure for the entire projects are yet to be completed. Partially expansion project of granted EC has been completed. After start of balance project financial closure date and date of commencing of land development work will be submitted.
1.	The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.	Noted
2.	The Ministry reserves the right to stipulate additional conditions if found necessary. The Company in a time bound manner shall implement these conditions.	Noted
3.	The above conditions shall be enforced, inter-alia under the provisions of the Water (Prevention Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, Hazardous Wastes (Management, Handling and Trans boundary Movement) Rules 2008 and the Public (Insurance) Liability Act, 1991 along with their amendments and rules.	Noted.



COMPLIANCE STATUS OF CONDITIONS IMPOSED BY MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE VIDE THEIR LETTER NO. J-11011/355/2004-IAII (I) dated 09.11.2020

Period: From 1st April - 2021 to 30th - September - 2021.

A	Specific conditions	Compliance
i	PP shall use low Sulfur coal in the Combustor. Post Combustion control for SO ₂ emission shall be included for coal with sulphur content of 1.2%	Complied. Low sulphur coal has been used in combustor.
ii	CEMS shall be installed on the of Combustor stack,	Complied. CEMS has been installed on common stack of combustor / DRP-1
iii	Entire quantity of dolo char generated shall be used for power generation in side steel works itself.	Complied. Dolo char generated in plant has been used in FBC boiler of CPP for power generation
iv	Combustor shall be designed to achieve PM, SO ₂ and NO _x emission norms notified by MoEF&CC in December, 2015	Complied. Combustor has been designed to achieve PM, SO ₂ and NO _x emission norms notified by MoEF&CC in December, 2015
B	General Conditions	
I	Statutory compliance:	
i	The Environment Clearance (EC) granted to the project/ activity is strictly under the provisions of the EIA Notification, 2006 and its amendments issued from time to time. It does not tantamount/ construe to approvals/ consent/ permissions etc., required to be obtained or standards/conditions to be followed under any other Acts/Rules/Subordinate legislation, etc., as may be applicable to the project	Ok, Noted.
II	Air quality monitoring and preservation	
i	The project proponent shall install 24x7 Continuous Emission Monitoring System (CEMS) at process stacks to monitor stack emission as well as Continuous Ambient Air Quality Station (CAAQS) for monitoring AAQ parameters with respect to standards prescribed in Environment (Protection) Rules 1986,-The CEMS and CAAQMS shall be connected to SPCB and CPCB online servers and calibrate these systems from time to time	Complied. Online monitoring devices (CEMS and CAAQMS) has been provided for checking ambient air quality, Stack emissions and ETP. It is connected to pollution control board server, the emissions level

	according to equipment supplier specification through labs recognised under Environment (Protection) Act, 1986 or NABL accredited laboratories.	are within prescribed limit.
i	The project proponent shall monitor fugitive emissions in the plant premises at least once in every quarter through labs recognised under Environment (Protection) Act, 1986	Complied. Fugitive emissions has been monitored in every month through labs recognised under Environment (Protection) Act, 1986 and monthly report submitted to SPCB.
ii	Sampling facility at process stacks and at quenching towers shall be provided as per CPCB guidelines for manual monitoring of emissions.	Complied. Sampling facility has been provided at all process stacks as per CPCB guidelines for manual monitoring of emissions.
iii	The project proponent shall provide leakage detection and mechanized bag cleaning facilities for better maintenance of bags.	Complied. Mechanized bag cleaning facilities has been provided for better maintenance of bags.
iv	Secondary emission control system shall be provided at SMS Converters.	Complied. Secondary emission control system has been provided at EAF / SMS Converters & LHF.
v	The project proponent use leak proof trucks/dumpers carrying coal and other raw materials and cover them with tarpaulin	Complied. Leak proof trucks/dumpers has been used for carrying coal and other raw materials and cover them with tarpaulin.
vi	Facilities for spillage collection shall be provided for coal and coke on wharf of coke oven batteries (Chain conveyors, land based industrial vacuum cleaning facility)	Not applicable, as we have not installed Coke Oven Plant.
vi	The project pronent shall submit the environmental statement for each financial year in Form-V to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as a mended subsequently and put on the website of the company.	Complied Environment statement in form V has been submitted to SPCB on regular basis also submitted along with six monthly EC compliance report.



vii	Land-based APC system shall be installed to control coke pushing emissions.	Not applicable, as we have not installed Coke Oven Plant.
viii	Monitor CO, HC and O ₂ in flue gases of the coke oven battery to detect combustion efficiency and cross leakages in the combustion chamber	Not applicable, as we have not installed Coke Oven Plant.
ix	The coke oven gas shall be subjected to desulphurization if the sulphur content in the coal exceeds 1%	Not applicable, as we have not installed Coke Oven Plant.
x	Wind shelter fence and chemical spraying shall be provided on the raw material stock piles	Complied.
xi	Design the ventilation system for adequate air changes as per prevailing norms for all tunnels, motor houses, Oil Cellars.	Complied.
III	Water quality monitoring and preservation	
i	The project proponent shall install 24x7 continuous effluent monitoring system with respect to standards prescribed in Environment (Protection) Rules 1986 vide G.S.R 277 (E) dated 31st March 2012 (Integrated iron & Steel); G.S.R 414 (E) dated 30th May 2008 (Sponge Iron) as amended from time to time; S.O. 3305 (E) dated 7th December 2015 (Thermal Power Plants) as amended from time to time and connected to SPCB and CPCB online servers and calibrate these system from time to time according to equipment supplier specification through labs recognised under Environment (Protection) Act, 1986 or NABL accredited laboratories	Complied. 24X7 continuous effluent monitoring system has been provided and parameters are connected on line to SPCB,
ii	The project proponent shall monitor regularly ground water quality at least twice a year (pre and post monsoon) at sufficient numbers of piezometers/ sampling wells in the plant and adjacent areas through labs recognised under Environment (Protection) Act, 1986 and NABL accredited laboratories	Complied. Ground water quality has been monitored once in a six month.
iii	The project proponent shall provide the ETP for coke oven to meet the standards prescribed in G.S.R 277 (E) dated 31st March 2012 (Integrated iron & Steel); G.S.R 414 (E) dated 30th May 2008 (Sponge Iron) as amended from time to time; S.O. 3305 (E) dated 7th December 2015 (Thermal Power Plants) as amended from time to time as amended from time to time	Not applicable, as we have not installed Coke Oven Plant.
iv	Adhere to 'Zero Liquid Discharge'	Complied. Achieve ZERO water discharge.
v	Sewage Treatment Plant shall be provided for treatment of domestic waste water to meet the prescribed standards.	Complied. STP provided for treatment of domestic waste water, parameters maintained within prescribed standard.



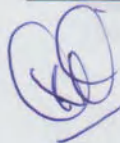
vi	Garland drains and collection pits shall be provided for each stock pile to arrest the run- off in the event of heavy rains and to check the water pollution due to surface run off.	Work under progress.
vii	Tyre washing facilities shall be provided at the entrance/exit of the plant gates.	Work under progress.
viii	CO2 injection shall be provided in GCP of SMS to reduce pH in circulating water to ensure optimal recycling of treated water for converter gas cleaning	Not applicable as SMS have dust Extraction System, working efficiently.
ix	Water meters shall be provided at the inlet to all unit processes in the steel plants.	Complied.
x	The project proponent shall make efforts to minimize water consumption in the steel plant complex by segregation of used water, practicing cascade use and by recycling treated water	Complied. Water consumption maintained at minimum level by treatment of waste water and treated water reuse in plant process.
IV	Noise monitoring and prevention	
i	Noise quality shall be monitored as per the prescribed Noise Pollution (Regulation and Control) Rules, 2000 and report in this regard shall be submitted to Regional Officer of the Ministry as a part of six-monthly compliance report	Complied. Noise level are monitored., noise levels are within prescribed limits. Necessary PPE's are provided to the workers.
V	Energy Conservation measures	
i	Energy conservation measures may be adopted such as adoption of solar energy and provision of LED lights etc., to minimize the energy consumption	Complied. Energy conservation measures has been adopted by providing solar lights, LED lights, up gradation in electrical control system etc.
VI	Waste management	
i	An attrition grinding unit to improve the bulk density of BF granulated slag from 1.0 to 1.5 Kg/l shall be installed to use slag as river sand in construction industry	Not applicable, as our entire BF slag is utilized for manufacturing of slag cement in Cement industry.
ii	In case of Non-Recovery coke ovens, the gas main carrying hot flue gases to the boiler, shall be insulated to conserve heat and to maximize heat recovery.	Not applicable, as we do not installed Coke Oven Plant.
iii	Carbon recovery plant to recover the elemental carbon present in GCP slurries for use in Sinter plant shall be installed.	100% GCP slurry is used at Sinter plant.
iv	Used refractories shall be recycled as far as possible.	Complied.



v	100% utilization of fly ash shall be ensured. All the fly ash shall be provided to cement and brick manufacturers for further utilization and Memorandum of Understanding in this regard shall be submitted to the Ministry's Regional Office	Complied. Fly ash is being used for brick manufacturing.
vi	Oil Collection pits shall be provided in oil cellars to collect and reuse/recycle spilled oil. Oil collection trays shall be provided under coils on saddles in cold rolled coil storage area.	Complied.
vii	Kitchen waste shall be composted or converted to biogas for further use.	Complied. Biocomposting machine has been provided Instead of bio gas plant. Manures have been produced by kitchen waste and used for nursery and plantations.
VII	Green Belt	
i	Green belt shall be developed in an area equal to 33% of the plant area with a native tree species in accordance with CPCB guidelines. The greenbelt shall inter alia cover the entire periphery of the plant.	Complied.
ii	The project proponent shall prepare GHG emissions inventory for the plant and shall submit the programme for reduction of the same including carbon sequestration including plantation.	Complied. GHG emission of M/s Sunflag steel was accounted and submitted for previous year and for year 2020-2021 a statement of Carbon budgeting and amount of carbon sequestered by the existing green belt is calculated and attached herewith as per Annexure-3 . Adequate green belt have been developed in and around the plant to reduce the Co2 emissions. The existing green belt is found to be good, also increase the green belt by planting maximum trees along the railway line, waste dump areas, loading and unloading area etc and wherever possible.
VIII	Public hearing and Human health issues	
i	Emergency preparedness plan based on the Hazard identification and Risk Assessment (HIRA) and Disaster Management Plan shall be implemented.	Complied. Risk and disaster management plan has been prepared and submitted along with six monthly



		compliance reports. Mock drills and awareness programme to the employees are conducted periodically.
ii	The project proponent shall carry out heat stress analysis for the workmen who work in high temperature work zone and provide Personal Protection Equipment (PPE) as per the norms of Factory Act	Complied. Shift duration for the employees working in high temperature zone have been followed, necessary PPE's provided for the employees.
iii	Occupational health surveillance of the workers shall be done on a regular basis and records maintained	Complied. Medical examinations of workers are carried out regularly. A dispensary with regular medical practitioner and auxiliary nursing facility is available in the plant premises. Additionally, a panel of doctors regularly visits to the factory for check up the health of workers & staff, the records of same is being maintained.
IX	Corporate Environment Responsibility	
i	The company shall have a well laid down environmental policy duly approve by the Board of Directors. The environmental policy should prescribe for standard operating procedures to have proper checks and balances and to bring into focus any infringements/deviation/violation of the environmental / forest / wildlife norms / conditions. The company shall have defined system of reporting infringements / deviation / violation of the environmental / forest / wildlife norms / conditions and / or shareholders / stake holders. The copy of the board resolution in this regard shall be submitted to the MoEF&CC as a part of six-monthly report.	Complied. Company has submitted policy towards CER along with previous compliance reports.
ii	A separate Environmental Cell both at the project and company head quarter level, with qualified personnel shall be set up under the control of senior Executive, who will directly to the head of the organization	Complied. Separate environment cell has been provided under Section and Unit Head, Environment.
X	Miscellaneous	
i	The project proponent shall make public the environmental clearance granted for their project along with the environmental conditions and safeguards at their cost by prominently advertising it at least in two	Complied.



	local newspapers of the District or State, of which one shall be in the vernacular language within seven days and in addition this shall also be displayed in the project proponent's website permanently	
ii	The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt.	Complied.
iii	The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and update the same on half-yearly basis.	Complied.
iv	The project proponent shall monitor the criteria pollutants level namely; PM10, SO2, NOx (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects and display the same at a convenient location for disclosure to the public and put on the website of the company	Complied. Online monitoring of Ambient air quality namely PM10, SO2, Nox has been monitored and displayed at main gate of the company.
v	The project proponent shall submit six-monthly reports on the status of the compliance of the stipulated environmental conditions on the website of the ministry of Environment, Forest and Climate Change at environment clearance portal. vi. The project proponent shall submit the environmental statement for each financial year in Form-V to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company.	Complied. Six monthly compliance reports has been submitted on regular basis.
vii	The project proponent 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, commencing the land development work and start of production operation by the project.	Complied. Financial closure for the entire projects are yet to be completed.
viii	The project proponent shall abide by all the commitments and recommendations made in the EIA/EMP report, commitment made during Public Hearing and also that during their presentation to the Expert Appraisal Committee.	Ok, Noted.
ix	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forest, and Climate Change (MoEF&CC)	Ok, Noted.
x	Concealing factual data or submission of false/fabricated data may result in revocation of this environmental clearance and attract action under the provisions of Environment (Protection) Act, 1986	Ok, Noted.
xi	The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory	Ok, Noted.
xii	The Ministry reserves the right to stipulate additional conditions if found necessary. The Company in a time bound manner shall implement	Ok, Noted.

	these conditions.	
xiii	The Regional Office of this Ministry shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information/monitoring reports.	Ok, Noted.
xiv	Any appeal against this EC shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010	Ok, Noted.
23	The Ministry considered the above recommendation of EAC and here by decided to accord Environmental Clearance for the Modernization and addition in configuration of Integrated steel plant--of_existing project <u>mentioned in</u> the subject above to M/s Sunflag Iron & Steel Ltd. with specific and general conditions mentioned at para 22 above.	Ok, Noted.

ANNEXURE-1. (A)

STACK EMISSION STATUS

Location :S-3 (BSM)

Stack Identity	S-3 (BSM)
Stack attached to	Reheating Furnace of Bar & Section Mill
Material of construction	Mild Steel
Stack height above ground level	65.0 mtr.
Stack shape at top	Circular
Stack diameter	1.5 mtr
Type of fuel	Furnace Oil & BF Gas

Results of Analysis

Sr. No.	Date of Monitoring	Temp (°C)	Velocity of Flue Gas (m/sec)	Volume of Flue Gas (Nm ³ /hr)	Total Particulate Matter (PM) (mg/Nm ³)	SO ₂ (kg/day)	NO _x (mg/Nm ³)
1	01-04-2021	312	10.7	34020.2	35.3	860.1	411.8
2	07-04-2021	322	10.9	33850.0	37.0	902.2	459.3
3	13-04-2021	318	10.2	32083.5	36.1	730.1	421.8
4	20-04-2021	307	10.4	33101.8	33.8	604.5	418.4
5	27-04-2021	316	10.2	32160.3	34.9	630.9	409.3
6	04-05-2021	315	10.4	32685.1	36.8	804.1	406.0
7	11-05-2021	312	10.6	33453.1	36.9	715.8	411.4
8	17-05-2021	302	10.6	34096.7	37.7	831.2	431.8
9	26-05-2021	310	10.8	34200.2	31.8	942.5	392.2
10	02-06-2021	318	10.3	32239.6	35.2	780.9	327.9
11	11-06-2021	307	10.7	34312.1	36.1	671.6	399.8
12	15-06-2021	312	11.1	35152.4	37.5	741.5	331.1
13	22-06-2021	304	10.5	33694.5	39.2	836.5	394.7
14	05-07-2021	314	11.2	35442.5	36.1	276.0	332.1
15	14-07-2021	318	10.5	32957.4	36.5	272.4	420.2
16	20-07-2021	312	11.0	34839.9	32.1	364.1	333.2
17	26-07-2021	302	10.3	33041.4	33.2	385.2	410.0
18	02-08-2021	304	10.4	33342.4	35.6	214.2	308.7
19	10-08-2021	312	10.7	33799.9	37.5	222.1	403.6

20	16-08-2021	310	10.9	34546.8	34.3	284.8	329.8
21	23-08-2021	307	10.3	32916.03	37.4	283.4	367.6
22	01-09-2021	304	9.98	31903.05	36.7	155.8	338.5
23	13-09-2021	310	10.6	33535.8	30.2	141.2	354.1
24	21-09-2021	316	10.3	32287.3	33.4	216.8	387.9
25	27-09-2021	302	10.8	34803.8	20.4	203.8	344.2
Method		IS 11255 (Part 3): 2008 RA 2018	IS 11255 (Part 3): 2008 RA 2018	IS 11255 (Part 3): 2008 RA 2018	IS 11255 (Part 1):1985 RA 2019	IS 11255 (Part 2):1985 RA 2019	IS 11255 (Part 7):2005 RA 2017

Norms: **Total Particulate Matter (PM)-100 mg/Nm³.**

Sulphur Dioxide – 2916 Kg/Day.

