



**Vijayanagar Works :**

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**JSW/ENV/MoEFCC/EC-COMPL/F016/112023/**

**Date: 06.11.2023**

**The Addl. Principal Chief Conservator of Forest(C)**

Ministry of Environment, Forest & Climate Change

Regional Office (South Zone), 4<sup>th</sup> floor,

E&F wings, Kendriya Sadan, 17<sup>th</sup> Main Road,

2<sup>nd</sup> block Koramanagala, Bengaluru-560034

**Sub: Submission of Half Yearly EC Compliance report of Our Integrated Steel Plant for the period of Apr-23 to Sep-23**

**Ref:**

1. *Expansion project of 10MTPA to 16MTPA of JSW Steel, vide no. J-11011/489/2009-IA.II (I) dated 01.10.2015 and amendment dated 09.06.2016, 22.01.2018 and 29.05.2018 Proposal No. IA/KA/IND/31502/2010*
2. *Expansion project of 16MTPA to 18MTPA of JSW Steel and Captive Power Plant 1490 MW, EC Identification No. EC 21A008KA165146 file No. J-11011/489/2009-IA.II (I) dated 29.11.2021 Proposal No. IA/KA/IND/229388/2018*

Dear Sir,

With respect to the subjected matter, we are herewith submitting the Half Yearly EC Compliance report for our integrated Steel Plant, JSW Steel Limited, Vijayanagar Works located at Toranagallu, Dist. Ballari, Karnatka. For the period of **April 2023 to September 2023**

Further, we would like to inform you that, we have uploaded the soft copy of EC Compliance report on the Parivesh 2.0 Portal.

Submitted for your kind information and record please.

Thanking your,

Yours Faithfully

Authorized Signatory

For M/s JSW Steel Ltd.

**Dr. Satish Mishra**

**Associate Vice President**



**CC:**


1. **The Member Secretary, IA.II(I) Ministry of Environment and Forests, IA Division, Paryavaran Bhawan, CGO Complex, Lodhi Road, New Delhi-110003**
2. **The Member Secretary, KSPCB, Parisara Bhavan, 1<sup>st</sup> to 5<sup>th</sup> floor, #49, Chruch Street, Bengaluru**
3. **The Environmental Officer, KSPCB, Regional Office, 4<sup>th</sup> Main, Kuvempunagara, Bellary-583104**
4. **Regional Director, CPCB, A-Block, Nisarga Bhavan 1st & 2nd Floor, 7th D Cross, Thimmaiah Road, Shivaji Nagar, Bengaluru – 560079.**



**Point wise Compliance to the Environmental Clearance accorded to the expansion of Integrated Steel Plant (from 10 MTPA to 16 MTPA along with Captive Power Plant (600 MW) of M/s JSW Steel Limited located near Village Toranagallu, District Ballari in Karnataka**


EC No : J-11011/489/2009-IA.II (I) Dated 01.10.2015  
Compliance Period : April 2023 to Sep 2023

Sl. No	Conditions	Compliance
	<b>Specific conditions</b>	
i.	The project proponent should install 24x7 air and water monitoring devices to monitor air emission and effluent discharge, as provided by CPCB and submit report to Ministry and its Regional Office.	<b>Complied</b> <ul style="list-style-type: none"> <li>As per CPCB Guidelines, We have installed 71 No of Continuous Emission monitoring System (CEMS) including 71 Nos PM analyzer and 12 Nos Gaseous Analyzer (SO<sub>2</sub> &amp; NO<sub>x</sub>) for the 24x7 emission monitoring.</li> <li>Also for the Continuous Effluent Quality Monitoring, we have installed 6 no of online effluent quality monitoring systems for pH, conductivity, and flow measurements.</li> <li>Data of the CEMS and Effluent analyzer is being transferred to CPCB and KSPCB Portal.</li> <li>The monitoring reports are being submitted to Ministry and Regional office along with six monthly compliance report.</li> <li>The Summary of Monitoring report Enclosed as <b>Annexure -01</b></li> </ul>
ii.	All the conditions stipulated by the Standing Committee of the National Board for Wildlife should be effectively implemented.	<b>Complied</b> <ul style="list-style-type: none"> <li>Project clearance has been received from National Board for Wildlife, the board has not prescribed any conditions, however JSW has actively engaged with Daroji Bear Sanctuary authorities for providing infrastructure &amp; other facilities</li> </ul>
iii.	The PP shall participate in a Wildlife Conservation Plan for Sloth Bears and other schedule-I fauna found in the study area and in the Daroji Bear Sanctuary. The Conservation Plan shall be prepared in consultation with the State Wildlife Department. The Plan with various activities including creation of water bodies, elimination of weeds, eco-regeneration plan including regeneration of fruit bearing trees and improvement of ecological habitat and support to the nearby villages to minimize dependency on forest produce for fuel shall contain budgetary support with details of capital and revenue costs for various activities, the details of expenditure made on which shall be regularly submitted as part of the Compliance Report to Regional Office, Bangalore,	<b>Complied</b> <ul style="list-style-type: none"> <li>JSW has actively engaged with Daroji Bear Sanctuary authorities for providing necessary infrastructure &amp; other facilities. Financial assistance of Rs 1.5 crores was provided to State Forest Department for setting up wildlife interpretation center at Kamalapur site.</li> <li>Details of Wild life conservation plan is enclosed as <b>Annexure- 02</b></li> </ul>
iv.	The PP shall obtain assured raw materials (particularly iron ore and coal) from designated sources for long-term supply and shall enter into long-term MOUs with producers/sellers of raw materials used in steel making. Washed coal shall be used.	<b>Complied</b> <ul style="list-style-type: none"> <li>JSW Steel is sourcing Iron ore through e- auction.</li> <li>JSW Steel have recently been allotted 11 Iron ore mines. We intend to participate in future auction of Iron ore mines.</li> <li>We are using washed coal from Australia.</li> </ul>

v.	<p>All the units of the expansion Project shall operate using state-of-art energy efficient technologies, environmental pollution prevention and control technologies and energy efficient measures including the 4Rs shall be implemented at every step of the plant operation. The old design of the existing plant especially old coke ovens needs a scheduled phasing out for which the proponent shall prepare a detailed time-bound Plan and submit it to the Ministry.</p>	<p><b>Complied</b></p> <ul style="list-style-type: none"> <li>• The facilities are implemented with state of the art technology like MEROS, SOPRECO, recuperative burners etc.</li> <li>• Waste reuse recycle units like slag to sand, waste to wealth etc. are implemented</li> <li>• The coke oven 1 &amp; 2 of 1.28 MTPA have been retired and in its place a 1.5 MTPA Recovery type coke oven built.</li> <li>• As stated, the decommissioning of Coke Oven started as follows; Coke Oven # 2 – 31.08.2019 Coke Oven # 1 – 30.11.2019</li> </ul>
vi.	<p>On-line ambient air quality monitoring and continuous stack monitoring facilities for all the stacks shall be provided and sufficient air pollution control devices viz, Electrostatic precipitator (ESP) (to sinter plant) and dust catcher followed by venture scrubbers to blast furnace and bag filters etc. shall be provided to keep the emission levels of particulates below 50 mg/Nm<sup>3</sup> from stacks and also meet level of the 50 mg/Nm<sup>3</sup> in work zone.</p>	<p><b>Complied.</b></p> <ul style="list-style-type: none"> <li>• We have already installed 5 no CAAQMS</li> <li>• We have installed 71 No of Continuous Emission monitoring System (CEMS) including 71 Nos PM analyzer and 12 Nos Gaseous Analyzer (SO<sub>2</sub> &amp; NO<sub>x</sub>) for the 24x7 emission monitoring</li> <li>• Pollution control equipment's are installed to limit emission levels below 50 mg/Nm<sup>3</sup> viz 250 Bag Houses, 32 scrubbers, 18 ESP's, 9 Cyclones and 180 Dust suppression system. Dust collector followed by venture scrubber in Blast furnace.</li> <li>• As a part of continual improvement 25 additional bag filter have been installed during the period 2019 to 2023. MEROS has been installed in along with High Efficiency ESP</li> </ul>  <ul style="list-style-type: none"> <li>• As per the MoEF &amp; CC Gazette notification dated 31.03.2012, norm for dust in the work area is "3000 µg/m<sup>3</sup>" and measured value -1500-2000 µg/m<sup>3</sup> which is within the limit.</li> </ul>