STACK EMISSION STATUS

Location:-SMS-Secondary

Stack Identity	SMS-Secondary
Stack attached to	EAF & LHF of Steel Melting Shop through Bag Filters
Material of construction	Mild Steel
Stack height above ground level	36.75 mtr.
Stack shape at top	Circular
Stack diameter	4.3 mtr
Type of fuel	Type of Fuel Electricity & O ₂ is used for melting

Results of Analysis

Sr. No.	Date of Monitoring	Temp (°C)	Velocity of Flue Gas (m/sec)	Volume of Flue Gas (Nm ³ /hr)	Total Particulate Matter (PM) (mg/Nm ³)
1	02-04-2021	92	12.3	510598.0	31.5
2	08-04-2021	94	12.9	532551.0	33.8
3	14-04-2021	84	12.5	532131.5	28.9
4	21-04-2021	95	12.6	522527.5	32.6
5	28-04-2021	87	12.6	533747.2	30.9
6	03-05-2021	91	12.4	519077.0	33.9
7	12-05-2021	87	12.7	536594.0	36.3
8	18-05-2021	94	13.8	573352.2	31.1
9	27-05-2021	85	12.8	541685.8	29.7
10	03-06-2021	82	13.6	580870.9	28.4
11	10-06-2021	78	13.6	588698.0	30.1
12	15-06-2021	84	14.4	611960.6	29.3
13	22-06-2021	87	15.0	632060.0	37.6
14	06-07-2021	91	15.8	659976.3	31.1
15	15-07-2021	92	16.3	677626.7	34.1
16	21-07-2021	82	14.2	607225.6	30.6
17	27-07-2021	78	15.2	656080.0	31.5
18	03-08-2021	85	13.8	587350.8	28.6
19	11-08-2021	92	14.5	603105.0	31.2

20	09-09-2021	82	13.1	562541.5	27.2
21	14-09-2021	86	15.3	648933.5	29.5
22	22-09-2021	91	13.8	578148.0	24.7
23	28-09-2021	91	12.4	518161.3	24.8
Method		IS 11255 (Part 3): 2008 RA 2018	IS 11255 (Part 3): 2008 RA 2018	IS 11255 (Part 3): 2008 RA 2018	IS 11255 (Part 1):1985 RA 2019

Norms: **Total Particulate Matter (PM)-100 mg/Nm³.**

STACK EMISSION STATUS

Location:-S-2 (CPP-FBC Boiler)

Stack Identity	S-2 (CPP-FBC Boiler)
Stack attached to	FBC Boiler of CPP through ESP
Material of construction	Mild Steel
Stack height above ground level	55 mtr.
Stack shape at top	Circular
Stack diameter	1.6 mtr
Type of fuel	Coal Fines, DRI Ash, ESP Dust

Results of Analysis

Sr. No.	Date of Monitoring	Temp(°C)	Velocity of Flue Gas (m/sec)	Volume of Flue Gas (Nm ³ /hr)	Total Particulate Matter (PM) (mg/Nm ³)	SO ₂ (kg/day)	NO ₂ (mg/ Nm ³)
1	02-04-2021	142	9.10	46018.0	43.2	2112.7	431.7
2	08-04-2021	138	8.78	44828.0	44.1	2304.0	441.8
3	14-04-2021	134	8.50	43829.9	43.9	2325.5	440.2
4	21-04-2021	148	8.99	44809.6	42.5	2284.6	446.1
5	28-04-2021	146	8.77	43925.2	45.8	2266.7	445.7
6	05-05-2021	152	9.14	45732.7	47.3	2414.3	418.0
7	12-05-2021	148	8.81	43914.8	41.8	2613.6	431.7
8	19-05-2021	136	9.15	46945.8	46.6	2774.9	427.4
9	27-05-2021	142	9.12	46116.1	49.8	2854.7	434.2
10	04-06-2021	154	9.07	44578.5	54.0	2480.4	399.0
11	10-06-2021	146	9.35	46826.4	51.6	2123.9	426.1
12	17-06-2021	148	9.55	47602.8	48.2	2143.0	434.3

13	25-06-2021	138	8.71	44475.1	49.7	2357.1	438.0
14	09-07-2021	147	8.90	44272.6	45.7	2227.7	394.6
15	16-07-2021	145	9.16	45982.0	42.5	1827.7	432.9
16	20-07-2021	152	9.14	45132.0	42.1	2687.4	432.9
17	28-07-2021	138	8.71	44475.7	48.4	2988.7	332.1
18	03-08-2021	146	8.98	44977.7	47.7	2773.8	402.4
19	09-09-2021	128	8.60	45009.14	29.7	2662.9	417.0
20	16-09-2021	132	9.10	47154.30	28.9	2753.0	405.4
21	22-09-2021	122	8.72	46331.0	32.5	2600.1	401.5
	Method	IS 11255 (Part 3): 2008 RA 2018	IS 11255 (Part 3): 2008 RA 2018	IS 11255 (Part 3): 2008 RA 2018	IS 11255 (Part 1):1985 RA 2019	IS 11255 (Part 2):1985 RA 2019	IS 11255 (Part 7):2005 RA 2017

Norms: **Total Particulate Matter (PM)-100 mg/Nm³.**
Sulphur Dioxide – 4100 Kg/Day.

STACK EMISSION STATUS

Location:-S-10 (MBF Stoves)

Stack Identity	S-10 (MBF Stoves)
Stack attached to	MBF Gas Fired Hot Blast Burner Stoves
Material of construction	Mild Steel
Stack height above ground level	45.0 mtr.
Stack shape at top	Circular
Stack diameter	2.0 mtr
Type of fuel	MBF Cleaned Gas & Coke

Results of Analysis

Sr. No.	Date of Monitoring	Temp (°C)	Velocity of Flue Gas (m/sec)	Volume of Flue Gas (Nm ³ /hr)	Total Particulate Matter (PM) (mg/Nm ³)	SO ₂ (kg/day)	NO _x (mg/Nm ³)
1	02-04-2021	154	14.1	108307.9	30.7	1253.0	364.5
2	10-04-2021	147	14.2	110900.0	32.5	1157.4	397.3
3	13-04-2021	142	13.6	107635.6	31.4	1087.7	38.3
4	20-04-2021	138	14.2	113875.4	30.4	819.9	435.3
5	27-04-2021	148	14.1	110489.3	31.2	1055.6	438.7
6	04-05-2021	152	14.8	114524.0	34.5	761.0	328.0
7	15-05-2021	156	13.5	103673.1	30.4	1354.0	444.9
8	19-05-2021	147	14.9	116878.7	31.8	1467.6	411.2
9	26-05-2021	145	12.5	97950.3	34.3	1291.0	378.0
10	11-06-2021	138	14.3	114031.8	30.3	915.6	330.0
11	17-06-2021	142	15.3	121438.9	31.7	1554.0	417.0
12	22-06-2021	146	15.0	117401.8	34.3	1074.3	381.6
13	28-06-2021	148	16.2	126097.3	33.0	1416.7	392.1
14	09-07-2021	152	15.6	120453.1	31.6	1558.0	354.1
15	16-07-2021	148	16.5	128832.0	33.6	1414.7	420.5
16	21-07-2021	145	15.2	119351.8	36.7	1467.5	410.0
17	28-07-2021	142	15.9	125671.3	36.6	1517.0	415.0
18	04-08-2021	138	14.4	115471.8	28.3	1077.1	421.5
19	14-08-2021	147	15.0	117295.0	26.2	978.9	308.5

20	19-08-2021	142	15.3	121484.9	32.3	1119.7	433.4
21	11-09-2021	134	15.8	127723.2	26.8	1209.0	186.1
22	16-09-2021	142	15.1	119340.9	22.5	696.8	193.5
23	21-09-2021	138	15.5	124154.1	27.8	661.0	171.0
24	28-09-2021	210	10.8	73787.8	26.7	426.8	178.3
Method		IS 11255 (Part 3): 2008 RA 2018	IS 11255 (Part 3): 2008 RA 2018	IS 11255 (Part 3): 2008 RA 2018	IS 11255 (Part 1):1985 RA 2019	IS 11255 (Part 2):1985 RA 2019	IS 11255 (Part 7):2005 RA 2017

Norms: **Total Particulate Matter (PM)-100 mg/Nm³.**
Sulphur Dioxide – 1620 Kg/Day.

STACK EMISSION STATUS

Location:-S-23 (Sinter Plant)

Stack Identity	S-23 (Sinter Plant)
Stack attached to	Head ESP at Sinter Plant
Material of construction	Mild Steel
Stack height above ground level	50.0 mtr.
Stack shape at top	Circular
Stack diameter	3.0 mtr
Type of fuel	Coke Breeze/Fines

Results of Analysis

Sr. No.	Date of Monitoring	Temp(° C)	Velocity of Flue Gas (m/sec)	Volume of Flue Gas (Nm³/hr)	Total Particulate Matter (PM) (mg/Nm³)	SO ₂ (kg/day)	NOx (mg/Nm³)
1	03-04-2021	172	14.7	243606.7	71.8	246.7	310.7
2	09-04-2021	168	14.9	249973.2	74.3	234.7	345.9
3	15-04-2021	175	13.0	229008.5	75.3	250.8	306.1
4	22-04-2021	178	14.5	238073.4	78.1	243.6	287.1
5	30-04-2021	164	13.1	221767.9	75.9	235.5	279.1
6	06-05-2021	182	14.3	232919.0	75.8	237.1	267.0
7	13-05-2021	172	15.2	252055.0	81.9	235.2	225.1
8	20-05-2021	178	15.3	250810.4	73.2	241.9	340.0
9	28-05-2021	185	15.8	255479.0	83.2	240.6	255.4
10	08-06-2021	168	15.8	265188.9	61.0	271.8	291.4
11	18-06-2021	174	18.1	299695.0	67.2	245.4	265.2
12	24-06-2021	162	17.0	289215.6	65.7	222.1	230.4
13	29-06-2021	157	16.3	279559.7	70.0	228.0	231.9
14	12-07-2021	162	15.7	267007.4	59.8	260.3	310.7
15	21-07-2021	158	16.4	281949.0	40.8	205.1	315.2
16	29-07-2021	154	15.1	261661.7	61.3	211.4	314.2
17	07-08-2021	158	16.4	281116.5	63.8	230.0	421.7
18	13-08-2021	174	16.5	272516.8	58.0	195.4	371.0

19	20-08-2021	162	16.0	272627.6	58.1	205.3	404.9
20	26-08-2021	178	17.2	281712.1	51.7	210.9	316.6
21	10-09-2021	172	18.6	308505.9	48.3	238.5	402.0
22	15-09-2021	184	17.7	286718.8	46.7	265.0	415.3
23	23-09-2021	176	16.7	275442.2	48.2	260.9	407.9
24	29-09-2021	168	18.0	301713.2	43.3	236.8	405.8
Method		IS 11255 (Part 3): 2008 RA 2018	IS 11255 (Part 3): 2008 RA 2018	IS 11255 (Part 3): 2008 RA 2018	IS 11255 (Part 1):1985 RA 2019	IS 11255 (Part 2):1985 RA 2019	IS 11255 (Part 7):2005 RA 2017

Norms: **Total Particulate Matter (PM)-100 mg/Nm³.**
Sulphur Dioxide – 272 Kg/Day.

STACK EMISSION STATUS

Location:-S-24 (Sinter Plant)

Stack Identity	S-24 (Sinter Plant)
Stack attached to	Tail ESP at Sinter Plant
Material of construction	Mild Steel
Stack height above ground level	40.0 mtr.
Stack shape at top	Circular
Stack diameter	2.376 mtr
Type of fuel	Coke Breeze/Fines

Results of Analysis

Sr. No.	Date of Monitoring	Temp(°C)	Velocity of Flue Gas (m/sec)	Volume of Flue Gas (Nm ³ /hr)	Total Particulate Matter (PM) (mg/Nm ³)	SO ₂ (kg/day)	NO _x (mg/Nm ³)
1	03-04-2021	142	8.98	98165.6	63.7	78.9	317.3
2	09-04-2021	154	9.12	99237.1	65.9	86.3	341.8
3	15-04-2021	148	8.63	95239.8	65.1	80.7	301.8
4	22-04-2021	145	9.10	101365.7	60.8	74.0	261.7
5	30-04-2021	152	8.92	97505.8	63.4	75.3	258.9
6	06-05-2021	146	8.88	98463.0	69.6	75.1	376.0
7	13-05-2021	154	9.16	99668.3	75.5	88.7	334.0
8	20-05-2021	146	9.44	104680.3	69.8	78.6	283.7
9	28-05-2021	162	9.52	101687.2	94.8	87.6	294.6
10	08-06-2021	154	8.87	96506.3	57.9	90.0	243.2
11	18-06-2021	158	9.39	101221.3	68.4	75.5	281.0
12	24-06-2021	147	9.36	103541.8	65.9	83.4	279.2
13	29-06-2021	152	8.76	95760.6	69.3	83.4	276.8
14	12-07-2021	142	8.46	94707.0	50.7	84.9	257.7
15	24-07-2021	138	8.80	99476.0	48.8	81.9	243.2
16	29-07-2021	135	8.58	97697.0	46.4	77.9	259.3
17	07-08-2021	137	8.41	95296.7	47.3	81.3	415.2

18	13-08-2021	142	8.94	100081.8	49.4	74.9	307.5
19	20-08-2021	134	8.57	97822.9	48.2	73.9	273.8
20	26-08-2021	148	9.19	101419.8	45.4	72.9	312.7
21	10-09-2021	138	8.80	99474.7	45.4	81.6	324.7
22	15-09-2021	143	8.70	97829.7	46.4	76.6	362.3
23	23-09-2021	146	9.19	101895.6	43.6	81.6	384.2
24	29-09-2021	151	9.40	103010.3	41.4	79.1	397.0
Method		IS 11255 (Part 3): 2008 RA 2018	IS 11255 (Part 3): 2008 RA 2018	IS 11255 (Part 3): 2008 RA 2018	IS 11255 (Part 1):1985 RA 2019	IS 11255 (Part 2):1985 RA 2019	IS 11255 (Part 7):2005 RA 2017

Norms: **Total Particulate Matter (PM)-100 mg/Nm³.**
Sulphur Dioxide – 92 Kg/Day.

STACK EMISSION STATUS

Location:-S-1A (ASM)

Stack Identity	S-1A (ASM)
Stack attached to	Reheating Furnace of Alloy Steel Mill
Material of construction	Mild Steel
Stack height above ground level	30.0 mtr.
Stack shape at top	Circular
Stack diameter	1.1 mtr
Type of fuel	Furnace Oil & BF Gas

Results of Analysis

Sr. No.	Date of Monitoring	Temp(°C)	Velocity of Flue Gas (m/sec)	Volume of Flue Gas (Nm ³ /hr)	Total Particulate Matter (PM) (mg/Nm ³)	SO ₂ (kg/day)	NO _x (mg/Nm ³)
1	01-04-2021	184	7.30	15846.3	37.7	178.5	339.8
2	07-04-2021	176	7.00	15464.9	36.3	208.9	313.4
3	12-04-2021	192	7.64	16297.9	34.1	223.6	316.1
4	19-04-2021	187	6.60	14232.8	35.3	110.8	263.6
5	26-04-2021	194	6.80	14444.6	35.1	152.6	287.1
6	05-05-2021	186	6.92	14956.7	33.9	186.0	327.9
7	11-05-2021	178	7.49	16474.3	30.1	209.8	320.1
8	17-05-2021	164	7.25	16457.8	32.2	118.6	309.0
9	25-05-2021	172	7.56	16852.3	30.7	167.8	305.9
10	05-07-2021	182	7.52	16395.8	33.0	148.9	326.8
11	14-07-2021	168	7.40	16646.1	37.9	123.5	332.0
12	21-07-2021	178	7.12	15661.6	37.2	102.2	226.5
13	26-07-2021	172	6.94	15471.9	32.2	138.6	273.7
14	04-08-2021	176	7.47	16504.02	31.6	141.2	328.9
15	10-08-2021	182	7.27	15850.7	29.2	145.4	321.6
16	16-08-2021	168	6.91	15544.3	33.4	142.2	308.2
17	23-08-2021	177	7.6	16754.3	31.5	144.6	348.8

18	01-09-2021	184	7.03	15261.03	33.5	107.6	384.9
19	13-09-2021	172	7.44	16585.9	27.0	87.9	351.5
20	20-09-2021	168	7.16	16106.7	28.3	106.5	280.1
21	27-09-2021	190	7.71	16519.2	24.3	112.7	314.2
Method		IS 11255 (Part 3): 2008 RA 2018	IS 11255 (Part 3): 2008 RA 2018	IS 11255 (Part 3): 2008 RA 2018	IS 11255 (Part 1):1985 RA 2019	IS 11255 (Part 2):1985 RA 2019	IS 11255 (Part 7):2005 RA 2017

Norms: **Total Particulate Matter (PM)-100 mg/Nm³.**
Sulphur Dioxide – 720 Kg/Day.

STACK EMISSION STATUS

Location:-S-34 Blooming Mill

Stack Identity	S-34 Blooming Mill
Stack attached to	Reheating Furnace Blooming Mill
Material of construction	Mild Steel
Stack height above ground level	70.0 mtr.
Stack shape at top	Circular
Stack diameter	2.0 mtr
Type of fuel	Furnace Oil

Sr. No.	Date of Monitoring	Temp (°C)	Velocity of Flue Gas (m/sec)	Volume of Flue Gas (Nm ³ /hr)	Total Particulate Matter (PM) (mg/Nm ³)	SO ₂ (kg/day)	NO _x (mg/Nm ³)
1	01-04-2021	318	11.5	63855.1	35.6	1851.8	428.9
2	06-04-2021	316	10.7	59734.8	34.9	1219.1	370.8
3	12-04-2021	307	10.0	56820.4	33.9	1054.5	408.7
4	19-04-2021	302	10.1	57994.2	35.7	892.1	415.3
5	26-04-2021	312	10.3	58070.9	33.6	942.2	395.9
6	03-05-2021	310	10.6	59620.8	35.2	1413.0	441.2
7	10-05-2021	320	11.1	60878.5	34.3	1568.0	369.1
8	18-05-2021	312	10.7	60091.2	30.4	1821.8	333.2
9	25-05-2021	318	10.4	57925.2	33.7	1575.5	403.6
10	03-06-2021	322	10.9	60229.7	32.9	1468.3	418.8
11	09-06-2021	302	10.3	58738.7	34.5	1236.7	398.5
12	16-06-2021	315	10.0	56158.9	37.8	1386.0	433.0
13	23-06-2021	310	11.1	62597.6	31.6	1549.3	411.2
14	06-07-2021	312	10.5	58858.8	34.4	457.0	346.0
15	15-07-2021	317	10.9	61071.1	39.3	428.5	378.0
16	19-07-2021	302	10.3	58741.0	36.1	311.3	403.6
17	27-07-2021	307	10.5	59758.8	38.1	511.5	393.4
18	02-08-2021	315	11.0	61784.0	38.5	392.9	331.1

19	11-08-2021	307	10.3	58517.3	35.5	375.6	353.7
20	17-08-2021	309	10.5	59666.1	32.7	353.0	388.0
21	25-08-2021	317	10.3	57358.8	32.6	391.9	384.6
22	02-09-2021	314	11.0	61839.29	35.4	225.8	383.5
23	08-09-2021	307	10.4	59139.3	28.2	197.9	321.6
24	14-09-2021	312	10.7	60089.6	32.5	256.6	342.7
25	20-09-2021	302	10.5	59995.7	28.0	381.0	329.4
Method		IS 11255 (Part 3): 2008 RA 2018	IS 11255 (Part 3): 2008 RA 2018	IS 11255 (Part 3): 2008 RA 2018	IS 11255 (Part 1):1985 RA 2019	IS 11255 (Part 2):1985 RA 2019	IS 11255 (Part 7):2005 RA 2017

Norms: **Total Particulate Matter (PM)-100 mg/Nm³.**
Sulphur Dioxide – 5490 Kg/Day.

STACK EMISSION STATUS

Location:- 30 Ton BELL Furnace-1

Stack Identity	30 Ton BELL Furnace-1
Stack diameter	0.38 meter

Results of Analysis

Sr. No.	Date of Monitoring	Temp(°C)	Velocity of Flue Gas (m/sec)	Volume of Flue Gas (Nm ³ /hr)	Total Particulate Matter (PM) (mg/Nm ³)
1	06-04-2021	124	11.7	3514.4	12.0
2	17-04-2021	118	11.3	3424.8	11.2
3	10-05-2021	132	11.2	3270.0	14.6
4	22-05-2021	124	10.4	3124.5	12.4
5	04-06-2021	128	11.6	3432.6	12.7
6	25-06-2021	122	11.4	3436.8	15.1
7	08-07-2021	102	10.6	3351.8	13.9
8	22-07-2021	118	11.4	3475.1	15.7
9	06-08-2021	112	12.3	3781.1	10.4
10	21-08-2021	120	11.7	3526.7	7.11
11	08-09-2021	102	10.8	3418.41	12.4
Method		IS 11255 (Part 3): 2008 RA 2018	IS 11255 (Part 3): 2008 RA 2018	IS 11255 (Part 3): 2008 RA 2018	IS 11255 (Part 1):1985 RA 2019

Norms: **Total Particulate Matter (PM)-100 mg/Nm³.**

STACK EMISSION STATUS

Location:- Flux Screening (Sinter Plant)

Stack Identity	Flux Screening (Sinter Plant)
Stack diameter	1.1 meter

Results of Analysis

Sr. No.	Date of Monitoring	Temp(°C)	Velocity of Flue Gas (m/sec)	Volume of Flue Gas (Nm ³ /hr)	Total Particulate Matter (PM) (mg/Nm ³)
1	05-04-2021	52	6.19	18901.10	34.1
2	16-04-2021	54	6.29	19088.2	36.7
3	21-05-2021	58	6.52	19522.5	31.1
4	14-06-2021	52	6.56	20031.4	31.1
5	13-07-2021	48	6.31	19507.09	36.9
6	30-07-2021	45	6.0	18972.8	31.4
7	09-08-2021	48	6.42	19846.3	27.9
8	27-08-2021	54	6.10	18692.6	28.1
9	18-09-2021	58	6.30	18916.9	27.6
Method		IS 11255 (Part 3): 2008 RA 2018	IS 11255 (Part 3): 2008 RA 2018	IS 11255 (Part 3): 2008 RA 2018	IS 11255 (Part 1):1985 RA 2019

Norms: **Total Particulate Matter (PM)-100 mg/Nm³.**

STACK EMISSION STATUS

Location:-Flux Crusher Sinter Plant

Stack Identity	Flux Crusher Sinter Plant
Stack diameter	1.1 mtr

Results of Analysis

Sr. No.	Date of Monitoring	Temp(° C)	Velocity of Flue Gas (m/sec)	Volume of Flue Gas (Nm ³ /hr)	Total Particulate Matter (PM) (mg/Nm ³)
1	05-04-2021	45	5.41	16877.0	23.1
2	16-04-2021	48	5.28	16317.3	16.9
3	21-05-2021	52	5.82	17765.3	18.6
4	14-06-2021	47	5.99	18569.0	21.1
5	13-07-2021	42	5.73	18045.6	15.9
6	30-07-2021	38	5.47	17448.8	17.8
7	09-08-2021	36	5.34	17144.8	18.9
8	27-08-2021	38	5.47	17449.7	18.0
9	18-09-2021	36	5.20	16760.4	14.1
Method		IS 11255 (Part 3): 2008 RA 2018	IS 11255 (Part 3): 2008 RA 2018	IS 11255 (Part 3): 2008 RA 2018	IS 11255 (Part 1):1985 RA 2019

Norms: Total Particulate Matter (PM)-100 mg/Nm³.

STACK EMISSION STATUS

Stack Identity	DRP – 2 (Main)
Stack diameter	2.8 meter

Results of Analysis

Sr. No.	Date of Monitoring	Temp(°C)	Velocity of Flue Gas (m/sec)	Volume of Flue Gas (Nm ³ /hr)	Total Particulate Matter (PM) (mg/Nm ³)	SO ₂ (kg/day)	NO _x (mg/Nm ³)
1	23-04-2021	147	8.79	134501.5	43.7	1015.4	327.4
2	29-04-2021	152	8.73	132017.2	39.7	975.7	334.7
3	07-05-2021	145	8.69	133620.2	41.4	1072.0	379.0
4	14-05-2021	148	9.37	143041.7	41.2	760.7	351.7
5	24-05-2021	143	8.86	136885.4	47.2	1083.8	313.9
6	07-06-2021	147	9.36	143235.0	43.8	1153.8	402.4
7	22-06-2021	138	8.89	139023.6	47.0	2827.8	404.8
8	07-07-2021	143	9.40	145218.5	45.4	2954.0	361.6
9	05-08-2021	138	8.90	139174.3	37.1	3127.3	380.5
10	12-08-2021	147	8.71	133289.0	39.9	3228.8	370.6
11	18-08-2021	60	2.80	141238.1	43.2	3655.8	426.5
12	03-09-2021	144	8.90	137483.8	37.7	2155.1	417.9
13	24-09-2021	138	9.26	144801.9	35.5	1828.3	401.1
Method	IS 11255 (Part 3): 2008 RA 2018	IS 11255 (Part 3): 2008 RA 2018	IS 11255 (Part 3): 2008 RA 2018	IS 11255 (Part 3): 2008 RA 2018	IS 11255 (Part 1):1985 RA 2019	IS 11255 (Part 2):1985 RA 2019	IS 11255 (Part 7):2005 RA 2017

Norms: **Total Particulate Matter (PM)- 50 mg/Nm³.**
Sulphur Dioxide – 4520 Kg/Day.

STACK EMISSION STATUS

Stack Identity	DRP – 1 (Main)
Stack diameter	3.2 meter

Results of Analysis

Sr. No.	Date of Monitoring	Temp(°C)	Velocity of Flue Gas (m/sec)	Volume of Flue Gas (Nm ³ /hr)	Total Particulate Matter (PM) (mg/Nm ³)	SO ₂ (kg/day)	NO _x (mg/Nm ³)
1	01-06-2021	146	9.07	181721.3	45.1	4108.5	434.5
Method		IS 11255 (Part 3): 2008 RA 2018	IS 11255 (Part 3): 2008 RA 2018	IS 11255 (Part 3): 2008 RA 2018	IS 11255 (Part 1):1985 RA 2019	IS 11255 (Part 2):1985 RA 2019	IS 11255 (Part 7):2005 RA 2017

Norms: **Total Particulate Matter (PM)- 50 mg/Nm³.**

Sulphur Dioxide – 7250 Kg/Day.

STACK EMISSION STATUS

Stack Identity	De-Dusting (DRP-1)
Stack diameter	2.0 meter

Results of Analysis

Sr. No.	Date of Monitoring	Temp (°C)	Velocity of Flue Gas (m/sec)	Volume of Flue Gas (Nm ³ /hr)	Total Particulate Matter (PM) (mg/Nm ³)
1	01-06-2021	54	6.37	63908.4	47.7
2	06-09-2021	51	6.14	62169.57	45.5
Method		IS 11255 (Part 3): 2008 RA 2018	IS 11255 (Part 3): 2008 RA 2018	IS 11255 (Part 3): 2008 RA 2018	IS 11255 (Part 1):1985 RA 2019

Norms: **Total Particulate Matter (PM)- 50 mg/Nm³.**

STACK EMISSION STATUS

Stack Identity	Wet-Scrubber (DRP-1)
Stack diameter	0.8 meter

Results of Analysis

Sr. No.	Date of Monitoring	Temp(°C)	Velocity of Flue Gas (m/sec)	Volume of Flue Gas (Nm ³ /hr)	Total Particulate Matter (PM) (mg/Nm ³)
1	01-06-2021	72	6.76	10281.3	40.6
2	06-09-2021	68	6.51	10017.3	46.1
Method		IS 11255 (Part 3): 2008 RA 2018	IS 11255 (Part 3): 2008 RA 2018	IS 11255 (Part 3): 2008 RA 2018	IS 11255 (Part 1):1985 RA 2019

Norms: **Total Particulate Matter (PM)- 50 mg/Nm³.**

STACK EMISSION STATUS

Stack Identity	Product House (DRP – 2)
Stack diameter	1.11 meter

Results of Analysis

Sr. No.	Date of Monitoring	Temp (°C)	Velocity of Flue Gas (m/sec)	Volume of Flue Gas (Nm ³ /hr)	Total Particulate Matter (PM) (mg/Nm ³)
1	23-04-2021	56	13.1	40256.4	48.6
2	29-04-2021	51	13.1	41093.3	50.4
3	07-05-2021	53	13.8	42988.0	50.3
4	14-05-2021	58	14.7	45186.5	50.1
5	24-05-2021	62	15.1	45495.3	48.1
6	07-06-2021	64	15.3	46014.9	49.6
7	07-07-2021	54	16.3	50578.7	43.3
8	05-08-2021	48	14.8	46872.7	45.5
9	12-08-2021	56	16.1	49548.0	49.2
10	18-08-2021	52	14.6	45481.9	45.8
11	03-09-2021	54	15.5	48022.6	40.3
12	24-09-2021	56	16.5	50777.5	45.1
Method		IS 11255 (Part 3): 2008 RA 2018	IS 11255 (Part 3): 2008 RA 2018	IS 11255 (Part 3): 2008 RA 2018	IS 11255 (Part 1):1985 RA 2019

Norms: **Total Particulate Matter (PM)- 50 mg/Nm³.**

STACK EMISSION STATUS

Stack Identity	MBF-PCI Pulverized Coal Injection
Stack diameter	0.9 meter

Results of Analysis

Sr. No.	Date of Monitoring	Temp (°C)	Velocity of Flue Gas (m/sec)	Volume of Flue Gas (Nm ³ /hr)	Total Particulate Matter (PM) (mg/Nm ³)
1	14-08-2021	87	14.4	26707.0	19.5
Method		IS 11255 (Part 3): 2008 RA 2018	IS 11255 (Part 3): 2008 RA 2018	IS 11255 (Part 3): 2008 RA 2018	IS 11255 (Part 1):1985 RA 2019

Norms: Total Particulate Matter (PM)- 50 mg/Nm³.

STACK EMISSION STATUS

Stack Identity	4.0 TPH Oil Fired Boiler for FO Storage Tank Heating
Stack diameter	0.8 meter

Results of Analysis

Sr. No.	Date of Monitoring	Temp(°C)	Velocity of Flue Gas (m/sec)	Volume of Flue Gas (Nm ³ /hr)	Total Particulate Matter (PM) (mg/Nm ³)	SO ₂ (kg/day)	NO _x (mg/Nm ³)
1	04-09-2021	137	5.87	7512.55	38.1	143.3	314.5
Method		IS 11255 (Part 3): 2008 RA 2018	IS 11255 (Part 3): 2008 RA 2018	IS 11255 (Part 3): 2008 RA 2018	IS 11255 (Part 1):1985 RA 2019	IS 11255 (Part 2):1985 RA 2019	IS 11255 (Part 7):2005 RA 2017

Norms: Total Particulate Matter (PM)- 50 mg/Nm³.
 Sulphur Dioxide – 157 Kg/Day.

STACK EMISSION STATUS

Stack Identity	Reheating Furnace PS-12 (Ingot)
Stack diameter	3.3 meter

Results of Analysis

Sr. No.	Date of Monitoring	Temp(°C)	Velocity of Flue Gas (m/sec)	Volume of Flue Gas (Nm ³ /hr)	Total Particulate Matter (PM) (mg/Nm ³)	SO ₂ (kg/day)	NO _x (mg/Nm ³)
1	24-08-2021	92	7.36	11553.4	35.2	287.3	399.6
Method		IS 11255 (Part 3): 2008 RA 2018	IS 11255 (Part 3): 2008 RA 2018	IS 11255 (Part 3): 2008 RA 2018	IS 11255 (Part 1):1985 RA 2019	IS 11255 (Part 2):1985 RA 2019	IS 11255 (Part 7):2005 RA 2017

Norms: **Total Particulate Matter (PM)- 100 mg/Nm³.**
Sulphur Dioxide – 720 Kg/Day.

STACK EMISSION STATUS

Stack Identity	ESP WHRSG boiler for Kiln (DRP-1)
Stack diameter	3.2 meter

Results of Analysis

Sr. No.	Date of Monitoring	Temp(°C)	Velocity of Flue Gas (m/sec)	Volume of Flue Gas (Nm ³ /hr)	Total Particulate Matter (PM) (mg/Nm ³)	SO ₂ (kg/day)	NO _x (mg/Nm ³)
1	06-09-2021	142	8.94	180838.24	47.0	3747.2	425.6
Method		IS 11255 (Part 3): 2008 RA 2018	IS 11255 (Part 3): 2008 RA 2018	IS 11255 (Part 3): 2008 RA 2018	IS 11255 (Part 1):1985 RA 2019	IS 11255 (Part 2):1985 RA 2019	IS 11255 (Part 7):2005 RA 2017

Norms: **Total Particulate Matter (PM)- 50 mg/Nm³.**
Sulphur Dioxide – 7250 Kg/Day.