i.	<p>Coke oven gases after by-product shall be used as supplementary fuel. Top gases from the blast furnace shall be cleaned by gas cleaning devices. Dust extraction/fume extraction system with ESPs and stack shall be provided to stock house and cast house. Secondary fumes shall be captured by fume extraction system generated during hot metal and liquid steel transfer points. Dust emissions from calcining plant shall be controlled by bag filters. Emissions of SO<sub>2</sub>, NO<sub>x</sub> and CO from reheating furnace shall be controlled. The steam generators shall be provided by low NO<sub>x</sub> burners to reduce NO<sub>x</sub> emissions. Dust suppression/dust extraction system shall be provided to control fugitive emissions.</p>	<p><b>Complied</b></p> <ul style="list-style-type: none"> <li>• The coke oven gases after by-product recovery is being used as supplementary fuels in other units</li> <li>• Top gas from blast furnace is cleaned by dust catcher &amp; gas cleaning plant</li> <li>• Bag filter with fume extraction system provided to BF stock house &amp; cast house system to capture dust during hot metal &amp; liquid steel transfer.</li> <li>• Bag filters have been installed for lime calcining plant</li> <li>• Coke oven gas has been provided with desulphurization unit.</li> <li>• Mixed coke oven gas, BF gas is used as fuel in reheating furnace.</li> <li>• High efficient fuel burners are provided in reheating furnace</li> <li>• Process control with oxygen sensors provided in reheating furnace for low CO levels, Currently there are no norms for SO<sub>2</sub>, NO<sub>x</sub>, CO for RHF</li> <li>• Low NO<sub>x</sub> burners are provided for steam generators</li> <li>• Dust suppression system were provided to control fugitive emissions</li> </ul>
viii.	<p>Air Pollution control measures shall include Pulse Jet Bag Filter of Up flow type, pneumatic conveying of dust, transport of materials in closed conveyors, wind screen in yards, DSS in yards.</p>	<p><b>Complied</b></p> <ul style="list-style-type: none"> <li>• Currently JSW Steel has 250 nos. of bag filters (both pulse jet and pleated type).</li> <li>• Most of the waste material is being conveyed in closed container.</li> <li>• Covered conveyors are provided for material transfer.</li> <li>• Installed about 3.5km length wind curtain wall in iron ore yard which also includes 0.8km length in coal yard</li> </ul>
ix.	<p>In-plant control measures like bag filters, dedusting and dust suppression system shall be provided to control fugitive emissions from all the vulnerable sources. Water sprinkling system shall be provided to control secondary fugitive dust emissions generated during screening, loading, unloading, handling and storage of raw materials etc.</p>	<p><b>Complied</b></p> <ul style="list-style-type: none"> <li>• Bag filters are provided for large junction house.</li> <li>• About 60 bag filters installed in junction houses. Additionally water sprinkling system has been provided to control secondary fugitive emissions at raw material storage yard, junction houses &amp; conveyor transfer points</li> </ul>
x.	<p>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.</p>	<p><b>Complied</b></p> <ul style="list-style-type: none"> <li>• Guidelines as per notification no. GSR. 277(E) dated 31.03.2012 for integrated steel plants are implemented.</li> <li>• Gaseous emission and fugitive emission control measures such as bag filters, ESPs, water sprinkling, closed conveyors have been provided and the periodical monitoring are within the prescribed norms.</li> </ul>
xi.	<p>The plant shall develop rail transport or rail-cum-pipeline transport for iron ore and other major raw materials within a time-bound manner.</p>	<p><b>Complied</b></p> <ul style="list-style-type: none"> <li>• JSW Steel Ltd has implemented Pipe Conveyor &amp; Nandihalli stock yard for transportation of iron ore fines from Kumaraswamy, Sushil Nagar &amp; other blocks to yard and further via Bannihatti to Vijayanagar plant.</li> <li>• To fulfil the requirement of the key raw material i.e. Iron Ore, JSW steel is setting up 84 KM dedicated Pipe Conveyor transportation system along with expansion of Nandihalli stock yard.</li> <li>• 35.5 KM stretch of the Pipe conveyor with a capacity 24 MTPA has been commissioned.</li> <li>• Raw material are transported through railway – 30,000</li> </ul>

		tons/day (50%) 15,000 tons/day (25%) through Pipe Conveyors and 15,000 tons/day (25%) through roads.
xii.	Detailed unit-wise Risk Analysis and Assessment and detailed on-site and off-site Emergency Preparedness and Disaster Management Plan (DMP) linked to District-level DMP shall be prepared in consultation with district authorities and mock drills carried out periodically.	<b>Complied</b> <ul style="list-style-type: none"> <li>The onsite emergency plan approved by Karnataka State Dept. of Factories &amp; Boilers addressing emergency management plan is prepared.</li> <li>Periodic mock drills are being conducted.</li> </ul>
xiii.	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 at Bangalore, SPCB and CPCB.	<b>Complied</b> <ul style="list-style-type: none"> <li>Solid wastes (dust and sludge) is being recycled through the micro pellet, mill scale briquetting plants.</li> <li>All hazardous waste such as waste oil used oil and oily sludge are disposed of through authorized recycler.</li> <li>Other hazardous waste like salt from coke oven ZLD plant, chrome and Sulphur sludge is disposed of through approved TSDF.</li> <li>We have submitted the Hazardous waste annual returns to KSPCB on 05.06.2023.</li> </ul>
xiv.	A time bound action plan shall be submitted to reduce solid waste, its proper utilization and disposal. These include slag generated during the process of steel making - BOF slag shall be used in construction of slime pond, sludge and bag filter dusts shall be recycled in sinter/pellet plant. A 0.3 MTPA briquetting plant 0.6 MTPA micro pellet plant shall be set up for use of dusts. All the BF slag shall be sent to cement units and SMS slag produced for construction material. All the other solid wastes including broken refractory mass shall be properly disposed off in an environmentally friendly manner.	<b>Complied</b> <ul style="list-style-type: none"> <li>Micro Pelletization plant of 0.68 MTPA, briquetting plant 0.3 MTPA and Waste to Wealth plant of 0.2 MTPA capacity has been setup and in operation.</li> <li>100% Waste recycled including of dust and sludge</li> <li><b>Iron slag:</b> granulated slag is used for cement &amp; sand making.</li> </ul> 

		<ul style="list-style-type: none"> <li>• <b>Steel Slag:</b> JSW Steel has developed a technique for steel slag weathering. The aggregates are used for road making and balance used for bund construction.</li> <li>• We have conducted R&amp;D studies and succeeded in implementing 100 TPD pilot plant, further capacity will be increased to 17000 TPD.</li> </ul>  <p style="text-align: center;"><b>100 TPD BOF slag sand plant</b></p>
xv.	Backfilling of mine voids with SMS slag shall be appropriately reflected in the Mine Plan and prior approval obtained thereof from Indian Bureau of Mines.	<p><b>Complied</b></p> <ul style="list-style-type: none"> <li>• At present SMS slag is converted to sand.</li> <li>• The nearby iron ore mines are all operating and no abandoned mines is available for disposal of SMS slag. However in future SMS slag will be used for mines backfilling.</li> </ul>
xvi.	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 Bangalore.	<p><b>Complied</b></p> <ul style="list-style-type: none"> <li>• The fly ash is being sold to cement plant, brick manufacturing etc.</li> </ul>
xvii.	Total water requirement shall not exceed 29.5 MGD to be met from Almatti and Tungabhadra Dam. The water consumption shall not exceed as per the standard prescribed for steel plants. Use of air cooled condensers shall be explored and closed circuit system shall be provided to reduce water consumption and water requirement shall be modified accordingly. All the effluents shall be treated and used for plant processes/operations, dust suppression and green belt development. No effluents shall be discharged and 'zero' discharge shall be adopted. Domestic wastewater will be treated in the Sewage Treatment Plant.	<p><b>Complied</b></p> <ul style="list-style-type: none"> <li>• We are maintaining the water consumption below permitted water quantity.</li> <li>• The specific water consumptions during April 2023- Sept 2023 is below the standard prescribed for steel plants.</li> <li>• The treated wastewater from coke oven, scrubbed water from BF &amp; BOF gas cleaning,</li> <li>• Water from slab caster cold rolling mill, power plant etc., are collected in three guard ponds and – 50,000 KLD is reused in less critical applications like Ore beneficiation plant, slag quenching, dust suppression and green belt development.</li> <li>• RO plants with a total capacity of 23,700 KLD have been installed to recover as makeup water from treated blow down. Five STPs installed to treat sewage and is reused in steel plant and for garden.</li> </ul>