ANNEXURE - 1 (B)

AMBIENT AIR QUALITY STATUS 1.0 Location:- A - 1 (Eklari Gate)

Sr. No.	Month	Date of Monitoring	PM ₁₀	PM _{2.5}	SO ₂	NO _x
			µg/m ³	µg/m ³	µg/m ³	µg/m ³
1	April-21	01-04-2021 to 02-04-2021	97.6	47.3	19.4	36.6
2		02-04-2021 to 03-04-2021	96.7	47.0	18.0	35.9
3		05-04-2021 to 06-04-2021	95.3	48.8	18.6	35.7
4		06-04-2021 to 07-04-2021	94.2	48.1	18.5	35.3
5		12-04-2021 to 13-04-2021	92.1	44.5	18.2	33.4
6		13-04-2021 to 14-04-2021	90.4	43.9	17.5	33.1
7		19-04-2021 to 20-04-2021	86.7	40.9	17.4	31.2
8		20-04-2021 to 21-04-2021	85.1	39.5	17.1	30.7
9		26-04-2021 to 27-04-2021	82.8	37.9	17.0	29.4
10		27-04-2021 to 28-04-2021	78.3	36.3	16.3	28.0
11	May—21	03-05-2021 to 04-05-2021	76.1	35.2	15.7	29.2
12		04-05-2021 to 05-05-2021	75.2	34.9	14.9	28.6
13		10-05-2021 to 11-05-2021	79.4	36.5	16.7	30.1
14		11-05-2021 to 12-05-2021	81.9	38.9	17.3	31.1
15		17-05-2021 to 18-05-2021	76.9	34.2	16.1	29.8
16		18-05-2021 to 19-05-2021	78.7	35.1	16.3	29.6
17		24-05-2021 to 25-05-2021	79.8	36.2	16.5	29.4
18		25-05-2021 to 26-05-2021	84.0	37.5	16.2	31.5
19	June-21	01-06-2021 to 02-06-2021	88.4	40.2	16.3	30.3
20		02-06-2021 to 03-06-2021	91.8	42.9	17.3	30.7
21		07-06-2021 to 08-06-2021	90.9	41.2	17.6	32.7
22		08-06-2021 to 09-06-2021	89.5	41.1	17.4	29.4
23		14-06-2021 to 15-06-2021	87.5	40.9	16.3	31.2

24	July-21	15-06-2021 to 16-06-2021	92.7	43.4	17.3	28.1
25		22-06-2021 to 23-06-2021	86.5	38.8	17.8	30.0
26		24-06-2021 to 25-06-2021	95.5	36.6	17.4	29.0
27		25-06-2021 to 26-06-2021	92.6	39.4	17.9	30.3
28		28-06-2021 to 29-06-2021	85.2	37.0	16.7	28.9
29		29-06-2021 to 30-06-2021	83.7	35.8	16.2	28.4
30		05-07-2021 to 06-07-2021	89.2	38.9	15.6	27.7
31		06-07-2021 to 07-07-2021	87.1	36.6	15.3	27.2
32		12-07-2021 to 13-07-2021	84.6	34.5	15.2	24.8
33		13-07-2021 to 14-07-2021	82.9	33.6	15.1	22.3
34		19-07-2021 to 20-07-2021	80.1	31.7	12.5	20.4
35		20-07-2021 to 21-07-2021	79.7	31.2	11.6	20.1
36		26-07-2021 to 27-07-2021	78.1	30.7	11.0	19.3
37		27-07-2021 to 28-07-2021	77.3	30.1	10.3	18.8
38	Aug-21	02-08-2021 to 03-08-2021	91.7	40.5	15.1	25.1
39		03-08-2021 to 04-08-2021	86.8	39.1	14.6	24.9
40		09-08-2021 to 10-08-2021	85.8	38.3	13.9	23.6
41		13-08-2021 to 14-08-2021	88.7	38.9	14.3	24.5
42		16-08-2021 to 17-08-2021	83.9	37.4	13.6	21.9
43		20-08-2021 to 21-08-2021	86.6	37.4	13.8	22.3
44		23-08-2021 to 24-08-2021	90.2	41.7	14.5	23.1
45		27-08-2021 to 28-08-2021	88.7	40.6	14.2	22.8
46	Sept-21	01-09-2021 to 02-09-2021	84.2	41.9	13.8	20.7
47		03-09-2021 to 04-09-2021	91.7	43.4	14.6	21.9
48		06-09-2021 to 07-09-2021	86.2	45.5	14.3	20.6
49		10-09-2021 to 11-09-2021	93.5	53.1	14.9	21.6
50		13-09-2021 to 14-09-2021	81.0	35.5	12.2	17.3
51		17-09-2021 to 18-09-2021	83.9	42.5	12.6	18.0

52		20-09-2021 to 21-09-2021	86.5	31.8	11.3	13.5
53		24-09-2021 to 25-09-2021	92.4	33.2	12.9	15.2
54		27-09-2021 to 28-09-2021	87.5	46.3	12.8	15.7
55		28-09-2021 to 29-09-2021	66.9	36.4	11.7	14.8
NAAQM Standard			100 (24 hrs)	60 (24 hrs)	80 (24 hrs)	80 (24 hrs)

- All Concentrations are in microgram per cubic meter

2.0 Location :- Pump House (Near Water Reservoir (A-2)

Sr. No.	Month	Date of Monitoring	PM ₁₀	PM _{2.5}	SO ₂	NO _x
			µg/m ³	µg/m ³	µg/m ³	µg/m ³
1	April--21	01-04-2021 to 02-04-2021	93.1	44.9	28.6	46.8
2		02-04-2021 to 03-04-2021	95.8	46.4	26.2	44.0
3		06-04-2021 to 07-04-2021	92.8	45.9	28.8	47.5
4		07-04-2021 to 08-04-2021	90.5	42.7	25.3	43.4
5		13-04-2021 to 14-04-2021	94.9	46.0	25.8	43.6
6		14-04-2021 to 15-04-2021	94.1	45.2	25.3	43.1
7		20-04-2021 to 21-04-2021	93.1	44.3	24.0	39.6
8		21-04-2021 to 22-04-2021	93.7	44.8	24.2	39.7
9		26-04-2021 to 27-04-2021	90.5	42.6	23.0	34.7
10		27-04-2021 to 28-04-2021	88.6	40.4	22.3	34.0
11	May-21	04-05-2021 to 05-05-2021	90.5	41.3	22.5	34.4
12		05-05-2021 to 06-05-2021	88.9	39.1	22.6	34.9
13		11-05-2021 to 12-05-2021	86.4	39.8	21.1	33.9
14		12-05-2021 to 13-05-2021	81.0	38.7	20.0	31.3
15		18-05-2021 to 19-05-2021	87.3	40.3	24.6	37.3
16		19-05-2021 to 20-05-2021	89.7	41.6	24.5	38.6
17		25-05-2021 to 26-05-2021	93.1	42.2	27.1	41.9
18		26-05-2021 to 27-05-2021	95.2	43.8	26.1	39.6
19	June-21	01-06-2021 to 02-06-2021	90.4	41.6	25.0	37.4
20		02-06-2021 to 03-06-2021	93.6	43.2	26.1	38.4
21		08-06-2021 to 09-06-2021	88.4	40.9	26.2	36.5
22		09-06-2021 to 10-06-2021	90.7	39.5	25.1	35.2
23		15-06-2021 to 16-06-2021	95.0	46.8	27.1	36.3
24		16-06-2021 to 17-06-2021	94.7	45.2	27.1	36.3

25	July-21	22-06-2021 to 23-06-2021	91.6	43.1	26.7	34.8
26		23-06-2021 to 24-06-2021	89.7	41.4	25.2	33.8
27		28-06-2021 to 29-06-2021	87.9	38.8	23.3	29.5
28		29-06-2021 to 30-06-2021	85.5	36.4	23.1	28.8
29		06-07-2021 to 07-07-2021	88.3	38.4	22.6	26.4
30		07-07-2021 to 08-07-2021	90.5	37.0	22.6	27.0
31		13-07-2021 to 14-07-2021	85.1	35.5	22.1	26.8
32		14-07-2021 to 15-07-2021	86.5	36.8	21.7	26.3
33		20-07-2021 to 21-07-2021	83.3	34.6	20.3	25.7
34		21-07-2021 to 22-07-2021	84.4	35.2	19.6	24.2
35		27-07-2021 to 28-07-2021	84.5	35.1	19.7	24.4
36		28-07-2021 to 29-07-2021	83.2	34.4	19.2	23.1
37	Aug-21	03-08-2021 to 04-08-2021	84.8	39.3	21.3	26.8
38		04-08-2021 to 05-08-2021	89.2	41.9	22.5	27.2
39		09-08-2021 to 10-08-2021	94.7	47.6	24.1	30.8
40		13-08-2021 to 14-08-2021	83.4	35.8	14.1	26.4
41		16-08-2021 to 17-08-2021	87.2	37.9	14.8	27.1
42		20-08-2021 to 21-08-2021	90.3	40.5	15.1	27.7
43		23-08-2021 to 24-08-2021	92.5	43.8	16.3	29.4
44		27-08-2021 to 28-08-2021	93.8	43.6	15.6	28.1
45	Sept-21	01-09-2021 to 02-09-2021	94.3	52.2	15.7	27.1
46		03-09-2021 to 04-09-2021	73.3	38.6	14.2	25.2
47		06-09-2021 to 07-09-2021	79.5	42.2	14.7	26.6
48		10-09-2021 to 11-09-2021	81.1	52.2	15.2	27.1
49		13-09-2021 to 14-09-2021	92.0	31.5	17.3	29.6
50		17-09-2021 to 18-09-2021	82.7	51.5	16.8	27.6
51		20-09-2021 to 21-09-2021	89.5	44.8	14.8	25.5
52		24-09-2021 to 25-09-2021	85.6	41.7	17.3	28.8

53	27-09-2021 to 28-09-2021	91.8	46.7	18.4	29.5
54	28-09-2021 to 29-09-2021	87.3	48.0	17.7	28.9
NAAQM Standard		100 (24 hrs)	60 (24 hrs)	80 (24 hrs)	80 (24 hrs)

• All Concentrations are in microgram per cubic meter

3.1 Location : STP (A-3)

Sr. No.	Month	Date of Monitoring	PM ₁₀	PM _{2.5}	SO ₂	NO _x
			µg/m ³	µg/m ³	µg/m ³	µg/m ³
1	April--21	01-04-2021 to 02-04-2021	63.9	25.2	11.1	18.9
2		02-04-2021 to 03-04-2021	59.3	22.1	9.61	16.8
3		07-04-2021 to 08-04-2021	70.5	30.4	9.37	18.8
4		08-04-2021 to 09-04-2021	74.2	33.2	10.0	19.5
5		14-04-2021 to 15-04-2021	64.6	25.5	10.9	18.1
6		15-04-2021 to 16-04-2021	65.8	27.5	11.5	18.6
7		21-04-2021 to 22-04-2021	65.1	27.3	10.8	18.4
8		22-04-2021 to 23-04-2021	64.7	25.3	10.5	18.1
9		28-04-2021 to 29-04-2021	63.9	25.9	10.0	17.7
10		29-04-2021 to 30-04-2021	63.2	23.3	9.88	17.4
11	May—21	05-05-2021 to 06-05-2021	60.3	23.1	10.2	19.3
12		06-05-2021 to 07-05-2021	59.7	22.8	9.80	18.1
13		12-05-2021 to 13-05-2021	63.1	25.1	9.50	18.4
14		13-05-2021 to 14-05-2021	65.8	25.1	9.50	18.6
15		19-05-2021 to 20-05-2021	67.3	25.5	9.49	17.8
16		20-05-2021 to 21-05-2021	68.7	27.4	9.53	18.4
17		26-05-2021 to 27-05-2021	69.1	27.7	10.6	17.8
18		27-05-2021 to 28-05-2021	71.6	27.3	10.4	18.9
19	June—21	03-06-2021 to 04-06-2021	70.6	27.9	10.2	18.8
20		04-06-2021 to 05-06-2021	73.1	27.7	9.90	19.1
21		09-06-2021 to 10-06-2021	72.1	27.7	9.55	18.0
22		10-06-2021 to 11-06-2021	69.0	26.3	8.82	17.9
23		16-06-2021 to 17-06-2021	67.0	25.7	9.20	17.8
24		17-06-2021 to 18-06-2021	66.4	24.9	9.85	17.0
25		23-06-2021 to 24-06-2021	65.5	26.6	9.40	16.2

26		28-06-2021 to 29-06-2021	64.6	26.2	9.20	15.4
27		29-06-2021 to 30-06-2021	64.1	25.5	9.30	15.9
28	July-21	07-07-2021 to 08-07-2021	66.1	25.0	10.6	16.6
29		08-07-2021 to 09-07-2021	67.1	25.6	10.7	16.8
30		14-07-2021 to 15-07-2021	68.3	25.6	10.8	16.9
31		15-07-2021 to 16-07-2021	65.9	24.5	10.5	16.3
32		21-07-2021 to 22-07-2021	64.7	24.3	10.2	16.4
33		22-07-2021 to 23-07-2021	63.1	23.1	9.80	15.7
34		28-07-2021 to 29-07-2021	62.9	23.3	9.62	15.6
35		29-07-2021 to 30-07-2021	62.1	23.9	9.41	15.3
36	Aug-21	04-08-2021 to 05-08-2021	38.4	19.8	9.87	15.1
37		05-08-2021 to 06-08-2021	41.2	19.8	8.41	14.0
38		09-08-2021 to 10-08-2021	35.2	18.3	8.22	13.5
39		13-08-2021 to 14-08-2021	35.1	16.9	7.78	13.2
40		16-08-2021 to 17-08-2021	25.6	17.9	8.14	13.6
41		20-08-2021 to 21-08-2021	33.2	17.7	8.31	13.8
42		23-08-2021 to 24-08-2021	40.2	19.3	8.48	14.0
43		27-08-2021 to 28-08-2021	44.2	20.0	8.58	14.4
44	Sept-21	01-09-2021 to 02-09-2021	45.1	20.6	8.39	14.1
45		03-09-2021 to 04-09-2021	48.0	22.7	8.35	14.1
46		06-09-2021 to 07-09-2021	63.4	29.5	9.76	15.0
47		10-09-2021 to 11-09-2021	48.6	21.5	7.80	14.1
48		13-09-2021 to 14-09-2021	55.1	26.2	8.10	15.3
49		17-09-2021 to 18-09-2021	68.6	30.8	8.64	17.5
50		20-09-2021 to 21-09-2021	26.7	15.2	6.41	9.69
51		24-09-2021 to 25-09-2021	34.1	11.9	6.59	10.2
52		27-09-2021 to 28-09-2021	42.3	13.3	7.14	11.2
53		28-09-2021 to 29-09-2021	36.1	12.6	6.97	11.1

NAAQM Standard	100 (24 hrs)	60 (24 hrs)	80 (24 hrs)	80 (24 hrs)
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- All Concentrations are in micro gram per cubic meter.

4. Location : Guest House (A-4)

Sr. No.	Month	Date of Monitoring	PM ₁₀	PM _{2.5}	SO ₂	NO _x
			µg/m ³	µg/m ³	µg/m ³	µg/m ³
1	April--21	01-04-2021 to 02-04-2021	66.9	28.0	9.82	17.2
2		02-04-2021 to 03-04-2021	61.7	25.5	9.04	17.8
3		08-04-2021 to 09-04-2021	73.5	33.1	9.43	18.1
4		09-04-2021 to 10-04-2021	76.6	34.6	9.11	18.7
5		15-04-2021 to 16-04-2021	54.2	22.6	8.77	16.0
6		16-04-2021 to 17-04-2021	51.7	21.9	8.17	15.4
7		22-04-2021 to 23-04-2021	52.6	21.5	8.23	15.5
8		23-04-2021 to 24-04-2021	50.7	20.9	8.13	15.1
9		28-04-2021 to 29-04-2021	49.3	20.9	8.0	14.9
10		29-04-2021 to 30-04-2021	50.3	21.5	8.19	15.2
11	May--21	06-05-2021 to 07-05-2021	53.1	22.6	8.30	15.7
12		07-05-2021 to 08-05-2021	52.3	22.5	9.03	14.7
13		13-05-2021 to 14-05-2021	54.9	23.6	8.68	15.7
14		14-05-2021 to 15-05-2021	56.7	23.2	8.51	15.6
15		20-05-2021 to 21-05-2021	66.3	27.9	8.86	16.8
16		21-05-2021 to 22-05-2021	65.1	29.1	8.69	16.6
17		27-05-2021 to 28-05-2021	70.3	29.6	9.13	18.3
18		28-05-2021 to 29-05-2021	71.3	30.9	9.34	18.8
19	June-21	03-06-2021 to 04-06-2021	61.0	24.6	8.30	14.5
20		04-06-2021 to 05-06-2021	60.3	25.4	9.10	14.8
21		10-06-2021 to 11-06-2021	58.5	23.5	8.60	14.4
22		11-06-2021 to 12-06-2021	57.7	23.1	8.30	13.2
23		17-06-2021 to 18-06-2021	56.2	22.9	8.66	13.0
24		18-06-2021 to 19-06-2021	55.7	19.9	8.19	13.4
25		22-06-2021 to 23-06-2021	54.6	21.3	8.10	13.5

26	July-21	25-06-2021 to 26-06-2021	53.7	20.4	8.00	12.1
27		28-06-2021 to 29-06-2021	50.8	21.0	8.00	12.5
28		29-06-2021 to 30-06-2021	51.4	20.7	8.20	13.8
29		08-07-2021 to 09-07-2021	51.1	21.6	8.31	13.4
30		09-07-2021 to 10-07-2021	52.6	21.7	8.63	13.5
31		15-07-2021 to 16-07-2021	52.8	21.5	8.78	13.7
32		16-07-2021 to 17-07-2021	49.6	20.1	8.35	13.4
33		22-07-2021 to 23-07-2021	47.7	20.4	8.32	13.1
34		23-07-2021 to 24-07-2021	46.7	19.1	8.10	12.9
35		29-07-2021 to 30-07-2021	45.7	19.7	8.06	12.5
36		30-07-2021 to 31-07-2021	44.8	19.1	7.90	12.4
37	Aug-21	05-08-2021 to 06-08-2021	45.4	19.0	7.59	12.3
38		06-08-2021 to 07-08-2021	52.2	19.9	7.46	12.6
39		09-08-2021 to 10-08-2021	45.9	18.4	6.71	11.8
40		13-08-2021 to 14-08-2021	43.7	18.3	7.07	12.1
41		16-08-2021 to 17-08-2021	45.4	17.8	7.31	12.4
42		20-08-2021 to 21-08-2021	49.3	17.3	7.31	12.4
43		23-08-2021 to 24-08-2021	48.7	19.2	7.37	12.6
44		27-08-2021 to 28-08-2021	74.6	17.8	7.35	13.7
45	Sept-21	01-09-2021 to 02-09-2021	57.4	24.2	7.37	12.1
46		03-09-2021 to 04-09-2021	59.6	28.9	7.88	12.8
47		06-09-2021 to 07-09-2021	68.2	31.0	8.21	13.1
48		10-09-2021 to 11-09-2021	55.1	29.3	8.70	14.3
49		13-09-2021 to 14-09-2021	52.7	24.3	6.68	14.5
50		17-09-2021 to 18-09-2021	51.7	19.3	8.68	15.5
51		20-09-2021 to 21-09-2021	39.9	11.4	6.44	8.80
52		24-09-2021 to 25-09-2021	44.0	17.8	8.22	16.8
53		27-09-2021 to 28-09-2021	60.7	16.9	8.99	17.2