xviii.	The proponent shall adopt water conservation measures to reduce requirement of make-up water. The wastewater generated from the indirect cooling circuit shall be routed through the cooling tower. Coke from the coke oven shall be cooled in dry cooling plant to eliminate use of quenching water. The wastewater of gas cleaning plant (GCP) of blast furnace and steel melt shop containing suspended solids shall be clarified in the wastewater treatment plant and recycled to the waste gas cleaning units. Wastewater from the CCM shall be treated to remove scale and oil and treated water shall be recycled after cooling. The domestic wastewater shall be treated in a Sewage Treatments plant (STP) and used for dust suppression and green belt development.	<p><b>Complied</b></p> <ul style="list-style-type: none"> <li>Water is being used in cascading system from one process to another thereby reducing freshwater consumption.</li> <li>08 no of RO plant with a total capacity of 23,700m<sup>3</sup>/d have been installed to recovery water.</li> <li>Waste water from indirect cooling circuit is routed through cooling tower.</li> <li>Coke dry quenching through nitrogen is implemented instead of water, further sensible heat is also utilized for 76MW power generation.</li> <li>Waste water of SMS GCP passed through thickeners ,further CO2 injection is also provided for hardness removal</li> <li>Scale &amp; Oil is removed from CCM waste water</li> <li>7 STP's of total 9.3MLD are provided for domestic waste water treatment &amp; treated sewage is reused for dust suppression, process &amp; Green Belt development.</li> </ul>
xix.	Efforts shall further be made to use maximum water from the rain water harvesting sources to reduce intake of water from Almatti and Tungabhadra Dam. If needed, capacity of the reservoir shall be enhanced to meet the maximum water requirement. Only balance water requirement shall be met from other sources.	<p><b>Complied</b></p> <ul style="list-style-type: none"> <li>JSW have installed five rainwater capturing facilities and two other water storage facility in the townships. The rain water is collected and used as make up.</li> </ul>
xx.	Regular monitoring of influent and effluent surface, sub-surface and ground water shall be ensured and treated wastewater shall meet the norms prescribed by the State Pollution ControlBoard or described under the E(P) Act whichever are more stringent. Leachate study for the effluents generated and analysis shall also be regularly carried out and report submitted to theMinistry's Regional Office at Bangalore, SPCB and CPCB.	<p><b>Complied</b></p> <ul style="list-style-type: none"> <li>Regular monitoring of influent and effluent surface, sub-surface and ground water is being carried out.</li> <li>Leachate study also conducted.</li> <li>Reports for the above is submitted to KSPCB on a monthly basis, MoEF CC and CPCB on a six monthly basis.</li> <li>The summary of Effluent Quality Monitoring for the compliance period is enclosed as <b>Annexure-01</b></li> </ul>
xxi.	Green belt shall be developed in 33% of plant area Selection of plant species shall be as per the CPCB guidelines in consultation with the DFO	<p><b>Being complied.</b></p> <ul style="list-style-type: none"> <li>Extensive greenbelt is developed in and around the plant.</li> <li>Till date more than 19.60 lakh saplings planted &amp; about 2350.52 acres of greenbelt area developed.</li> <li>In addition to above, through JSW Foundation we have executed the following MoU's with Karnataka Forest department on 2022 for Rs 10.05 Crores towards development of greenbelt in and around Torangallu Revenue Forest area, Daroji Reserve forest area and development of public park at Ballari the details are as follows:- <ul style="list-style-type: none"> <li>i. Rs 2.26 Crores- for a duration of 5 years for developing the greenbelt along the periphery of JSW complex</li> <li>ii. Rs 4.68 Crores for development of greenbelt in Daroji Reserve forest area aroundJSW Steel complex for 5 years period</li> <li>iii. Rs 3.10 Crores for development of public park at Ballari for 3 years.</li> </ul> </li> </ul>



		  <ul style="list-style-type: none"> <li>• Additionally greenbelt development in 240 acres work is being carried out at SASAN VAN Fund of Rs 10 crore towards infrastructure &amp; greenbelt development is being mobilized</li> <li>• Greenbelt development through Miyawaki method is also being carried out over 6 acres area</li> <li>• Plant density being upgraded to 2500 trees per hectare and complete greenbelt in an area of 1068 Ha by Sep 2024.</li> </ul> 
xxii.	<p>Power from the CPP of 1430 MW capacity shall be entirely utilized for the plant operations only. The 600 MW expansion Unit of the CPP is coal based and any change in configuration or capacity shall be made only with prior approval of this Ministry.</p>	<p><b>Complied</b></p> <ul style="list-style-type: none"> <li>• JSW Steel has four captive power plant:  CPP- 1 : 100 MW,  CPP-2 : 130MW,  CPP3 &amp; CPP 4 : 600 MW.</li> <li>• Besides 2 nos. of TRT generator 24 MW of power CDQ unit generate 76 MW of power.</li> <li>• The power generated is used for plant operations only.</li> <li>• 660 MW power plant (CPP-5) is yet to be constructed.</li> </ul>

xxiii.	The environment wing of the company and for this Plant as well as of the company shall be strengthened with qualified personnel, state-of-art laboratory, infrastructure, etc and regular records of the environmental data including on-line monitoring-of emissions shall be maintained.	<p><b>Complied.</b></p> <ul style="list-style-type: none"> <li>• Dedicated environmental management department is established with qualified staff.</li> <li>• 19 number of professionals reporting to Associate Vice President for operation of environmental management system.</li> <li>• Records of online emission monitoring data is being maintained for ready reference.</li> </ul>
xxiv.	Company shall develop an HSE Policy. All the permanent workers shall be covered under ESI Scheme. The company shall have the provision for treatment of its workers at the local sub-committee Nursing Homes & Hospitals in case of emergency. Annual Medical Check-up on some medical parameters like Blood test, Chest X-Ray, Eye test. Audiometry, Spirometry etc. shall be regularly conducted amongst the employees of the Company and records maintained thereof.	<p><b>Complied</b></p> <ul style="list-style-type: none"> <li>• Company has HSE policy approved &amp; duly signed by the Deputy Managing Director of the company, which is available at company website and enclosed as <b>Annexure-03</b></li> <li>• All the employees (permanent/contract workers) are covered under ESI scheme or insurance depending on their salary structure.</li> <li>• The company has established a multispecialty hospital called Jindal Sanjeevani Hospital (JSH) for its workers and surrounding villages.</li> <li>• Annual Medical Check-up of workers for Blood test, Chest X-Ray, Eye test, Audiometry, Spirometry etc. is being regularly conducted and records are maintained for ready reference.</li> </ul>
xxv.	A CSR Plan shall be prepared and implemented in consultation with the local villages and administration. Issues raised/covered during public hearing and incorporated in the EMP and CSR Plan. During construction phase of the expansion project, an expenditure of about minimum 5% of the capital expenditure shall be earmarked for CSR activity covering the broad areas of education, health, infrastructure, water and power spread over 5 years/period of construction of project. During operation phase of the project, the CSR activity will be funded based on 2% of the profit during operation phase of the project. 70% of the employment shall be made from the local population. The activities shall include skill development, education for the girl child, common infrastructure, alternate livelihood schemes and creation of SHGs, etc. The PP shall as part of the CSR Plan meet the drinkingwater requirements (pipeline) of neighboring villages from the State authorities. In addition, villages such as Dharmasagara and Bandri, which have a fluoride problem shall also be provided drinking water. All the commitments made to the public during the Public Hearing/Public Consultation meeting held on 30.12.2010 shall be satisfactorily implemented and details of which shall be furnished as part of CSR. A separate budget for implementing the same shall be allocated made. The annual capital and recurring expenditure on CSR - village-wise and	<p><b>Complied</b></p> <ul style="list-style-type: none"> <li>• CSR activities are being carried out through JSW foundation in 29 villages of Bellary district. CSR activities cover health, education, woman empowerment, sanitation, sports, infrastructure, skill development etc.</li> <li>• The development approaches for all the CSR activities is partnering with local government bodies, to evolve strategies for sustained development through the public private partnership (PPP) models.</li> </ul>

	activity-wise shall be uploaded on the company website and also included in the Annual Report of the company to the Ministry's Regional Office at Bangalore	
xxvi.	The Company shall submit within three months its policy towards Corporate Environment Responsibility which shall inter-alia address (i) Standard operating process/ procedure to bring into focus a 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 noncompliance/ violation environmental norms to the Board of Directors of the company and/or stakeholders or shareholders.	<b>Complied</b> <ul style="list-style-type: none"> <li>Copy of JSW Environmental policy enclosed as <b>Annexure 3</b></li> </ul>
xxvii.	Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, Safe drinking water, medical health care, creche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.	<b>Complied</b> <ul style="list-style-type: none"> <li>Mobile toilets, STP, Safe drinking water, medical health care, crèche etc provisions has been made for housing of construction labour.</li> </ul>
<b>B. GENERAL CONDITIONS:</b>		
i.	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forest and Climate Change (MoEFCC).	Noted & agreed
ii.	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 shall be regularly submitted to this Ministry including its Regional Office at Bangalore and the SPCB/CPCB once in six months.	<b>Complied</b> <ul style="list-style-type: none"> <li>Already installed 5 no CAAQMS,</li> <li>Both the CAAQMS &amp; CEMS are connected to CPCB &amp; KSPCB servers</li> <li>The monitoring data is being submitted to KSPCB on a monthly basis and compliance to the conditions along with monitoring data is being submitted to CPCB and regional office MoEF&amp; CC on six monthly basis.</li> <li>Monitoring data of Online Monitoring System enclosed as <b>Annexure - 01</b></li> </ul>
iii.	Industrial wastewater shall be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May, 1993 and 31 <sup>st</sup> December, 1993 or as amended from time to time. The treated wastewater shall be utilized for plantation purpose.	<b>Complied.</b> <ul style="list-style-type: none"> <li>Industrial waste water is collected &amp; treated to conform standards.</li> <li>Treated waste water is used as make up water in low end application like, quenching, ore washing, plantation, etc.,</li> </ul>
iv.	The overall noise levels in and around the plant area shall be kept well within the standards (85 dB A) by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels should conform to the standards prescribed under EPA Rules, 1989 viz,	<b>Complied.</b> <ul style="list-style-type: none"> <li>The overall noise levels in and around the plant area are within the standards (85 dB A). Regular monitoring is carried out in surrounding 12 (twelve) villages.</li> <li>The ambient noise levels are well within the norms of 55 db (day) and 45 db (night)</li> <li>The noise level monitoring report of the Nearby villages</li> </ul>

	75 dBA (daytime) and 70 dBA (night-time).	is enclosed as <b>Annexure - 01</b>
v.	Vehicular transportation of raw materials and finished products shall be kept to minimum. Dust suppression systems shall be in place at transfer points. All internal roads shall be black topped. The roads shall be regularly cleaned with mechanical sweepers. A 3-tier avenue plantation using native species shall be developed along the roads.	<b>Complied</b> <ul style="list-style-type: none"> <li>JSW Steel has an elaborate network of conveyors for transportation of raw material from the truck unloading stations and wagon tippler to the yards and respective plant units.</li> <li>All roads inside the plant are concreted. Roads are regularly swept by vacuum sweeping machine (6 nos).</li> <li>Majority (~80%) of the raw material and finished goods are transported by rail.</li> <li>Dust suppression measures have been provided at transfer point, 250 bag houses/filters have been provided at major junction houses.</li> <li>Thick green belt plantation has been provided along the periphery and open spaces available in the plant.</li> </ul>
vi.	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 Bangalore. The funds so provided shall not be diverted for any other purpose.	<b>Complied</b> <ul style="list-style-type: none"> <li>Till date Rs. 3485 crores have been spent towards environment control &amp; monitoring measures.</li> <li>On an average about Rs. 150 crores is budgeted annually for environment control and monitoring.</li> </ul>
vii.	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.	<b>Complied</b> <ul style="list-style-type: none"> <li>Clearance letter has been submitted to Toranagallu Panchayat and also been uploaded in the company website.</li> </ul>
viii.	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 Bangalore. 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.	<b>Complied</b> <p>The compliance to EC conditions and monitoring conditions has been uploaded in the company website.</p> <ul style="list-style-type: none"> <li>The monitoring results with respect to ambient air and treated waste water are displayed in the main gate (10 MTPA gate).</li> <li>The monitoring data is being submitted to KSPCB on a monthly basis and compliance to the conditions along with monitoring data is being submitted to CPCB and regional office MoEF&amp; CC on six monthly basis.</li> <li>The Ambient Air Quality Monitoring data for the compliance period is enclosed as <b>Annexure -01</b></li> </ul>


ix.	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 hardcopies as well as by-mail) to the Regional, Office of MOEFCC, the respective Zonal Office of CPCB and the SPCB. The Regional Office of this Ministry at Bangalore / CPCB / SPCB shall monitor the stipulated conditions.	<b>Complied</b> <ul style="list-style-type: none"> <li>The monitoring data is being submitted to KSPCB on monthly basis and compliance to the conditions along with monitoring data is being submitted to CPCB and regional office MoEF&amp;CC on six monthly basis.</li> </ul>
x.	The environmental statement for each financial year ending 31 <sup>st</sup> 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 Bangalore by-mail.	<b>Complied</b> <ul style="list-style-type: none"> <li>The Environmental statement for the FY 2022-23 is submitted to KSPCB, CPCB and MoEF &amp; CC vide letter No JSW/ENV/GOVKSPCB/ENVSTM/F011/092023/3334 Dated 20.09.2023.</li> </ul>
xi.	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, Forest and Climate Change (MoEFCC) at <a href="http://envfor.nic.in">http://envfor.nic.in</a> . 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 Bangalore.	<b>Complied</b> <p>The information regarding grant of EC was published at following newspapers:</p> <ul style="list-style-type: none"> <li>Deccan Herald dated 07.10.2015</li> <li>EE-namma Kannada Nadu dated 07.10.2015.</li> <li>Vijaya Karnataka dated 07.10.2015.</li> </ul> <p>The above has been communicated to Regional office, MoEF &amp; CC.</p>
xii	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.	Noted & agreed
xiii	The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.	Noted & agreed
xiv	The Ministry reserves the right to stipulate additional conditions if found necessary. The Company in a time bound manner shall implement these conditions	Noted & agreed



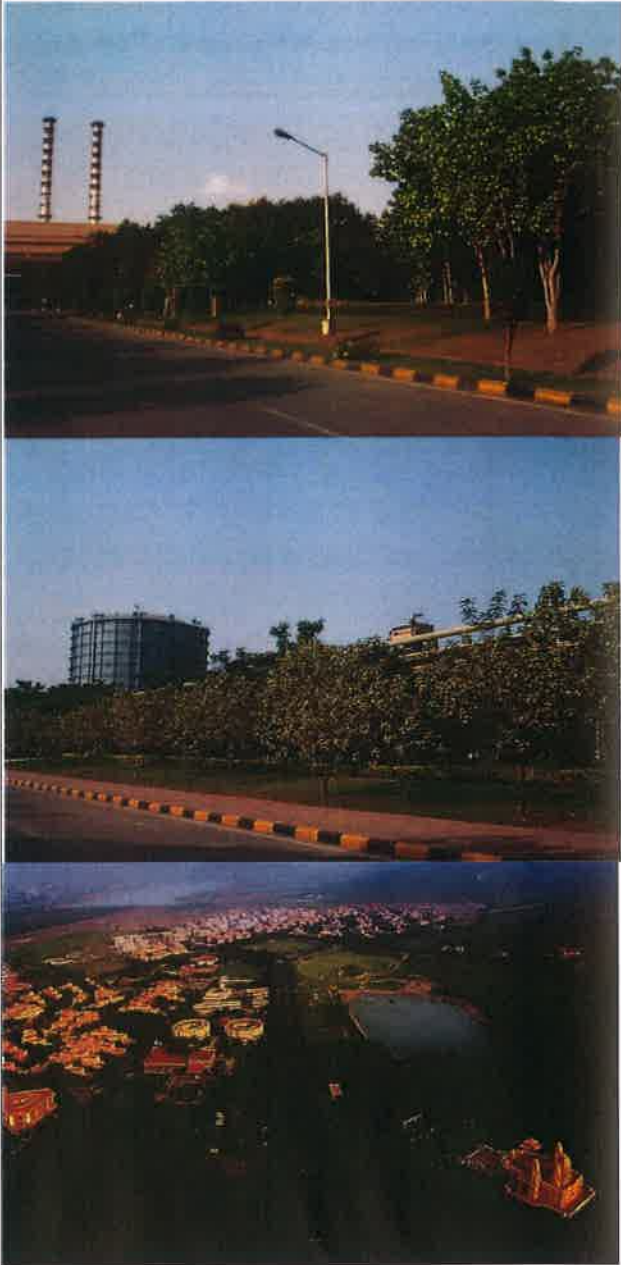

**Point wise Compliance to the Environmental Clearance accorded to the Expansion of Integrated Steel Plant from 16 MTPA to 18 MTPA and Captive Power Plant 1490 MW EC Identification No. EC21A008KA165146**