54	28-09-2021 to 29-09-2021	39.8	13.3	8.60	14.5
NAAQM Standard		100 (24 hrs)	60 (24 hrs)	80 (24 hrs)	80 (24 hrs)

- All Concentrations are in microgram per cubic meter

ANNEXURE-1. (C)

Ambient Noise Quality Status

April-2021	Hourly Average Noise Level dB (A)									
Location	1st		2nd		3rd		4th		4th	
	03-04-2021		10-04-2021		17-04-2021		24-04-2021		30-04-2021	
	Day Time	Night Time	Day Time	Night Time	Day Time	Night Time	Day Time	Night Time	Day Time	Night Time
N-1 (Eklari Gate)	70.5	60.0	73.3	63.1	72.4	61.7	71.2	63.4	70.1	59.3
N-2 (Pump House-2) Near Water Reservoir	71.8	63.4	72.4	61.7	71.2	59.1	70.6	58.9	73.9	62.0
N-3 (STP)	51.2	46.8	52.9	45.8	53.7	46.3	52.6	49.2	53.0	46.7
N-4 (Guest House)	57.8	50.6	60.5	52.1	63.4	53.1	63.4	52.6	60.7	50.6
Norms	75	70	75	70	75	70	75	70	75	70

May-2021	Hourly Average Noise Level dB (A)							
Location	1st		2nd		3rd		4th	
	08-05-2021		15-05-2021		22-05-2021		29-05-2021	
	Day Time	Night Time	Day Time	Night Time	Day Time	Night Time	Day Time	Night Time
N-1 (Eklari Gate)	70.6	58.9	72.3	62.0	73.3	63.0	70.2	59.4
N-2 (Pump House-2) Near Water Reservoir	72.1	61.7	71.9	62.7	72.3	63.4	73.9	63.9
N-3 (STP)	52.8	47.8	53.7	46.3	52.6	49.0	53.9	46.5
N-4 (Guest House)	65.1	53.1	62.9	52.6	63.6	53.7	63.6	52.9
Norms	75	70	75	70	75	70	75	70

June-2021	Hourly Average Noise Level dB (A)									
Location	1 st		2 nd		3 rd		4 th		5 th	
	05-06-2021		12-06-2021		19-06-2021		26-06-2021		30-06-2021	
	Day Time	Night Time	Day Time	Night Time	Day Time	Night Time	Day Time	Night Time	Day Time	Night Time
N-1 (Eklari Gate)	70.1	59.4	73.3	59.4	70.6	59.2	73.9	61.7	70.5	59.6
N-2 (Pump House-2) Near Water Reservoir	73.9	63.8	71.7	61.7	72.3	63.4	70.1	58.9	72.1	63.9
N-3 (STP)	52.6	49.2	53.7	46.7	53.0	46.3	52.8	47.8	53.4	48.7
N-4 (Guest House)	63.9	53.1	60.7	52.6	64.2	52.8	60.5	52.1	63.4	52.9
Norms	75	70	75	70	75	70	75	70	75	70

July-2021	Hourly Average Noise Level dB (A)							
Location	1 st		2 nd		3 rd		4 th	
	10-07-2021		17-07-2021		24-07-2021		31-07-2021	
	Day Time	Night Time	Day Time	Night Time	Day Time	Night Time	Day Time	Night Time
N-1 (Eklari Gate)	71.4	59.1	70.6	63.1	72.2	63.4	70.4	59.4
N-2 (Pump House-2) Near Water Reservoir	72.1	63.5	73.9	63.8	72.4	61.7	73.2	63.6
N-3 (STP)	52.5	48.8	53.2	46.7	53.0	47.5	54.7	46.6
N-4 (Guest House)	63.7	52.6	62.9	53.1	64.2	53.2	65.1	52.9
Norms	75	70	75	70	75	70	75	70

August-2021	Hourly Average Noise Level dB (A)							
Location	1 st		2 nd		3 rd		4 th	
	07-08-2021		14-08-2021		21-08-2021		28-08-2021	
	Day Time	Night Time	Day Time	Night Time	Day Time	Night Time	Day Time	Night Time
N-1 (Eklari Gate)	70.5	60.0	72.4	61.7	70.6	59.4	70.2	58.3
N-2 (Pump House-2) Near Water Reservoir	72.2	63.4	73.3	63.1	73.9	63.8	71.4	59.1
N-3 (STP)	52.6	49.2	53.2	49.3	53.9	46.5	50.6	44.7
N-4 (Guest House)	63.4	52.6	60.7	53.2	65.1	50.6	52.4	48.3
Norms	75	70	75	70	75	70	75	70

Sept-2021	Hourly Average Noise Level dB (A)									
Location	1 st		2 nd		3 rd		4 th		5 th	
	04-09-2021		11-09-2021		18-09-2021		25-09-2021		29-09-2021	
	Day Time	Night Time	Day Time	Night Time	Day Time	Night Time	Day Time	Night Time	Day Time	Night Time
N-1 (Eklari Gate)	58.4	56.8	68.6	56.5	58.7	56.3	70.2	59.2	59.8	57.7
N-2 (Pump House-2) Near Water Reservoir	65.1	63.2	71.9	65.9	66.8	60.6	70.2	58.2	65.6	63.8
N-3 (STP)	56.7	53.6	51.7	44.1	52.5	48.8	50.7	44.6	53.0	46.3
N-4 (Guest House)	61.1	57.2	52.2	44.2	54.7	51.7	52.6	46.3	53.7	49.2
Norms	75	70	75	70	75	70	75	70	75	70

ANNEXURE-1. (D)

FUGITIVE DUST EMISSION MONITORING STATUS

Sr. No.	LOCATION	Month	SPM ($\mu\text{g}/\text{m}^3$)	RSPM ($\mu\text{g}/\text{m}^3$)
1	Sinter Plant (Near Main Control Room Building)	April – 2021	1585.1	781.3
		May -2021	1708.0	839.4
		June – 2021	1650.8	771.1
		July-2021	1520.0	625.0
		Aug-2021	1590.1	697.5
		Sept-2021	1436.7	660.2
2	Raw Material Handling Area (Near Transfer Point)	April – 2021	1635.2	808.3
		May -2021	1657.3	804.1
		June – 2021	1738.1	855.7
		July-2021	1662.0	702.0
		Aug-2021	1658.0	684.2
		Sept-2021	1623.7	712.4
3	SMS (Steel Melting Shop) (Near Ladle Heating Furnace)	April – 2021	1454.3	670.6
		May -2021	1294.6	682.1
		June – 2021	1733.8	783.7
		July-2021	1226.2	538.0
		Aug-2021	1505.0	681.7
		Sept-2021	1391.5	654.4
4	MBF (Near Mini Blast Furnace)	April – 2021	1406.2	684.1
		May -2021	1332.8	779.6
		June – 2021	1813.4	816.6
		July-2021	1359.0	604.2
		Aug-2021	1643.1	708.3
		Sept-2021	1621.8	693.6

5	Raw Material Feed Area (Near Mixing Area)	April – 2021	1609.2	745.5
		May -2021	1691.1	856.3
		June – 2021	1745.3	866.3
		July-2021	1273.3	560.3
		Aug-2021	1483.0	519.0
		Sept-2021	1574.1	682.0
6	DRP-2 (Near Coal Circuit Area)	April – 2021	1735.9	783.0
		May -2021	1735.1	819.6
		June – 2021	1543.6	682.1
		July-2021	--	--
		Aug-2021	1675.0	587.0
		Sept-2021	1378.2	558.9
		7	MBF Stock Yard (Near Day Bins)	July-2021
Aug-2021	--			--
Sept-2021	--			--
Norms			2000	--

Annexure- 1. (E)
TREATED EFFLUENT QUALITY STATUS

1. Location : E-1 STP Outlet

Sr. No.	Test Parameter	Measurement Unit	Test Results						Limit as per Consent Conditions
			Apr-21	May-21	June-21	July-21	Aug-21	Sept-21	
1.	Total Suspended Solids	mg/l	12.0	18.0	16.0	8.0	8.6	3.0	50
2.	Biochemical oxygen demand(BOD at 27°C for 3 days)	mg/l	11.5	14.0	11.0	9.0	9.0	8.0	30

1.1 Location : E-2 (Wastewater Tank) In Front of Raw Water Treatment Plant

Sr. No.	Test Parameter	Measurement Unit							Limit as per Consent Conditions
			Apr-21	May-21	June-21	July-21	Aug-21	Sept-21	
1.	pH value	-	7.5	7.9	7.6	6.5	6.0	7.0	5.5 to 9.0
2.	Total Suspended Solids	mg/l	78.0	56.0	12.0	8.0	14.0	16.0	100
3.	Biochemical oxygen demand(BOD at 27°C for 3 days)	mg / l	5.0	5.5	4.0	3.0	2.04	5.10	100
4.	Chemical oxygen demand (COD)	mg / l	147.8	129.5	137.2	95.4	137.0	149.1	250
5.	Oil & Grease	mg / l	< 0.2	<0.2	<0.2	<0.2	<0.2	<0.2	10
6.	Total dissolved solids	mg/l	968.0	508.0	606.0	328.0	672.0	704.0	2100
7.	Chloride (as Cl)	mg / l	220.5	147.5	162.4	69.9	122.6	107.1	600
8.	Sulphate (as SO ₄)	mg/l	33.1	48.4	55.9	25.3	47.0	32.7	1000
9.	Iron (as Fe)	mg/l	0.26	0.22	0.18	0.12	0.14	0.10	3.0

1.2 Location : E-3 (Coal Washery)

Sr. No.	Test Parameter	Measurement Unit	Test Results						Limit as per Consent Conditions
			Apr-21	May-21	June-21	July-21	Aug-21	Sept-21	
1.	pH value	-	7.5	8.80	8.5	7.4	7.0	6.4	5.5 to 9.0
2.	Total Suspended Solids	mg/l	40.0	72.0	58.0	56.0	44.0	62.0	100
3.	Biochemical oxygen demand (BOD at 27°C for 3 days)	mg / l	3.8	5.0	4.50	5.0	3.06	4.0	100
4.	Chemical oxygen demand (COD)	mg / l	206.2	230.7	223.5	232.0	92.7	189.5	250
5.	Oil & Grease	mg / l	< 0.2	0.2	<0.2	<0.2	<0.2	<0.2	10
6.	Total dissolved solids	mg/l	560.0	514.0	1240.0	1242.0	818.0	680.0	2100
7.	Chloride (as Cl)	mg / l	171.5	152.3	339.8	299.0	193.3	96.9	600
8.	Sulphate (as SO ₄)	mg/l	88.9	129.2	154.1	159.8	79.2	68.8	1000
9.	Iron (as Fe)	mg/l	0.32	0.37	0.24	0.26	0.25	0.16	3.0

1.3 Location : E-4 ETP Main Outlet (Utility)

Sr. No.	Test Parameter	Measurement Unit	Test Results						Limit as per Consent Conditions
			Apr-21	May-21	June-21	July-21	Aug-21	Sept-21	
1.	pH value	-	8.1	8.1	7.3	6.4	8.1	7.7	5.5 to 9.0
2.	Total Suspended Solids	mg/l	8.0	8.0	18.0	14.0	8.0	10.0	100
3.	Biochemical oxygen demand (BOD at 27°C for 3 days)	mg/l	2.4	2.9	3.0	3.5	4.0	4.0	100
4.	Chemical oxygen demand (COD)	mg/l	84.0	116.0	120.0	153.5	92.3	146.2	250
5.	Oil & Grease	mg/l	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	10
6.	Total dissolved solids	mg/l	371.0	653.0	538.0	340.0	458.0	380.0	2100
7.	Chloride (as Cl)	mg/l	113.2	179.9	139.9	43.9	114.2	18.3	600
8.	Sulphate (as SO ₄)	mg/l	66.6	67.9	53.3	29.1	44.7	30.7	1000
9.	Iron (as Fe)	mg/l	0.15	0.14	0.16	0.15	0.16	0.17	3.0

1.4 Location : E-5- Pickling ETP Outlet

Sr. No.	Test Parameter	Measurement Unit	Test Results						Limit as per Consent Conditions
			Apr-21	May-21	June-21	July-21	Aug-21	Sept-21	
1.	pH value	-	7.3	7.4	7.7	6.0	7.5	--	5.5 to 9.0
2.	Total Suspended Solids	mg/l	19.0	22.0	26.0	16.0	6.0	-	100
3.	Biochemical oxygen demand (BOD at 27°C for 3 days)	mg/l	<2.0	<2.0	<2.0	<2.0	<2.0	-	100
4.	Chemical oxygen demand (COD)	mg/l	112.0	220	200.0	132.7	192.3	-	250
5.	Oil & Grease	mg/l	<0.2	<0.2	<0.2	<0.2	<0.2	-	10
6.	Total dissolved solids	mg/l	787.0	1940.0	504.0	640.0	528.0	-	2100
7.	Chloride (as Cl)	mg/l	480.9	574.8	134.9	234.9	123.7	-	600
8.	Sulphate (as SO ₄)	mg/l	112.7	59.9	33.2	27.6	39.6	-	1000
9.	Iron (as Fe)	mg/l	0.44	0.46	0.36	0.32	0.30	-	3.0

1.5 Location : E-6 Pickling Nala

Sr. No.	Test Parameter	Measurement Unit	Test Results						Limit as per Consent Conditions
			Apr-21	May-21	June-21	July-21	Aug-21	Sept-21	
1.	pH value	-	7.7	5.9	7.3	7.2	7.5	6.65	5.5 to 9.0
2.	Total Suspended Solids	mg/l	93.0	30.0	24.0	82.0	88.0	68.0	100
3.	Biochemical oxygen demand (BOD at 27°C for 3 days)	mg/l	<2.0	<2.0	<2.0	<2.0	<0.2	<2.0	100
4.	Chemical oxygen demand (COD)	mg/l	192.0	207.1	220.0	244.8	150.0	145.6	250
5.	Oil & Grease	mg/l	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	10
6.	Total dissolved solids	mg/l	443.0	1808.0	1638.0	1332.0	1174.0	1333.0	2100
7.	Chloride (as Cl)	mg/l	171.1	562.3	549.0	349.3	273.5	278.2	600
8.	Sulphate (as SO ₄)	mg/l	110.1	65.4	91.4	88.5	61.8	55.5	1000
9.	Iron (as Fe)	mg/l	0.57	0.41	0.14	0.26	0.27	0.28	3.0

1.6 Location : E-7 MBF ETP Outlet

Sr. No.	Test Parameter	Measurement Unit	Test Results						Limit as per Consent Conditions
			Apr-21	May-21	June-21	July-21	Aug-21	Sept-21	
1.	pH value	-	7.6	8.1	7.0	7.2	7.5	6.8	5.5 to 9.0
2.	Total Suspended Solids	mg/l	96.0	62.0	54.0	60.0	24.0	28.0	100
3.	Biochemical oxygen demand (BOD at 27°C for 3 days)	mg/l	3.6	3.0	2.80	2.3	3.06	4.0	100
4.	Chemical oxygen demand (COD)	mg/l	194.5	145.7	152.9	119.0	161.2	193.5	250
5.	Oil & Grease	mg/l	< 0.2	<0.2	<0.2	<0.2	<0.2	<0.2	10
6.	Total dissolved solids	mg/l	1803.0	1984.0	1974.0	1912.0	1840.0	994.0	2100
7.	Chloride (as Cl)	mg/l	558.6	523.0	549.0	569.8	330.0	234.6	600
8.	Sulphate (as SO ₄)	mg/l	209.2	148.0	172.0	121.5	83.7	61.5	1000

9.	Iron (as Fe)	mg/l	0.30	0.27	0.23	0.25	0.23	0.16	3.0
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1.7 Location : E- 8 DRP Nala

Sr. No.	Test Parameter	Measurement Unit	Test Results						Limit as per Consent Conditions
			Apr-21	May-21	June-21	July-21	Aug-21	Sept-21	
1.	pH value	-	7.6	7.8	8.70	7.5	6.8	6.5	5.5 to 9.0
2.	Total Suspended Solids	mg/l	96.0	90.0	78.0	20.0	30.0	56.0	100
3.	Biochemical oxygen demand (BOD at 27°C for 3 days)	mg/l	4.0	3.5	3.10	5.0	4.0	3.06	100
4.	Chemical oxygen demand (COD)	mg/l	182.8	161.9	192.1	196.0	161.2	108.0	250
5.	Oil & Grease	mg/l	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	10
6.	Total dissolved solids	mg/l	394.0	550.0	1232.0	1482.0	986.0	658.0	2100
7.	Chloride (as Cl)	mg/l	132.3	138.0	299.0	259.9	141.4	102.0	600
8.	Sulphate (as SO ₄)	mg/l	58.2	125.6	202.0	187.3	128.3	78.8	1000
9.	Iron (as Fe)	mg/l	0.45	0.48	0.31	0.35	0.32	0.30	3.0

Annexure 2

Sl. No.	CSR Activity	Actual Expenditure during the financial year 2020-21 and up to 30.09.2021. (Amount in Rs.)	Budget allocation for the next 5 years (Amount in Rs.)
A	Community Health Improvement	6025000	
B	Improvement in Community Education, Training and Skill Development Facilities	1597719	
C	Rural Development Infrastructure activities:		
i	Infrastructure development of the Community area i.e. village road.	406491	
ii	Drinking Water and Sanitation	1504195	
iii.	Irrigation - Belgaon nearby villages	14812445	
D	Environment Sustainability and protection of Flora & Fauna	119201	
E	Miscellaneous		
i	Community welfare activities including Swachh Bharat, Promotion of Sports and Cultural activities	74813	
ii	Disaster Management - Relief under COVID 19 Pandemic	6343760	
TOTAL		30883624	
10 NOS VENTILATORS TO GOVT. HOSPITAL AT BHANDARA		4500000	
GRAND TOTAL (*)		35383624	

(*) - Details given below

Quarter-wise Details of CSR Expenditure for the year 2020-21 and up to 30.09.2021

(Amount in Rs.)