**EC No. J-11011 /489 /2009-IA.II(I) Dated 29/11/2021**




**Compliance Period : April 2023 to Sep 2023**


SN	Conditions	Compliance
<b>A.</b>	<b>Specific Conditions</b>	
i.	Green belt shall be developed in an area of 1068ha all along the periphery of the project site by September 2024 as committed with a tree density of 2500 trees per hectare.	<p><b>Being complied</b></p> <p>Extensive greenbelt is developed in and around the plant</p> <ul style="list-style-type: none"> <li>Till date more than 19.60 Lakh saplings planted &amp; about 2350.52 acres of greenbelt area developed</li> <li>In addition to above, through JSW Foundation we have executed the following MoU's with Karnataka Forest department on 2022 for Rs 10.05 Crores towards development of greenbelt in and around Torangallu Revenue Forest area, Daroji Reserve forest area and development of public park at Ballari</li> </ul> <p>The details are as follows:-</p> <ul style="list-style-type: none"> <li>Rs 2.26 Crores for a duration of 5 years for developing the greenbelt along the periphery of JSW complex</li> <li>Rs 4.69 Crores for development of greenbelt in Daroji Reserve forest area around JSW Steel complex for 5 years period</li> <li>Rs 3.10 Crores /- for development of public park at Ballari for 3 years.</li> <li>Fund of Rs 10 crore towards infrastructure &amp; greenbelt development is being mobilized</li> <li>Greenbelt development through Miyawaki method is also being carried out over 6 acres area</li> <li>Plant density being upgraded to 2500 trees per hectare and complete greenbelt in an area of 1068 Ha by Sep 2024.</li> </ul> 


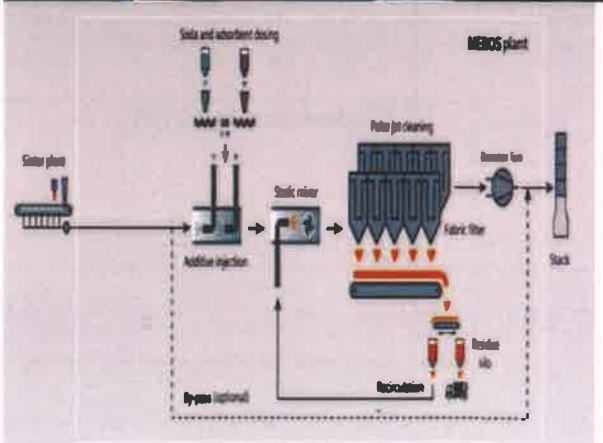


		
ii.	<p>Project proponent shall install covered sheds for coal storage in an area of 32325 sqm by June 2022 as committed.</p>	<p><b>Being complied</b></p> <ul style="list-style-type: none"> <li>Coal heaps are being covered with tarpaulin sheets</li> </ul>  <ul style="list-style-type: none"> <li>Wind curtains of 0.8km length are developed around the coal stock yard.</li> </ul>


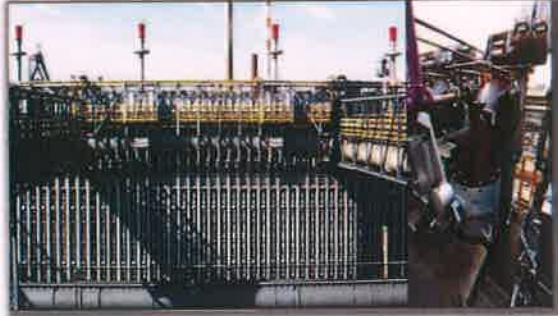


		 <ul style="list-style-type: none"> <li>• In addition to above, the design of Covered Shed for coal storage is completed.</li> <li>• Evaluation of Vendors &amp; placement of orders- Completed</li> <li>• Commissioning of Covered shed are in progress and expected to be completed by 31.10.2024.</li> </ul>
iii.	84 km long pipe conveyor shall be installed by 31/03/2024 as committed.	<p><b>Being complied</b></p> <p>At present Installed &amp; operating the 25 MTPA capacity pipe conveyor system of 35.5km length which consists of</p>  <ul style="list-style-type: none"> <li>• 24km pipe line For transfer of iron ore from Nandihalli Railway siding cum stock yard to plant</li> <li>• 1km downhill conveyor from Devadri mines to Nandihalli Railway siding</li> <li>• 4.5km downhill conveyor from Bhadra mines to Bannihatii Junction cum transfer point</li> <li>• 6km downhill conveyor from NMDC Donimali mines to Bhujanganagar Junction house cum transfer points</li> </ul>  <p>Further, we have committed to commission remaining 48.5km length pipe conveying system by 31/03/2024</p>




iv.	<p>Ambient air quality shall be improved by adopting measures like pipe conveyor, use of by- product gas in place of coal and covered shed.</p> <p>Noise levels shall be controlled by decrease in truck traffic after completion of the pipe conveyor</p>	<p><b>Being complied</b></p> <p>To improve the ambient air quality the following measures have been implemented</p> <ul style="list-style-type: none"> <li>Implemented the 25MTPA capacity pipe conveyor of 35.5km length, which is operational</li> <li>By product gases like BF gas, Corex Gas, Coke oven gases are used as fuel in the process(Blast furnace stove, under firing of coke oven batteries, reheatingfurnace etc) and also for power generation, thereby reducing the significant coal consumption</li> <li>Coal heaps are covered with tarpaulin sheets and about 0.8km length wind curtain walls are developed around the stock yard.</li> </ul>  <ul style="list-style-type: none"> <li>Operation of pipe conveyor has reduced noise associated with the movement of iron ore trucks</li> <li>Covered shed Commissioning is under progress and it is expected to be completed by 31.10.2024. Refer Closure report issued by MoEF&amp; CC dated 30.01.2023</li> </ul>
v.	<p>Environment Clearance for the township project shall be obtained from the concerned competent authority.</p>	<p><b>Being complied</b></p> <ul style="list-style-type: none"> <li>In progress, we are in process of applying to environmental clearance for the township of 500 dwellings for labor colony.</li> </ul>
vi.	<p>PP shall control rooftop emissions from SMS 1 &amp; 2 shall be eliminated by 31/03/2022 and that from SMS 2 by installation of primary De-dusting system by 31/03/2024 as committed.</p>	<p><b>Being complied</b></p> <ul style="list-style-type: none"> <li>Roof top emission control system (Primary &amp; Secondary) was provided for SMS1 with secondary system for converter 3.</li> <li>Mill scale briquettes (up to 700 tonnes/day) are being used as coolant in SMS 1 &amp; 2 convertors in place of Iron ore.</li> <li>Gas cleaning assistant (GCA) for primary de-dusting is installed</li> <li>With respect to Augmentation of primary de-dusting system of SMS2, all equipment and spares have been received and installation is under progress and shall be completed by March 2024. (Refer Closure report issued by MoEF&amp; CC dated 30.01.2023)</li> </ul>
vii.	<p>Junction houses in raw material handling area requiring repair and overhauling to control fugitive emissions shall be modified by March 2022.</p>	<p><b>Complied.</b></p> <ul style="list-style-type: none"> <li>Completed repair and overhauling of junction houses. Further, the junction houses are maintained periodically.</li> </ul>