Particulars	Quarter ended 30.06.2020	Quarter ended 30.09.2020	Quarter ended 31.12.2020	Quarter ended 31.03.2021	Quarter ended 30.06.2021	Quarter ended 30.09.2021		Total
						Regular	Project	
Promotion of Health care	5000000	-	1025000	-	-	-	-	6025000
Education, Training and Skill Development	294433	181694	799133	265129	57330	-	-	1597719
Rural Development – Drinking Water and Sanitation	231020	-	-	-	514255	758920	-	1504195
Rural Development – Roads	-	351489	55002	-	-	-	-	406491
Environment Sustainability and protection of Flora & Fauna	-	41646	62555	-	-	15000	-	119201
Swatch Bharat, Promotion of Sports and Cultural activities	10000	64813	-	-	-	-	-	74813
Disaster Management – Relief under COVID 19 Pandemic	3384949	19000	-	-	250600	2689211	-	6343760
Project - Equipment under COVID 19 Pandemic (Project – P-2 - 10 Nos Ventilators to Govt. Hospital at Bhandara)	-	-	-	-	-	-	4500000	-
Irrigation - Belgaon nearby villages	-	-	14812445	-	-	-	-	14812445

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FY 2020-21

QUANTIFICATION AND REPORTING OF
GREENHOUSE GAS EMISSIONS AND
REMOVALS FOR SUNFLAG IRON AND
STEEL CO. LTD.



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Annex I

Extension of carbon footprint to the expansion project

Executive Summary

A GHG emission inventory as per the ISO 14064 was carried out by Sunflag Iron and Steel Co. Ltd. (referred as Sunflag Steel further in this document) for its facility at Bhandara for the purpose of accounting of the company's GHG emissions. The total GHG emissions of Sunflag Steel is accounted to **14,88,927 tCO₂e** for FY 2020-21. The major contributors to the GHG emissions were following.

1. Coal and coke consumption as fuel and reducing agent in steel production – **13,70,168.27 tCO₂e**
2. Electricity consumption – **1,08,317 tCO₂e**
3. Other minor sources in Scope 1 – **503.69 tCO₂e**

The detailed quantification of total emissions is provided in report.

This report specifically highlights the GHG emissions taking place at existing steel production facility at Bhandara of Sunflag Steel.

Emissions associated with facility's business services and activities were identified and analyzed in this report briefly. Based on the GHG emission calculations, it was observed that the total GHG emissions of facility for the FY20-21 were 14,94,171.91 tCO₂e.

Since this study has been carried out for the first time for Sunflag Steel, the base year for the present and future calculations is taken as FY16-17. The GHG footprint of existing production capacity is extrapolated for the proposed plant expansion as well. This is done to respond to a related query from MoEF-CC.

General Details

Sunflag Steel has prepared its GHG emissions report to estimate the GHG emissions from its facilities. The content of this report is made in accordance with the clauses of ISO 14064 especially in line with clause 7.3 of ISO 14064-1:2018.

Purpose and objective of GHG reporting

Sunflag Steel, a leading steel company, has understood the importance of environmental concerns in its policy and simultaneously continues to take various pro-active measures for protection of environment around its projects. It has declared an environmental policy to address environmental concerns around its facility. One of the long term objective of Sunflag Steel is to reduce their environmental impact and strive for sustainable development by adopting best practices in operations and management. It has already implemented and planned various initiatives to reduce GHG emissions such as energy efficiency improvement, green belt development within its facility etc. In its endeavor to comply to statutory requirements, Sunflag Steel has undertaken this carbon footprint study wherein it quantifies and reports its GHG emissions and removals for its facility.

Intended use and intended user of the report

Sunflag Steel as the intended user will use this report as a basis for framing an action plan that will guide decision making in key areas of its facility that enable study in gradual reduction of its footprint as also inform statutory authority and internal users. The emission has been quantified and reported in this report by the Sunflag Steel's facility at Bhandara.

Overall and specific responsibilities for preparing and producing the report

Sunflag Steel is responsible over all for preparation of the report. Mr. Sunil Lanjewar (AGM, Environment & Utility) and Mr. V.B. Deshmukh from Sunflag Steel's EHS Department have initiated the process under the guidance of Mr. R.V. Dakvi (Director (Technical)). The EHS Department team has been responsible for facility level data collection and documentation. It has interacted with its various departments such as Production, Engineering, HR & Admin, Technical Cell etc. to gather information.

This report and the calculations therein have been calculated and compiled by RSM GC Advisory, Mumbai.

Products include

Flats:

The spring steel that goes into the automobile and in heavy suspension. The grades include Silicon Manganese, Chrome, Molybdenum steel.

Rounds:

In carbon free-cutting, spring, CRQ, alloy, bearing and stainless steel. In specifications like DIN, SAE/AISI, BS etc. In sizes from 14 mm to 150 mm in diameter. For the forging, automobile, spring industries.

Round Cornered Squares (RCS):

In carbon free-cutting and alloy steel, in specifications like DIN, SAE/AISI, BS et cetera. In sizes from 50 mm to 100 mm. For the forging, automobile industries.

HEX:

In carbon free-cutting alloy steel. In sizes from 14.5 mm to 38 mm. For the forging, automobile and industries.

Coils:

In carbon free-cutting, spring, CRQ, alloy, bearing and stainless steel. In specifications like DIN, SAE/AISI, BS et cetera. In sizes from 0.5 mm to 38 mm in diameter. For the forging, automobile, spring industries.

Format of the report

Sunflag Steel has prepared the report in accordance with the requirements of ISO 14064-1. The format of report is in keeping with the same.

Frequency of GHG report

In keeping with the environment policy and objectives, one such being mapping and reducing of its GHG emissions, Sunflag Steel has prepared its first GHG emissions report for the

facility at Bhandara. Sunflag Steel will use the GHG inventory period viz. 2020-21 as the base year. Sunflag Steel will attempt to report its GHG emission details and performance improvement data at appropriate periodicity (based on management decision).

Data and information of the report

All necessary energy and GHG related information of the facility are

1. Organization Profile

Sunflag Iron and Steel Co. Ltd. is a prestigious unit of the SUN FLAG GROUP. The plant is located in the central part of India at Bhandara, Maharashtra and it is 70 kms from Nagpur. The plant has a capacity to produce 7,50,000 tonnes per annum of high quality special steel using liquid pig iron and sponge iron as basic inputs.

The main processes at the plant are,

- Iron making (Mini Blast Furnace, Sponge Iron Plant, Sinter plant).
- Steel Making
- Continuous Casting
- Rolling Mills
- Heat Treatments
- Bright Bar Making
- Inspection
- Quality Assurance

Started as a Spring Steel producer, the company today produces variety of steels. Carbon Steels, Alloy steels, Free & semi free cutting steels, Micro-alloyed steels, Stainless Steels, Spring Steels, Valve Steels, Bearing Steels, Cold Heading Quality Steels, Tool Steels, etc.

The profiles are Round Bars, Round Cornered Square, Round & Hexagonal wire Rods, Hexagonal straight bars, Flats, Bright Bars (Peeled/Drawn/Ground bars) etc.

Sunflag Steel produces majority of the Steel for Automobile use in Engine, Drives, Transmissions, Suspensions etc. applications. Sunflag Steel also supplies steel to Indian Railways, Ordnance Factories, General Engineering & Power sectors.

Apart from catering to the Domestic steel requirements, Sunflag Steel also exports to South East, Middle East, European countries, United States etc.

The Steel is produced using 100% Iron ore as a basic raw material input.

The steel has very low tramp element contents & free from Radioactive or other harmful & hazardous contamination.

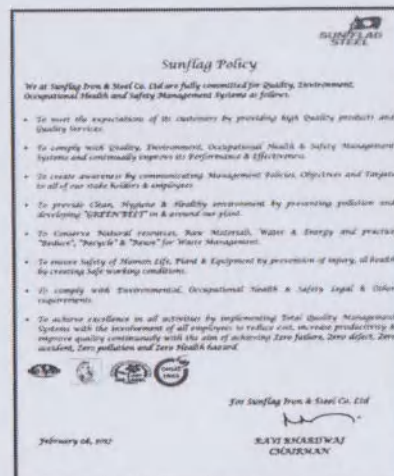
Sunflag steel has regular audits and assurance certification from international body like DQS on ISO 9001:2015, IATF 16949:2016 and body like TUV-NORD and ISO-14001:2015 and BS ISO:45001:2018, on Environment, Health and Safety, wherein continuous improvement towards Environment protection is in the roadmap.

Corporate Environment, Health and Safety Policy

Sunflag Steel understands the importance of responsible environment management to achieve growth profitability and long-term success and strives to make continuous efforts to protect environment and ecosystem around its facilities. In addition to addressing environmental concerns, it has also installed environmental management systems and encourages employee involvement for improving environmental, health & safety aspects. It has also proactively declared its environmental policy which focuses on adoption of best practices in their operations, resource conservation and waste reduction.

Sunflag is actively engaged in Pollution Control and accredited by EMS Certification.

Corporate Environment Health and Safety Policy



2. GHG Inventory – Roles & Responsibility

Team members of the Bhandara plant EHS Department are responsible for GHG inventory management. AGM, Environment & Utility will undertake and manage the overall GHG activity in coordination with the Sunflag Steel's core EHS team. The inputs to the GHG inventory shall be through documents maintained for production and existing QMS & EMS procedures.

3. Principles followed in GHG reporting

The GHG report is in accordance with ISO 14064-1:2018. As described in the standard, Sunflag, Bhandara Steel production facility has followed the five principles i.e. Relevance, Completeness, Consistency, Accuracy and Transparency ensuring that the GHG related information is true and accounted fairly.

Relevant GHG sources and sink in the facility are identified for the purpose of GHG reporting and quantified based on appropriate methodology which is explained in the Chapter 4 of this report. In case of any uncertainty or lack of available data, appropriate assumptions are taken based on the information available publicly on various websites to reduce the uncertainty and associated risk in GHG accounting.

The data collected for the quantification of GHG emission is from the records maintained by various departments of the facility in their logbooks and EMS systems. Gathering of sufficient and appropriate GHG related information will enable the intended users to make decisions with reasonable confidence and will also enable creation of a road map to mitigate its GHG emissions. Since this is the first attempt at inventorisation, it will also enable comparisons going forward.

4. GHG Inventory Design & Development

4.1. Organization Boundary for Steel production facility

Organization boundary needs to be defined for the purpose of reporting GHG emissions of Sunflag Steel, Bhandara. In accordance with section 4.1 of ISO 14064-

1:2018, Sunflag Steel shall consolidate its facility level GHG emission and removals by the control approach. Sunflag Steel has its operational and financial control over its steel production plant, which includes its process plant comprising various departments. Hence, Sunflag Steel has decided to quantify the GHG emission of this facility and report the same.

Sunflag Steel

Bhandara Steel plant comprising various departments

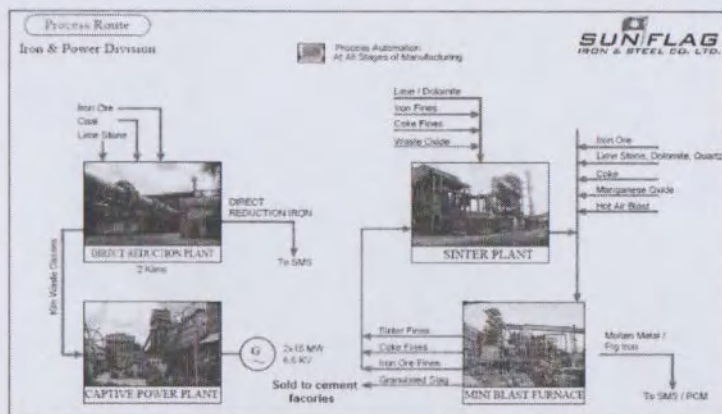
4.2. Operational Boundary

Operational boundary establishment includes identifying GHG emission and removals associated with the Sunflag Steel's operations. The GHG emission and removals is categorized in to direct emissions (Scope 1) and energy indirect emissions (Scope 2).

4.2.1 Establishing the operational boundaries

GHG emissions emanate largely from fossil fuels, reducing agents and raw materials consumption in the steel production process; purchased electricity consumption; diesel consumption in DG sets; refrigerant gas consumption and air conditioning units of company. Energy efficiency projects and plantation within the facility's organizational boundary may act as carbon sinks.

The following process layout gives processes involved and material flows in the steel production plant at Sunflag Steel.



Configuration of existing units

Products	Maximum Quantity	UOM
Sinter	850000	MT/A
Direct reduced iron (captive)	280000	MT/A
Pickling of stainless steel & carbon steel (intermediate)	66000	MT/A
Coin blanks from rolled steel products (finished)	9600	MT/A
Hot metal from blast furnace (captive)	450000	MT/A
Continuous cast billets (intermediate)	1025000	MT/A
Rolled steel products (finished)	750000	MT/A
Oxygen/Nitrogen/Argon (captive)	45000	MT/A
Additional facilities as rolling mill, bell & annealing furnace, etc.	5	Nos./Y
Electricity (captive)	30	MW
Refining stainless steel converter (intermediate)	288000	MT/A
Coiling of steel bars (intermediate)	18000	MT/A
DRI Ash/Char (By product)	15000	MT/A

The GHG emission and removal activity of Sunflag Steel, Bhandara facility is presented in the table below:

Activity	GHG Activities	Scope
Activity 1	Coal, LPG, FO, LDO, diesel consumption	Scope 1
Activity 2	Coke and other reducing agents and raw materials consumption	Scope 1
Activity 3	Electricity purchased from grid	Scope 2
Activity 4	Diesel Consumption in DG Sets	Scope 1
Activity 5	Fugitive emissions from chillers	Scope 1
Activity 6	Leakage from CO ₂ type fire extinguishers	Scope 1
Activity 7	CO ₂ type fire extinguishers refilled	Scope 1
Activity 8	Methane emissions from septic digesters	Scope 1
Activity 9	Employee Commute	Scope 3
Activity 10	Raw material Import and Export of end-product	Scope 3

In the future years, if any additional GHG emissions and GHG removals are identified within the organizational boundary, facility will account those activities in its GHG report and shall provide the explanation for changes to its operational boundaries.

4.2.2 Direct GHG emissions and removals

The direct GHG emissions for the Sunflag Steel is mainly from use of fossil fuels and reducing agents, raw materials used in the steel production process i.e. coal, coke, LPG, diesel consumption etc.

Apart from the above mentioned direct GHG emission sources, CO₂ emissions from the extinguisher; diesel consumption in DG sets; methane emissions from septic digester are also accounted.

Direct GHG emissions quantified 13,70,671.97 tCO₂e and quantification of direct emission is explained in the below section.

4.2.3 Energy indirect GHG emissions

The consumption of purchased electricity from the grid i.e. electricity generated from outside the organizational boundary contributes to the indirect GHG emission for the steel production facility. Electricity is the major form of energy utilized for its operations and administrative purposes.

GHG emissions due to purchased electricity in Sunflag Steel, Bhandara is 1,08,317.00 tCO₂e and its quantification is explained in the sections below.

4.2.4 Exclusions

The plant contracts external manpower for small civil and other maintenance, assembling works. The vehicles used for these works, welding-cutting gas consumed etc. is also excluded from the GHG calculations here.

4.2.5 Other indirect GHG emissions

The scope 3 emissions from major inbound raw materials transport, end product export and employee commute for business is calculated at 2,02,352.29 tCO₂e.

4.3 Quantification of GHG emissions and removals

Sunflag Steel has quantified and documented its emissions from different sources based on its emission activity data, selected quantification methodology and emission factor.

4.3.1 Quantification steps

Sunflag Steel has quantified and documented the GHG emissions and removals within the organizational boundary applying following steps:

Identification of GHG sources and sinks

Selection of quantification methodology

Selection and collection of GHG activity data

Selection or development of GHG emission or removal factors

Calculation of GHG emissions and removals

4.3.2 Identification of GHG sources and sinks

Sunflag Steel has identified its GHG sources and sinks according to scope of emissions i.e. Scope 1, Scope 2 and Scope 3 from its organization boundary which are categorized as follows

Scope	GHG Activities	GHG Sources
Scope 1	Fuels, reducing agents, few raw materials combustions in process, DG Sets etc.	GHG emissions resulted from combustion of coal, coke, LPG, diesel etc.
Scope 1	Emissions due to Freon-22 and other refrigerants' refill	GHG emissions from chillers
Scope 1	Emissions from fire extinguishers	CO ₂ emissions from CO ₂ based fire extinguishers refilled in the reporting year
Scope 1	Emissions due to human waste	Methane emissions in septic digester
Scope 2	Consumption of purchased electricity	Grid emission source as power procured from grid
Scope 3	Inbound raw materials transport and End-product Export	CO ₂ emissions from fuel and electricity used in transportation (railways and road transport)
Scope 3	Employee commute for business	Contracted and personal vehicles used by employees for daily commute to work and return, other business travel outside plant

Sunflag Steel is procuring power from the grid. In case, it procures imported electricity from another supplier, the same will document the supplier separately as per the accounting standard. As required by the ISO 14064-1:2018, Sunflag Steel has separately identified and documented the GHG sources contributing to its GHG emissions in the above table.