viii.	Desulfurization of CokeOven Gas, use of low Sulphur coal, Flue GasDesulfurization in captive power plant shall be adopted to control SO <sub>2</sub> emissions.	<b>Being complied</b> <ul style="list-style-type: none"> <li>De-sulfurisation of coke oven gas (using ammonia liquor) was implemented in coke oven 3 &amp; 4. Similarly the system is being implemented in coke oven 5.</li> <li>Imported Australian coal which has low sulfur content about 0.5 to 0.6% is used in captive power plant.</li> <li>We are utilizing the waste gases like BF gas, BOF gas, COREX gas etc as a fuel which has less sulphur content of 0.5 to 0.6% as compared to fossil fuels.</li> <li>In captive power plant 3&amp;4, BF/Mixed gas from steelplant will be utilized by 31.12.2026</li> </ul>
ix.	Project proponent shall install 2 additional Continuous Ambient Air Quality Monitoring Stations (CAAQMS) in addition to already installed 4 CAAQMS.	<b>Being complied</b> <ul style="list-style-type: none"> <li>Already installed 5 no CAAQMS, further installation of additional one CAAQMS is in process, it will be completed before commissioning of the project.</li> </ul>
x.	Following Cleanertechnologies shall be adopted	by PP as committed:
	a. MEROS in Sinter plantsto control emissions.	<b>Being complied</b> <ul style="list-style-type: none"> <li>Implementation of MEROS for Sinter Plants 4 is complete</li> <li>Installation of High efficiency Bag Filter in SP1 &amp; SP2 is complete.</li> <li>Installation of High efficiency Bag Filter in SP 3 plant is under progress and shall be completed by September 2024.</li> </ul> <div data-bbox="842 987 1460 1787">   </div>

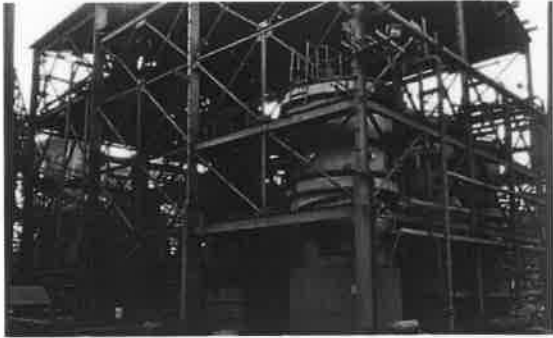
b. Sinter cooler waste heat recovery to generate power.	<p><b>Being complied</b></p> <ul style="list-style-type: none"> <li>• The sinter cooler waste heat recovery units are installed for power generation in SP-2, SP-3 &amp; SP-4.</li> <li>• The steam generated (40TPH) is used in blast cooling of Blast furnace &amp; jacket heating of coke oven plants.</li> <li>• Further sinter cooler waste heat recovery system will be installed in SP-5</li> </ul>
c. Dry gas cleaning in BF and BOF converters.	<p><b>Being complied</b></p> <ul style="list-style-type: none"> <li>• Dry GCP in SMS-4 is being installed &amp; will be commissioned soon.</li> <li>• In BF5 due to technological compulsion wet GCP is provided with complete ETP/ ZLD for gas cleaning.</li> </ul>
d. TRT and Stove waste gas heat recovery system in BF.	<p><b>Being complied</b></p> <ul style="list-style-type: none"> <li>• We have already provided TRT and Stove waste gas heat recovery system in BF 1 (5MW), BF3 (12MW), BF 4 (12MW).</li> <li>• Further TRT and stove waste gas recovery will be provided in proposed BF5 (24MW).</li> </ul>
e. Secondary Fume Extraction system in BOF with dog houses.	<p><b>Being complied</b></p> <ul style="list-style-type: none"> <li>• SMS 1&amp;2 are provided with primary venturi scrubbers and secondary de-dusting system along with dog house system</li> <li>• Further in SMS1 following additional measures being implemented</li> <li>• Roof top emission control primary &amp; secondary was provided to converter 1&amp;2. In converter 3 primary is implemented &amp; secondary system is under installation, will be completed by 31.03.2024 resulting in substantial reduction of SMS1 rooftop emissions.</li> <li>• Up to 700 T/day mill scale briquetting is used as coolant in converter 1&amp;2.</li> <li>• in SMS2 <ul style="list-style-type: none"> <li>i. up to 700 T/day mill scale briquetting is used as coolant in converter 1&amp;2</li> <li>ii. Gas cleaning assistant (GCA) for primary will be installed by 31.03.2024</li> </ul> </li> <li>• Augmentation of primary de-dusting by 31.03.2024</li> </ul>
f. Independent FE for LRF	<p><b>Being complied</b></p> <ul style="list-style-type: none"> <li>• Due to environmental, energy advantages &amp; recommendation by supplier, combined Secondary fume extraction being provided in SMS 4.</li> <li>• Further Gas cleaning assistant is being provided for optimizing the ventilation volumes.</li> </ul>

	g. Pipe conveyor to transport iron ore from various mines.	<p><b>Being complied</b></p> <p>At present Installed &amp; operating the 25MTPA capacity pipe conveyor system of 35.5km length which consists of</p> <ul style="list-style-type: none"> <li>• 24km pipe line For transfer of iron ore from Nandihalli Railway siding cum stock yard to plant</li> <li>• 1km downhill conveyor from Devadri mines to Nandihalli Railway siding</li> <li>• 4.5km downhill conveyor from Bhadra mines to Bannihatti Junction cum transfer point</li> <li>• 6km downhill conveyor from NMDC Donimali mines to Bhujanganagar Junction house cum transfer points.</li> </ul> <p>Further, we have committed to commission remaining 48.5km length pipe conveying system by 31.03.2024</p>
	h. 3.5 km wind curtains in coal yard.	<p><b>Complied.</b></p> <ul style="list-style-type: none"> <li>• Project proponent has provided wind curtain in coal yard and Iron ore yards of length 3.5 km</li> </ul> 
	i. WHRB for EAF waste heat recovery.	<p><b>Complied.</b></p> <ul style="list-style-type: none"> <li>• WHRB provided for EAF waste recovery</li> </ul>
	j. Installation of Zero Power Furnace.	<p><b>Complied</b></p> <ul style="list-style-type: none"> <li>• Zero Power Furnace is installed and operating</li> </ul>
	k. CO2 injection for pH control in SMS.	<p><b>Complied.</b></p> <p>CO2 injection Thickeners system is provided in SMS-1&amp;2</p>
	l. Single oven pressure control in Coke Ovens to control Charging Emissions along with CGT car and HPLA system.	<p><b>Being complied</b></p> <ul style="list-style-type: none"> <li>• De-dusting cars have been provided in all batteries to control charging emissions.</li> <li>• Implementation of more cleaner technology viz. Single oven pressure control have been carried out in Coke Oven 3 &amp; 4.</li> <li>• CGT car &amp; HPLA have been implemented in coke oven-5.</li> </ul> 





xi	100% solid waste utilization by means of following state-of-the-art technologies for recovery and recycling various wastes generated within the plant Premises shall be adopted:	<b>Complied</b> <ul style="list-style-type: none"> <li>We are 100 % utilizing the solid waste in micro pelleting, Mill scale briquetting, waste to wealth plant, artificial sand etc.</li> </ul>
	i. Slag sand plant for surplus granulated BF slag.	<b>Complied</b> <ul style="list-style-type: none"> <li>We have implemented &amp; operating 1x40 TPH &amp; 2x 125 TPH slag sand plants</li> </ul> 
	ii. Micro-pellet plant (2050TPD) for the dust & sludge collected from air and water pollution control equipment.	<b>Complied</b> <ul style="list-style-type: none"> <li>Installed &amp; operating 2050 TPD Micro Pellet Plant</li> </ul>  