4.3.3 Selection of quantification methodology

Sunflag Steel has quantified its GHG emissions by calculation based on:

- Use of emission calculation tool
- GHG activity data multiplied by GHG emission factor from World Steel Methodology

It is economically an unviable option to directly measure the GHG emissions from the identified GHG emission activity/source by means of instruments or investing in measurement technologies. Hence, Sunflag Steel opted to use the calculations to quantify its GHG emissions at Sunflag Steel. However, for some activities the information is collected by recording the readings (like electricity) from the meters available on the site;

The methodologies used in the tool are based on factors presented in the World Resources Institute's (WRI) Corporate Protocol Standard for organizations estimating GHG emissions as well as methodologies and factors presented by the Intergovernmental Panel on Climate Change's (IPCC) 2006 Guidelines for National Greenhouse Gas Emission Inventories and from World Steel Methodology. For the purpose of accounting the GHG emissions from GHG activities like fossil fuel combustion process operations; electricity consumption; Sunflag Steel has used the calculation "GHG activity data multiplied by GHG emission factor".

4.3.4 Selection and collection of GHG activity data

GHG activity data used to quantify GHG emissions is selected as per the quantification methodology described above and collected by Sunflag Steel.

As per clause 2.11 of ISO 14064-1:2018, GHG activity data is defined as "quantitative measure of activity that results in a GHG emission or removal. GHG activity data include the amount of energy, fuels or electricity consumed, material produced, service provided or area of land affected."

Brief description on selection of activity data is presented below:

Scope 1

a. Use of fossil fuel in process/operations

Selected quantification methodology = Activity data x GHG emission factor
 Selected activity data = Consumption of coal/NG/diesel
 The activity data i.e. amount of energy consumed in the process/operations is calculated from the fuel consumption records. The fuel consumption is maintained and collected by concerned department of Sunflag Steel.

b. Fugitive emission from chillers and Air-conditioning units

Selected quantification methodology = Activity data x GHG emission factor

Selected activity data = Refrigerant recharged
 The activity data i.e. refrigerants recharged is being collected from the Stores department which is maintained in the EMS.

c. Emissions from CO₂ type fire extinguisher re-filled

Selected quantification methodology = Activity data x GHG emission factor
 Selected activity data = Total number of CO₂ based fire extinguishers refilled

d. Tree plantations

Selected quantification methodology = Activity data x kg of carbon sequestered/year x Carbon to CO₂ conversion factor
 Selected activity data = Number of trees of each type x Maturity period x Survival rate
 The activity data of species wise plantation details/year along with the survival rate is maintained by Horticulture / Environment Department. Based on the research studies, it is considered that every tree sequesters on an average 1 kg of CO₂/year till the maturity period.

e. Methane emissions from septic digester

Selected quantification methodology = Activity data x conversion factor
 Selected activity data = Number of permanent employees of the Sunflag Steel x Number of working days in reporting year
 The activity data of number of permanent employees and working days is maintained in the HR files.

Scope 2

a. Consumption of purchased electricity in operations

Selected quantification methodology = Activity data x GHG emission factor
 Selected activity data = amount of electricity consumed

Consumption of electricity is measured by electricity meter and the data is collected from electricity bills of the Sunflag Steel in operations of all departments. As per the 'GHG Protocol Scope 2 Guidance, An amendment to the GHG Protocol Corporate Standard' pg. 45, if any 'energy-consuming facilities located in areas where grid customers can be provided with product or supplier-specific data in the form of certificates, contracts with generators or suppliers for specified source electricity, supplier labels, supplier emission rates, green tariffs, contracts, residual mixes, or other contractual instruments' condition is not met, then location based emission factor (grid average) has to be used.

4.3.5 Selection or development of GHG emission or removal factors

In order to quantify the GHG emissions, Sunflag Steel has selected the GHG emission factor from recognized origins. The GHG emission or conversion factor is mainly selected from four major guidelines which are published by:

- Intergovernmental Panel on Climate Change (IPCC): "Guidelines for National Greenhouse Gas Inventories, 2006"
- Central Electricity Authority, Ministry of Power, Government of India: "Baseline Carbon Dioxide Emission Database"

The emission factors have been selected from the above listed guidelines/publications appropriate for the GHG source or sink concerned. Latest version of GHG emission factor guidelines are used to compute the GHG inventory of Sunflag Steel and GHG emission factor details are presented below:

S.No	Parameter	Value	Unit	Remark/Source
1	CO ₂ emission factor of diesel	74.1	tCO ₂ /TJ	IPCC 2006 Guidelines for National Greenhouse Gas Inventories, 2006 (http://www.ipcc-nggip.iges.or.jp/public/2006gl/vol2.html), Table 1.4 - Default CO ₂ emission factors for combustion
2	CH ₄ Default emission factor for diesel	3	kgCO ₂ /TJ	IPCC 2006 Guidelines for National Greenhouse Gas Inventories, 2006 (http://www.ipcc-nggip.iges.or.jp/public/2006gl/vol2.html), Table 2.2 - Default emission factors for stationary combustion in the energy industries
3	N ₂ O Default emission factor for diesel	0.6	kgCO ₂ /TJ	IPCC 2006 Guidelines for National Greenhouse Gas Inventories, 2006 (http://www.ipcc-nggip.iges.or.jp/public/2006gl/vol2.html), Table 2.2 - Default emission factors for stationary combustion in the energy industries
4	Effective CO ₂ emission factor of coal	95.8	tCO ₂ /TJ	World Steel Association, CO ₂ emissions data collection, User Guide, ver. 7, Appendix 4 - Direct emission factors, Pg. 14 (http://cea.nic.in/reports/others/thermal/tpece/cdm_co2/user_guide_ver10.pdf)
5	CH ₄ Default emission factor for coal	1	kgCO ₂ /TJ	IPCC 2006 Guidelines for National Greenhouse Gas Inventories, 2006 (http://www.ipcc-nggip.iges.or.jp/public/2006gl/vol2.html), Table 2.2 - Default emission factors for stationary combustion in the energy industries
6	N ₂ O emission factor for coal	1.5	kgCO ₂ /TJ	IPCC 2006 Guidelines for National Greenhouse Gas Inventories, 2006 (http://www.ipcc-nggip.iges.or.jp/public/2006gl/vol2.html), Table 2.2 - Default emission factors for stationary combustion in the energy industries
7	CO ₂ emission factor of Natural Gas	56.1	tCO ₂ /TJ	IPCC 2006 Guidelines for National Greenhouse Gas Inventories, 2006 (http://www.ipcc-nggip.iges.or.jp/public/2006gl/vol2.html), Table 1.4 - Default CO ₂ emission factors for combustion
8	CH ₄ Default emission factor for Natural Gas	1	kgCO ₂ /TJ	IPCC 2006 Guidelines for National Greenhouse Gas Inventories, 2006 (http://www.ipcc-nggip.iges.or.jp/public/2006gl/vol2.html), Table 2.2 - Default emission factors for stationary combustion in the energy industries
9	N ₂ O emission factor for Natural Gas	0.1	kgCO ₂ /TJ	IPCC 2006 Guidelines for National Greenhouse Gas Inventories, 2006 (http://www.ipcc-nggip.iges.or.jp/public/2006gl/vol2.html), Table 2.2 - Default emission factors for stationary combustion in the energy industries
10	Electricity factor of Grid	0.82	t-CO ₂ /MWh	The Central Electricity Authority, "Baseline Carbon Dioxide Emission Database"
11	Emissions from septic digester	25.50	gCO ₂ /capita.d	Page 15, Table ES-1, Evaluation of GHG emissions from septic systems (http://www.geoflow.com/wastewater/w_pdfs/WERF%20Report.pdf)
12	Emission factor of iron	0.172	tCO ₂ /ton	
13	Emission factor of dolomite	0.471	tCO ₂ /ton	
14	Emission factor of lam coke	3.257	tCO ₂ /ton	World Steel Association, CO ₂ emissions data collection, User Guide, ver. 7, Appendix 4 - Direct emission factors, Pg. 14
15	Emission factor of limestone	0.44	tCO ₂ /ton	
16	GWP of R-22	1,760	tCO ₂ /ton	
17	GWP of R-134a	1,300	tCO ₂ /ton	http://www.ghgprotocol.org/sites/default/files/ghgp/Global-Warming-Potential-Values%20Feb%2016%202016%29_1.pdf

In case of any modifications/ changes in GHG emission factor used by the organization, Sunflag Steel will provide explanation where appropriate (like in consequent year GHG reporting or recalculation of base year GHG inventory).

4.3.6 Calculation of GHG emission and removals

Sunflag Steel has calculated the GHG emissions and removals in accordance with the quantification methodology that minimizes uncertainty and calculated in a manner intended to yield accurate and reproducible result for its identified Scope 1, Scope 2 and Scope 3 under the organizations GHG inventory. The calculation is based on GHG activity data multiplied by GHG emission or removal factors, the detailed computation of the Sunflag Steel GHG emissions is provided in Annexure (Annexure 1- WRI Based Emission Calculation Tool).

5. GHG Inventory Components

GHG emissions of the Sunflag Steel from the selected organizational and operational boundaries are discussed under this section.

5.1. GHG emissions and removals

Sunflag Steel has quantified its emission in accordance with clause 4 of ISO 14064-1:2012 same is presented below:

Scope	GHG Activity	GHG Emission (tCO ₂ e)
Scope 1	Coal, LPG, FO, LDO, diesel consumption	6,19,777.06
Scope 1	Coke and other reducing agents and raw materials consumption	7,50,391.21
Scope 2	Electricity purchased from grid	1,08,317.00
Scope 1	Fugitive emissions from chillers	498.84
Scope 1	CO ₂ type fire extinguishers refilled	2.69
Scope 1	Methane emissions from septic digesters	2.17
Scope 3	Employee Commute	502.90
Scope 3	Raw Materials Import and End-product Export	2,01,849.39
	Total	16,81,341.27

5.2 Organizational activities to reduce GHG emission or increase GHG removals

Measures have been identified by Sunflag Steel to enable its facility to mitigate the GHG emissions based on the quantification performed. GHG emission is maximum due to scope 1 activities.

5.2.1 Directed actions

Energy

The directed action of Sunflag Steel includes energy management initiatives.

Energy Efficiency

To minimize the energy consumption as per the energy and environmental policy of corporation, proactive measures are taken like computer power management, energy saving devices and low power consuming lighting devices. Please see Annexure II for details of the energy saving projects and estimated savings in 2020-21.

Green belt development

The facility has been proactively engaged in tree plantation activities around its facilities to promote development of greenbelt. The facility will continue to engage in increasing the green cover around its facilities.

5.3 Base-year GHG inventory

5.3.1 Selection and establishment of base year

Sunflag Steel is reported its GHG emission inventory for the first time in the year 2016-17 and, therefore, the same year is selected as base year. It has quantified its base year GHG emission with the complete single financial year data i.e. 01 April 2016 to 31 March 2017. Its base-year GHG inventory was 13,22,569 tCO₂e, the emissions in FY 20-21 are 16,81,341.26 tCO₂e which are more than the Base year.

Sunflag Steel may choose to change its single base year to multi-year average or rolling year average. In that case, it will explain the reason for base year change in the respective GHG reporting.

5.3.2 Recalculation of GHG inventory

Sunflag Steel is reported its GHG inventory for the first time in the year 2016-17. The base year inventory will be revised and recalculated if organizational and/or operational boundary of the GHG inventory changes in future years.

5.4 Assessing and reducing uncertainty

Due to non-availability of verifiable data for computing the GHG emission especially in scope 1 emission calculations, Sunflag Steel has made certain assumptions. The assumption data are described below and the uncertainties in each data are reported.

Uncertainty Potential Assessment

S.No	Parameter	Value	Unit	Remark/Source	Parameter Uncertainty potential status (Y/N)
1	Electricity emission factor	5	%	The emission factor of a large grid is used in absence of clarity on specific power plants that supplied electricity	Y
2	Emission factors for reducing agents	5	%	Used default from the World Steel Association (WSA)	Y
3	NCV of fuels	5	%	has not used weighted average	Y
4	Usage factor of washroom per day	10	%	Assumption	Y

6. GHG Inventory Quality Management

For the purpose of maintaining accuracy in GHG inventory, Sunflag Steel has established the quality management system for the GHG data which is briefed in the subsequent section.

6.1 GHG Information Management and procedure

GHG Management team and GHG Inventory

The team members of the EHS Department are assigned to estimate the emissions inventory of the Sunflag Steel. The management shall periodically review the responsibility and authority of those responsible for GHG inventory development by internal reviews.

Training for Inventory development team members

- Sunflag Steel shall be responsible for providing training to inventory development team
- Training shall be offered internally or through third party.
- Concerned employee has been imparted training for Carbon footprint measurement methodology by RSM GC Advisory, Mumbai.

Identification and Review of organization boundaries

- Sunflag Steel shall identify its organization boundary as per the requirements of ISO 14064-1:2018.
- Sunflag Steel shall report the changes in organization boundary with necessary documentation and justification.

GHG sources and sinks

- Sunflag Steel shall identify its GHG sources and sinks as per ISO 14064 requirements.
- All Scope 1, Scope 2 and Scope 3 emission sources and sinks within the boundary shall be identified on accounting the GHG emission in the selected organization boundary. If any of the GHG source is not considered for accounting, the reason for not considering the GHG source or sink within the scope shall be explained.
- Additional GHG source or sink shall be identified and accounted within the organization boundary

Quantification methodologies, GHG activity data and GHG emission and removal factors

- Quantification of the GHG emission within its organization boundary shall be conducted following the methodology established by ISO 14064, UNFCCC, IPCC, WSA and other relevant standards/mechanisms.
- Sunflag Steel shall use the appropriate, relevant and updated methodologies to quantify its GHG emission.
- Sunflag Steel shall periodically review on methodologies carried out and shall explain any changes to quantification methodologies previously used by the organization.
- Sunflag Steel shall select its activity data as per Scope 1, Scope 2 within organization boundary.
- Sunflag Steel shall use the appropriate, relevant and updated GHG emission and removal factors from UNFCCC publications, IPCC publications, host country emission data publications, another relevant climate change bodies to quantify its GHG emission.
- Periodic review on emission and removal factor data publications shall be carried out by Sunflag Steel in order to use updated emission factors or removal factor.

Review of the application of quantification methodologies to ensure consistency across multiple facilities

- Sunflag Steel shall maintain consistency by using appropriate quantification methodologies of GHG emissions for multiple facilities published/discussed by UNFCCC or IPCC or ISO 14064 standard or other relevant standards/mechanisms.

Use, maintenance and calibration of measurement equipment

- Records shall be maintained related to operation and maintenance of all equipment (like electricity meter etc.), related to measurement of data's for GHG emission accounting.
- The facility shall maintain the records of calibrated equipment to ensure error free operation.

Development and maintenance of a robust data-collection system

- Data collection system shall be established by following the standard format for data collections related to GHG emission accounting.

Regular accuracy checks

- Sunflag Steel shall review the quality of data annually and establish the data collection system to achieve accuracy.
- Sunflag Steel shall do calibration of meters used annually for GHG emission accounting data collection.

Periodic internal audits and technical reviews

- Sunflag Steel shall conduct an internal audit on quality and accuracy of GHG emission information by checking evident documents and technical reviews.

Periodic review of opportunities to improve information management processes

- Technical review and internal audits shall be conducted periodically to identify opportunities improving information management process.

6.2 Document retention and record keeping

Documentation supporting the design, development and maintenance of the inventory is retained to support the verification process and provide a historical record. In determining what information needs to be retained the following principles are applied:

- At any point in time, all past emissions inventories should be able to satisfy an audit.
- At any point in time, any past emissions inventory should be able to be recalculated from the retained records.

Following methods can be used to maintain the relevant data:

- EMS/SAP system to retrieve the GHG related data for computing GHG inventory.
- Standard format for GHG data collection are established and data is periodically entered into the customized format.

Following information are required to be retained:

- The procedures, processes, and methodologies used to estimate the emissions inventory and relevant sources.
- All emission factors and their sources.
- All activity data, activity data models, and their sources.
- All models.
- All supporting documentation and sources.
- The emissions inventory, reported at the facility level.

7. GHG Information monitoring and procedure

The following GHG activity data are required to be monitored for establishing GHG inventory for Sunflag Steel:

- Annual electricity purchased
- Amount of fuels, other reducing agents and raw materials consumed
- Amount of diesel consumed in on-site DG sets
- Amount of refrigerant gas refilled in air conditioning units (chillers and window - split ACs, centralized) and water coolers; Type of refrigerants gas used.
- Total number of CO2 type fire extinguisher with their capacity, Number of CO2 type fire extinguisher refilled with their capacity.
- Total manpower of the facility (regular/ permanent staff).
- Number of working days in the reporting period.

The results of study are summarized as below.

16,81,341.26
Total GHG emission (tCO₂)
(Capacity)

Annex I

GHG emissions avoided and sequestered**A) CO₂ sequestration in the green belt**

In addition to above energy and fuel savings, Sunflag Steel also has a greenbelt and the trees are a carbon sink. The present study estimated inventory of no. of trees by species and age and the GHG absorbed by these are summarized as below.

TREE PLANTATION DATA UPTO 31.03.2021						
Years of survival/ plantation	Type of Tree/ species	No of trees planted	Maturity Period	Factor kg CO ₂ /year	No of trees planted * Factor kg CO ₂ /year	Carbon sequestration in kg CO ₂ /year
10	KADAM	2000	5	0.097	194	970
10	KEJIDOEYEE	1600	3	0.75	1200	8400
10	KHAOT	1800	3	0.86	1548	10836
15	ASHOKA PAL	2229	5	0.75	1671.75	16717.5
15	ASHOKA BRUPIN	1500	4	0.022	33	363
15	FOREST TREE	2000	6	0.024	48	432
15	GHATI	1500	2	0.75	1125	14625
15	GULMOHAR	3500	5	0.75	2625	26250
20	AWLA	175	4	0.75	131.25	2100
20	BELWA	275	4	0.75	206.25	3300
20	BOGANVILLA	4019	3	0.997	4006.943	68118.031
20	CHANDNI	2029	6	0.76	1542.04	21588.56
20	CROTON	10250	4	0.75	7687.5	123000
20	CHIKOO	1600	6	0.75	1200	16800
20	EKALIFA	200	4	0.75	150	2400
20	EKJHORA	1500	5	0.76	1140	17100
20	EKLIFA	200	4	0.75	150	2400
20	GULAB	2000	3	0.75	1500	25500
20	JAM	2800	2	0.75	2100	37800
20	KARAM	1600	4	0.76	1216	19456
20	KINI	1700	4	0.76	1292	20672
20	LAJESTONIA	1200	1	0.75	900	17100
20	LENDRI	3000	1	0.75	2250	42750
20	PALM	15775	3	0.75	11831.25	201131.25
20	RENTRI	8225	5	0.76	6251	93765
20	SAGWAN	43350	5	3.7	160395	2405925
20	SAPTFADNI	3785	3.5	0.75	2838.75	46839.375
20	SITAFAL	1500	3	0.75	1125	19125
22	ANJAN	2435	5	0.76	1850.6	31460.2



Maharashtra Pollution Control Board

महाराष्ट्र प्रदूषण नियंत्रण मंडळ

FORM V

(See Rule 14)

Environmental Audit Report for the financial Year ending the 31st March 2021

Unique Application Number

MPCB-ENVIRONMENT_STATEMENT-0000036228

Submitted Date

22-09-2021

PART A

Company Information

Company Name

M/s Sunflag Iron & Steel Co.Ltd, Village : Eklari,
Taluka : Mohadi, District : Bhandara,
Maharashtr

Application UAN number

MPCB-CONSENT-0000059122

Address

Village : Eklari (Warthi)

Plot no

Land owned by SICOM & Lease to Sunflagsteel,
Annexure-1

Taluka

Mohadi

Village

Bhandara

Capital Investment (In lakhs)

184845.0

Scale

L.S.I

City

Bhandara

Pincode

441905

Person Name

Ramchandra V Dalvi

Designation

Director (Technical)

Telephone Number

9225511294

Fax Number

Email

ramchandra_dalvi@sunflagsteel.com

Region

SRO-Bhandara

Industry Category

Red

Industry Type

R53 Iron & Steel (involving processing from ore/
integrated steel plants) and or Sponge Iron units

Last Environmental statement submitted online

yes

Consent Number

MPCB-CONSENT-0000059122

Consent Issue Date

29.03.2019

Consent Valid Upto

31.05.2022

Establishment Year

1988

Date of last environment statement submitted

Sep 17 2020 12:00:00:000AM

Industry Category Primary (STC Code) & Secondary (STC Code)

Product Information

Product Name

Pig Iron / Hot Metal (MBF) from Blast Furnace

Consent Quantity

450000

Actual Quantity

314641.749

UOM

MT/A

Contineous Cast Billets (Intermediates)

1025000

288272

MT/A

Rolled Steel Product (Finished)

750000

266900.028

MT/A

Sinter (Captive & Intermediate)

450000

447180

MT/A

Direct Reduced Iron (DRI) (Captive)

280000

49592

MT/A

Electricity (Captive)

262800

153178

Mwh

Refining in Stainless Steel Convertor	288000	19879.64	MT/A
Pickling of Stainless Steel & Carbon Steel (Intermediates)	66000	57883.20	MT/A
Oxygen/Nitrogen/Argon (Captive)	45000	36080	MT/A

By-product Information

By Product Name	Consent Quantity	Actual Quantity	UOM
DRI / Char	15000	8720	MT/A

Part-B (Water & Raw Material Consumption)

1) Water Consumption in m3/day

Water Consumption for Process	Consent Quantity in m3/day	Actual Quantity in m3/day	
Cooling	197	108	
Domestic	14074	5819	
All others	656	442	
Total	0	0	
	14927	6369	

2) Effluent Generation in CMD / MLD

Particulars	Consent Quantity	Actual Quantity	UOM
Trade Effluent	2616.5	931.13	CMD
Domestic Effluent	171.5	61.03	CMD

2) Product Wise Process Water Consumption (cubic meter of process water per unit of product)

Name of Products (Production)	During the Previous financial Year	During the current Financial year	UOM
Iron & Steel	0.690	0.680	Ton/Ton

3) Raw Material Consumption (Consumption of raw material per unit of product)

Name of Raw Materials	During the Previous financial Year	During the current Financial year	UOM
Iron Ore for DRI	1.621	1.601	Ton/Ton
Coal for DRI	1.474	1.421	Ton/Ton
Dolomite for DRI	0.326	0.202	Ton/Ton
HSD for DRI	0.000122	0.000149	
Furnace Oil for DRI	0.001299	0.000141	
LDO for DRI	0.000989	0.0000	
Iron Ore for MBF	0.303	0.427	Ton/Ton
Coke for MBF	0.497	0.521	Ton/Ton
PCI coal for MBF	0.106	0.122	Ton/Ton
Lime stone for MBF	0.007	0.014	Ton/Ton
Dolomite for MBF	0.014	0.022	Ton/Ton
Sinter for MBF	1.410	1.416	Ton/Ton
Quartz for MBF	0.018	0.0087	Ton/Ton
DRI for MBF	0.026	0.000	Ton/Ton

Furnace oil for MBF	0.000399	0.00031	
LDO for MBF	0.000646	0.00056	
HSD for MBF	0.000006	0.00001	
DRI for Steel Melt Shop	0.130	0.205	Ton/Ton
Liquid Pig for Steel Melt Shop	0.891	0.749	Ton/Ton
Pig Iron for Steel Melt Shop	0.006	0.004	Ton/Ton
MBF skull for Steel Melt Shop	0.005	0.022	Ton/Ton
Internal generated scrap for Steel Melt Shop	0.120	0.178	Ton/Ton
Coke for Steel Melt Shop	0.012	0.005	Ton/Ton
Ferro Alloys all items for Steel Melt Shop	0.054	0.050	Ton/Ton
Lime for Steel Melt Shop	0.088	0.096	Ton/Ton
Electrode (500+350 mm) for Steel Melt Shop	0.001	0.003	Ton/Ton
Oxygen for Steel Melt Shop	0.055	0.0426	Ton/Ton
Nitrogen for Steel Melt Shop	0.003	0.002	Ton/Ton
Argon for Steel Melt Shop	0.002	0.002	Ton/Ton
LPG for Steel Melt Shop	0.005443	0.00540	Ton/Ton
Furnace oil for Steel Melt Shop	0.0010028	0.0104	
LDO for Steel Melt Shop	0.000773	0.000527	
HSD for Steel Melt Shop	0.0000022	0.000020	
Liquid Steel for S S converter	0.855	0.855	Ton/Ton
Ferro Alloys, Lime, Dolomite for S S converter	0.228	0.228	Ton/Ton
Billets / Semis for BSM	1.023	1.0232	Ton/Ton
Furnace oil for BSM	0.021376	0.0158	
HSD for BSM	0.000012	0.000011	
Billets / Semis for ASM	1.019	1.018	Ton/Ton
Furnace oil for ASM	0.010378	0.00697	
HSD for ASM	0.000012	0.0000001	
Billets / Semis for Bloom Mill	1.022	1.028	Ton/Ton
Furnace oil for Bloom Mill	0.044998	0.0849	
LDO for Bloom Mill	0.089	0.000	
HSD for Bloom Mill	0.000012	0.00007	
Coal for CPP	0.746	0.811	MT/MWH
Iron ore fines for Sinter	0.635	0.686	Ton/Ton
Mill scale for Sinter	0.274	0.189	Ton/Ton
Coke for Sinter	0.045	0.040	Ton/Ton
Coal for Sinter	0.029	0.038	Ton/Ton
Lime stone for Sinter	0.128	0.168	Ton/Ton
Quick Lime for Sinter	0.044	0.044	Ton/Ton
Dolomite for Sinter	0.085	0.083	Ton/Ton
Waste & Scrap dust for Sinter	0.002	0.001	Ton/Ton
Flue Dust BSP Blast furnace for Sinter	0.006	0.050	Ton/Ton

ETP Sludge for Sinter	0.0004	0.0003	Ton/Ton
HSD for Sinter	0.000002	0.000001	
LDO for Sinter	0.000020	0.000122	
HCL for Pickling	0.054	0.0619	Ton/Ton
Lime for Pickling	0.002	0.0012	Ton/Ton
Caustic Soda for Pickling	0.000	0.000	Ton/Ton
Furnace Oil for Sinter	0.0001	0.000	
Oxygen for MBF	0.034	0.0485	Ton/Ton
Nitrogen for MBF	0.017	0.0107	Ton/Ton

4) Fuel Consumption

Fuel Name	Consent quantity	Actual Quantity	UOM
Furnace Oil/HSD/LDO	44471	6523.863	KL/A
Coal	555450	249889.966	MT/A
Coke	220850	183415.868	MT/A

Part-C

Pollution discharged to environment/unit of output (Parameter as specified in the consent issued)

[A] Water

Pollutants Detail	Quantity of Pollutants discharged (kL/day)	Concentration of Pollutants discharged(Mg/Lit) Except PH,Temp,Colour	Percentage of variation from prescribed standards with reasons	Standard	Reason
	Quantity	Concentration	%variation		
pH	0	7.0	0	5.5 to 9	NA
Total Dissolved Solids (mg/l)	0	232	0	2100	NA
Total Suspended Solids (mg/l)	0	4	0	100	NA
BOD at 27 Deg.C. for 3 days (mg/l)	0	3.6	0	100	NA
Chemical Oxygen Demand (mg/l)	0	116	0	250	NA
Oil & Grease (mg/l)	0	0.2	0	10	NA
Chloride (mg/l)	0	96.1	0	600	NA
Sulphate (mg/l)	0	35.7	0	1000	NA
Iron (mg/l)	0	0.18	0	5	NA

[B] Air (Stack)

Pollutants Detail	Quantity of Pollutants discharged (kL/day)	Concentration of Pollutants discharged(Mg/NM3)	Percentage of variation from prescribed standards with reasons	Standard	Reason
	Quantity	Concentration	%variation		
Stack S-1 ASM - TPM	11.64	33.5	0	100	mg/nm3
Stack S-1 ASM - So2	156.50	0	0	750	Kg/day
Stack S-2 CPP - TPM	50.329	46.8	0	100	mg/nm3
Stack S-2 CPP - So2	2261.3	0	0	4100	Kg/day

Stack S-3 BSM - TPM	29.81	36.40	0	100	mg/nm3
Stack S-3 BSM - So2	416.10	0	0	2916	Kg/day
Stack S-4 SMS- TPM	360.87	28.40	0	100	mg/nm3
Stack S-5 DRP Kiln- TPM	123.79	37.2	0	50	mg/nm3
Stack S-5 DRP Kiln- So2	3613.80	0	0	4250	Kg/day
Stack S-34 Blooming Mill-TPM	51.82	35.8	0	100	mg/nm3
Stack S-34 Blooming Mill-So2	840.10	0	0	5490	Kg/day
Stack S-23 Sinter Plant- TPM	370.34	71.3	0	100	mg/nm3
Stack S-23 Sinter Plant- So2	250.9	0	0	272	Kg/day

Part-D

HAZARDOUS WASTES

1) From Process

Hazardous Waste Type	Total During Previous Financial year	Total During Current Financial year	UOM
5.1 Used or spent oil	0.520	1.050	MT/A
5.2 Wastes or residues containing oil	20.790	0.000	MT/A
35.3 Chemical sludge from waste water treatment	154.633	123.939	MT/A

2) From Pollution Control Facilities

Hazardous Waste Type	Total During Previous Financial year	Total During Current Financial year	UOM
5.1 Used or spent oil	0	0	MT/A
5.2 Wastes or residues containing oil	0	0	MT/A
35.3 Chemical sludge from waste water treatment	0	0	MT/A

Part-E

SOLID WASTES

1) From Process

Non Hazardous Waste Type	Total During Previous Financial year	Total During Current Financial year	UOM
Slag SMS (EAF & SS refining converter	53296	49289	MT/A
Fly ASH (CPP)	29113	21759	MT/A
Bed ASH (CPP)	3890	4062	MT/A
Mill Scale (SMS & Rolling mill)	4796	4251.567	MT/A
Granulated MBF Slag	148795	181638.330	MT/A

2) From Pollution Control Facilities

Non Hazardous Waste Type	Total During Previous Financial year	Total During Current Financial year	UOM
Dusts from Bag Filters	12213	11423.74	MT/A
DRP Sludge	46.42	44.63	MT/A

3) Quantity Recycled or Re-utilized within the unit

Waste Type	Total During Previous Financial year	Total During Current Financial year	UOM
5.1 Used or spent oil	0.720	1.050	MT/A
5.2 Wastes or residues containing oil	0	0	MT/A

Part-F

Please specify the characteristics(in terms of concentration and quantum) of hazardous as well as solid wastes and indicate disposal practice adopted for both these categories of wastes.

1) Hazardous Waste

Type of Hazardous Waste Generated	Qty of Hazardous Waste	UOM	Concentration of Hazardous Waste
5.1 Used or spent oil	1.050	MT/A	Used in Furnace by mixing with furnace oil / sale to authorized recycler.
35.3 Chemical sludge from waste water treatment	123.939	MT/A	Used in our Sinter plant.

2) Solid Waste

Type of Solid Waste Generated	Qty of Solid Waste	UOM	Concentration of Solid Waste
Slag (SMS) (EAF & SS Refining Convertor)	49289	MT/A	Used for Brick Manufacturer / Landfill
Fly Ash (CPP)	21759	MT/A	Used for Brick Manufacturer / sale to cement plant
Bed Ash (CPP)	4062	MT/A	Used for Brick Manufacturer / sale to cement plant
Dusts from Bag Filters (DRP & SMS)	11423.74	MT/A	Reuse in Sinter plant
DRP Sludge (DRP)	44.63	MT/A	Reuse as fuel in Sinter Plant
Mill Scale (SMS & Rolling Mill)	4251.567	MT/A	Reuse in Sinter plant
Iron/Steel Scrap/Rejected Billets (SMS)	12677.22	MT/A	Recycle in Steel Melt Shop
Grinder waste (Rolling Mill)	85.41	MT/A	Recycle in Steel Melt Shop
Granulated MBF Slag	181638.330	MT/A	Reuse / By sale to Cement Industries.
Granulated MBF GCP	21093.58	MT/A	Reuse in Sinter plant
Coke Fines (MBF)	19181.96	MT/A	Reuse in Sinter plant
Iron Ore Fines (DRI & MBF)	119804.39	MT/A	Reuse in Sinter plant
Dusts (ETP & WTP)	64.06	MT/A	Reuse in Sinter plant
Coal Rejected (Stones & Shells)	3825.67	MT/A	Landfill
Hot Returned Ore Sinter Plant	74530	MT/A	Reuse in Sinter plant
Removed dust (Sinter plant)	19985.96	MT/A	Reuse in Sinter plant
Sinter returned fines from Sinter	59624	MT/A	Reuse in Sinter Plant
Hot Scrap	13683.07	MT/A	Recycle in Steel Melt Shop
DRI Ash/Char (By products)	8720	MT/A	Reuse in Captive Power Plant

Part-G

Impact of the pollution Control measures taken on conservation of natural resources and consequently on the cost of production.

Description	Reduction in Water Consumption (M3/day)	Reduction in Fuel & Solvent Consumption (KL/day)	Reduction in Raw Material (Kg)	Reduction in Power Consumption (KWH)	Capital Investment(in Lacs)	Reduction in Maintenance(in Lacs)
--	0	0	0	0	0	0

Part-H

<u>Additional measures/investment proposal for environmental protection abatement of pollution, prevention of pollution.</u>		
<u>[A] Investment made during the period of Environmental Statement</u>		
Detail of measures for Environmental Protection	Environmental Protection Measures	Capital Investment (Lacks)
NA	NA	0

<u>[B] Investment Proposed for next Year</u>		
Detail of measures for Environmental Protection	Environmental Protection Measures	Capital Investment (Lacks)
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Part-I

Any other particulars for improving the quality of the environment.

Particulars
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Name & Designation
Ramchandra V Dalvi Director (Technical)

UAN No:
MPCB-ENVIRONMENT_STATEMENT-0000036228

Submitted On:
22-09-2021