	<p>ii. Mill scale briquetting plant (600 TPD) for high Fe containing sludge &amp; dust from Mills.</p>	<p><b>Complied</b></p> <ul style="list-style-type: none"> <li>Installed &amp; operating Mill Scale Briquetting (MSB) plant of 600 TPD for utilizing high iron containing dust &amp; sludge from mills.</li> </ul> 
	<p>iii. Waste-to-wealth plant (600 TPD) for the Dust &amp; sludge of low Fe values through beneficiation</p>	<p><b>Complied</b></p> <ul style="list-style-type: none"> <li>Implemented &amp; operating waste to Wealth (WTW) plant of 600 TPD for utilizing dust, sludge of low iron value.</li> </ul> 
	<p>v. Steam Box technology for SMS slag ageing to make it suitable for use as aggregate in road making.</p>	<p><b>Being Complied</b></p> <ul style="list-style-type: none"> <li>We have conducted R&amp;D studies and succeeded in implementing 100 TPD pilot plant, based on this data it is found that, the steam box technology is not feasible, alternatively BoF slag is converted to sand in slag to sand plant. Accordingly we have implemented BoF steel slag plant.</li> </ul>
	<p>vi. Slag sand plant (17000 TPD) is proposed for converting steel slag to sand for sale.</p>	<p><b>Being complied</b></p> <ul style="list-style-type: none"> <li>100% utilization of Steel Slag is being achieved at present by using it in Steel process and construction of bund of Slime pond.</li> <li>A 100 TPD LD slag sand plant was installed on trial basis.</li> <li>Enhancement of capacity to 17,000 TPD is underway and shall be completed soon.</li> </ul>


	vii. LHF slag briquetting plant (300 TPD) for production of briquettes to replace imported synthetic slag.	<b>Complied</b> <ul style="list-style-type: none"> <li>We have implemented &amp; operating 300 TPD LHF slag Briquetting plant</li> </ul>
	viii. Powder steel slag fines to use in land reclamation and soil conditioning.	<b>Complied.</b> <ul style="list-style-type: none"> <li>The powdered steel slag are utilized in BOF slag sand plant &amp; cement making</li> </ul>
	ix. Carbon recovery plant Carbon recovery shall be done from BFdust, BF GCP slurry and Corex Furnace GCP slurry recycled back into pellet plant.	<b>Complied</b> <ul style="list-style-type: none"> <li>We have implemented &amp; operating 500 TPD carbon recovery plant. The product is being used in pellet plant.</li> </ul>
xii.	The recommendations of the approved Site-Specific Conservation Plan / Wildlife Management Plan shall be implemented in consultation with the State Forest Department. The implementation report shall be furnished along with the six-monthly compliance report to the concerned Regional Office of the MoEF&CC.	<b>Being complied</b> <ul style="list-style-type: none"> <li>Implementing the wild life management plan in consultation with Karnataka State Forest Department. The detailed compliance is enclosed as <b>Annexure -01</b></li> <li>The implementation report is being submitted regularly to RO MOEF&amp; CC along with six monthly compliance report.</li> </ul> 
<b>B</b>	<b>General Conditions</b>	
<b>I.</b>	<b>Statutory compliance</b>	
	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 legislations, etc., as may be applicable to the project	Noted and agreed



Air quality monitoring & preservation													
ii	<p>i. The project proponent shall install 24x7 continuous emission monitoring system at process stacks to monitor stack emission as well as 04 Nos. Continuous Ambient Air Quality Station (CAAQS) for monitoring AAQ parameters with respect to standards prescribed in Environment (Protection) Rules 1986 as amended from time to time. The CEMS and CAAQMS shall be connected to SPCB and CPCB online servers and calibrate these systems from time to time according to equipment supplier specification through labs recognized under Environment (Protection) Act, 1986 or NABL accredited laboratories.</p>												
	<p><b>Being complied</b></p> <p>Already installed 5 no CAAQMS, further installation of additional one CAAQMS is in process.</p>  <p>Further we have also installed</p> <ul style="list-style-type: none"> <li>• 71 no's CEMS</li> <li>• Both the CAAQMS &amp; CEMS are connected to CPCB &amp; KSPCB servers</li> <li>• The equipment's are being calibrated as per manufacturer recommendation using with MoEF approved laboratory isokinetic sampling data</li> </ul>												
	<p>ii. The project proponent shall monitor fugitive emissions in the plant premises at least once in every quarter through laboratories recognized under Environment (Protection) Act, 1986 or NABL accredited laboratories</p>												
	<p><b>Complied</b></p> <ul style="list-style-type: none"> <li>• Fugitive emissions levels are being monitored through MoEF / NABL accredited laboratory.</li> </ul>												
	<p>iii. Sampling facility at process stacks and at quenching towers shall be provided as per CPCB guidelines for manual monitoring of emissions.</p>												
	<p><b>Complied</b></p> <ul style="list-style-type: none"> <li>• The sampling facility are provided as per CPCB guidelines</li> </ul>												
	<p>iv. Appropriate Air Pollution Control (APC) system shall be provided for all the dust generating points including fugitive dust from all vulnerable sources, so as to comply prescribed stack emission and fugitive emission standards.</p>												
	<p><b>Complied</b></p> <ul style="list-style-type: none"> <li>• We have implemented air pollution control (APC) equipment's for dust generating points, the summary of APC as follows</li> </ul> <table border="1"> <tbody> <tr> <td>Bag filter</td><td>250 no</td></tr> <tr> <td>Scrubber</td><td>32 no</td></tr> <tr> <td>ESP</td><td>18 no</td></tr> <tr> <td>Cyclone</td><td>9 no</td></tr> <tr> <td>Dust suppression system</td><td>180 no</td></tr> <tr> <td>Wind curtain</td><td>3.5 km length in iron ore yard</td></tr> </tbody> </table> <ul style="list-style-type: none"> <li>• We maintaining the stack emission &amp; fugitive emissions within standard limits</li> </ul>	Bag filter	250 no	Scrubber	32 no	ESP	18 no	Cyclone	9 no	Dust suppression system	180 no	Wind curtain	3.5 km length in iron ore yard
Bag filter	250 no												
Scrubber	32 no												
ESP	18 no												
Cyclone	9 no												
Dust suppression system	180 no												
Wind curtain	3.5 km length in iron ore yard												
	<p>v. The project proponent shall provide leakage detection and mechanized bag cleaning facilities for better maintenance of bags</p>												
	<p><b>Complied</b></p> <p>Bag leakage detection system were provided and PLC based bag cleaning system are installed.</p>												

vi. Sufficient number of mobile or stationery vacuum cleaners shall be provided to clean plant roads, Shop floors, roofs, regularly.	<b>Complied</b> Vacuum cleaners and road sweeping machines are used for regular housekeeping
vii. Recycle and reuse iron ore fines. Coal and coke fines, lime fines and such other fines collected in the pollution control devices and vacuum cleaning devices in the process after briquetting/agglomeration.	<b>Complied</b> <ul style="list-style-type: none"> <li>Iron ore fines, Coal and coke fines, lime fines and such other fines are used Micro pelleting, Mill scale briquetting, waste to wealth plant, artificial sand etc.</li> </ul>
viii. The project proponent use leak proof trucks/dumpers carrying coal and other raw materials and cover them with tarpaulin.	<b>Complied</b> <ul style="list-style-type: none"> <li>Tarpaulin covers are provided to coal &amp; iron ore trucks</li> </ul>
ix. 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).	<b>Complied</b> <ul style="list-style-type: none"> <li>Spillage collection system is provided</li> </ul>
x. Land-based APC system shall be installed to control coke pushing emissions.	<b>Complied</b> <ul style="list-style-type: none"> <li>We have provided 2 no ground de-dusting system for Coke oven 3 &amp; 4.</li> </ul>
xi. Monitor CO, HC and O <sub>2</sub> in flue gases of the coke oven battery to detect combustion efficiency and cross leakages in the combustion chamber.	<b>Complied</b> <ul style="list-style-type: none"> <li>The flue gas of coke oven batteries is being monitored using portable flue gas analyser for CO, SO<sub>x</sub>, NO<sub>x</sub>, HC, O<sub>2</sub> etc</li> </ul>
xii. Vapor absorption system shall be provided in place of vapor compression system for cooling of coke oven gas in case of recovery type coke ovens.	<b>Complied</b> <ul style="list-style-type: none"> <li>Vapor absorption system was provided in coke oven 3,4 &amp; 5.</li> </ul>
xiii. Wind shelter fence and chemical spraying shall be provided on the raw material stock piles.	<b>Complied</b> <ul style="list-style-type: none"> <li>About 3.5km length wind curtain wall in iron ore yard which includes 0.8km length in coal yard is already provided</li> <li>Chemical spraying system to stock piles is being operating</li> </ul> 
xiv. Design the ventilation system for adequate air changes as per prevailing norms for all tunnels, motor houses, Oil Cellars.	<b>Complied</b> <ul style="list-style-type: none"> <li>Adequate ventilation system is provided</li> </ul>

III.	Water quality monitoring and preservation																						
	<p>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 31" March 2012 (Integrated iron &amp; Steel); G.S.R 414 (E) dated 30th May 2008 (SpongeIron) 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 front time to time according to equipment supplier specification through labs recognized under Environment (Protection) Act. 1986 or NABL accredited laboratories.</p>	<p><b>Complied</b></p> <ul style="list-style-type: none"><li>• We have installed 6 no of online effluent quality monitoring systems for monitoring pH,conductivity, flow measurements.</li><li>• The effluent quality monitoring system is connected to CPCB &amp; KSPCB.</li></ul> <p>The equipment's are being calibrated as per manufacturer recommendation using with MoEF approved laboratory isokinetic sampling data</p>																					
	<p>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 areathrough labs recognized under Environment (Protection) Act. 1986 and NABL accredited laboratories.</p>	<p><b>Complied</b></p> <ul style="list-style-type: none"><li>• The environmental quality of ground water is monitored through MoEF accredited laboratory M/s Eco green solutions and reports are submitted regularly.</li></ul>																					
	<p>iii. The project proponent shall provide the ETP for coke oven and by-product to meet the standards prescribed in G.S.R 277 (E) dated 31st March 2012 (Integrated iron &amp; 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 front time to time as amended from time to time;</p>	<p><b>Complied</b></p> <ul style="list-style-type: none"><li>• ETP (BOD plants and ZLD ) provided to treat the coke oven plant effluents.</li></ul> <div></div>																					
	<p>iv. Sewage Treatment Plant shall be provided tor treatment of domestic wastewater to meet the prescribed standards.</p>	<p><b>Complied</b></p> <ul style="list-style-type: none"><li>• 5 STP's are installed &amp; operating</li></ul> <table><tr><th>STP Area</th><th>STP capacity in MLD</th><th>Technology</th></tr><tr><td rowspan="2">Vidyanagar</td><td>1.5</td><td>Fluidized Aerobic bioreactor</td></tr><tr><td>1.0</td><td>REED bed</td></tr><tr><td>VV Nagar</td><td>1.2</td><td>SAFF based</td></tr><tr><td>Shankargudda colony</td><td>3.0</td><td>MBR</td></tr><tr><td>Hill Side Township</td><td>1.5</td><td>MBR</td></tr><tr><td>Sun rise valley</td><td>0.6</td><td>MBR</td></tr></table>		STP Area	STP capacity in MLD	Technology	Vidyanagar	1.5	Fluidized Aerobic bioreactor	1.0	REED bed	VV Nagar	1.2	SAFF based	Shankargudda colony	3.0	MBR	Hill Side Township	1.5	MBR	Sun rise valley	0.6	MBR
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	v. 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.	<b>Complied</b> <ul style="list-style-type: none"> <li>Garland drains and catch pits are provided in raw material handling area</li> </ul>
	vi. Tyre washing facilities shall be provided at the entrance of the plant gates.	<ul style="list-style-type: none"> <li>Tyre washing facilities will be provided</li> </ul>
	vii. Treated water from ETP of COBP shall not be used for coke quenching.	<b>Complied</b> <ul style="list-style-type: none"> <li>We have provided the complete ZLD system for coke oven 3,4 &amp;5</li> </ul> 
	viii. Water meters shall be provided at the inlet to all unit processes in the steel plants.	<b>Complied</b> <ul style="list-style-type: none"> <li>Water meters area installed</li> </ul>
<b>IV.</b>	<b>Noise monitoring and prevention</b>	
	Noise pollution 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 apart of six-monthly compliance report.	<b>Complied</b> <ul style="list-style-type: none"> <li>The noise levels are being monitored regularly. The noise monitoring report are submitted along with six month compliance report regularly.</li> </ul>
<b>V.</b>	<b>Energy Conservation measures</b>	
	i. Use torpedo ladle for hot metal transfer as far as possible. ladles not used. Provide covers for open top ladles.	<b>Complied.</b> <ul style="list-style-type: none"> <li>Torpedo ladles are being used for hot metal transfer</li> </ul>
	ii. Restrict Gas flaring to < 1%.	<b>Complied.</b> <ul style="list-style-type: none"> <li>The gas flaring is being maintained less than 1%</li> </ul>
	iii. Provide solar power generation on rooftops of buildings, for solar light system for all common areas, street lights. parking around project area and maintain the same regularly;	<b>Complied</b> <ul style="list-style-type: none"> <li>We have installed 225MW solar power plant at Rajapura &amp; Thimmalapura village and also 70 KW roof top solar plant is provided at Sanjeevani Hospital</li> </ul>

	iv. Provide LED lights in their offices and residential areas.	<b>Complied</b> • LED lights are installed in offices and colonies
	v. Ensure installation of regenerative/ recuperative type burners on all reheating furnaces.	<b>Complied</b> • Recuperative type burners are provided in all the reheating furnaces
<b>VI.</b>	<b>Waste management</b>	
	i. 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.	<b>Complied</b> • Oil collection pits were provided in Mills area and in CRM area collection trays were provided
	ii. Kitchen waste shall be composted or converted to biogas for further use	<b>Complied</b> • 1 TPD & 6 TPD Biogas plants are installed for processing the food waste
<b>VII.</b>	<b>Green Belt</b>	
	i. The project proponent shall prepare GHG emissions inventory for the plant and shall submit the programme for reduction of the same including carbon sequestration by trees.	<b>Complied</b> • GHG emission inventory monitoring is being carried out. We have target to reduce the present specific emission levels of 2.63 TCo2/tcs by 31% of emission by year 2030
	Emergency preparedness plan based on the Hazard identification and Risk Assessment (HIRA) and Disaster Management Plan shall be implemented	<b>Complied.</b> • The onsite emergency plan approved by Karnataka State Dept. of Factories & Boilers addressing emergency management plan is prepared. Further periodic mock drills were conducted.
	iii. 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.	<b>Complied.</b> • The heat stress analysis of workers is being carried out regularly for people working in heat zone area.
	iv. Occupational health surveillance of the workers shall be done on a regular basis and records maintained.	<b>Complied.</b> • Periodical health checkup of workers is being carried out. Following test are conducted Blood test, audiometry, vision test, PFT, Chest X ray, spirometry etc. • The medical examination records are maintained in OHC Dept.
<b>VIII.</b>	<b>Environment Management</b>	
	i. The project proponent shall comply with the provisions contained in this Ministry's OM vide F.No. 22- 65/2017-IA. III dated 30/09/2020.	<b>Complied</b> • CSR activities are being carried out through JSW foundation in 29 villages of Bellary district. CSR activities cover health, education, woman empowerment, sanitation, sports, infrastructure, skill development etc.

	<p>ii. The company shall have a well laid down environmental policy duly approved 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 and 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 shareholder's / stake holders. The copy of the board resolution in this regard shall be submitted to the MoEF&amp;CC as a part of six-monthly report.</p>	<p><b>Complied</b></p> <ul style="list-style-type: none"> <li>• We have implemented and operating international standard for environment i.e ISO 14001 Environmental Management System.</li> <li>• Environmental policy is defined as stipulated. Environmental policy Dtd 02/05/2019 is certified by Dy. Managing Director</li> </ul>
	<p>iii. 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.</p>	<p><b>Complied</b></p> <ul style="list-style-type: none"> <li>• Dedicated environmental management department is established with qualified staff.</li> <li>• 18 number of professionals reporting to Associate Vice President for operation of environmental management system</li> </ul>
IX.	<b>Miscellaneous</b>	
	<p>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 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</p>	<p><b>Complied</b></p> <ul style="list-style-type: none"> <li>• News paper advertisement for grant of EC was made in Kannada Nadu &amp; Indian express on 03/12/2021</li> </ul>
	<p>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</p>	<p><b>Complied</b></p> <ul style="list-style-type: none"> <li>• The copies of EC was submitted to Toranagallu Panchayat vide letter dated 07/12/2021</li> </ul>
	<p>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.</p>	<p><b>Complied</b></p> <ul style="list-style-type: none"> <li>• Compliance report is uploaded in JSW website and submitted to RO MoEF along with half yearly compliance report</li> </ul>
	<p>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.</p>	<p><b>Complied</b></p> <ul style="list-style-type: none"> <li>• Critical sectoral parameters like PM10, SOx, NOx etc are being monitored.</li> <li>• Additionally the monitored values are displayed through LED board at 10 MT gate &amp; website</li> </ul>
	<p>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.</p>	<p><b>Complied</b></p> <ul style="list-style-type: none"> <li>• The compliance to conditions is being uploaded in Parivesh portal</li> </ul>

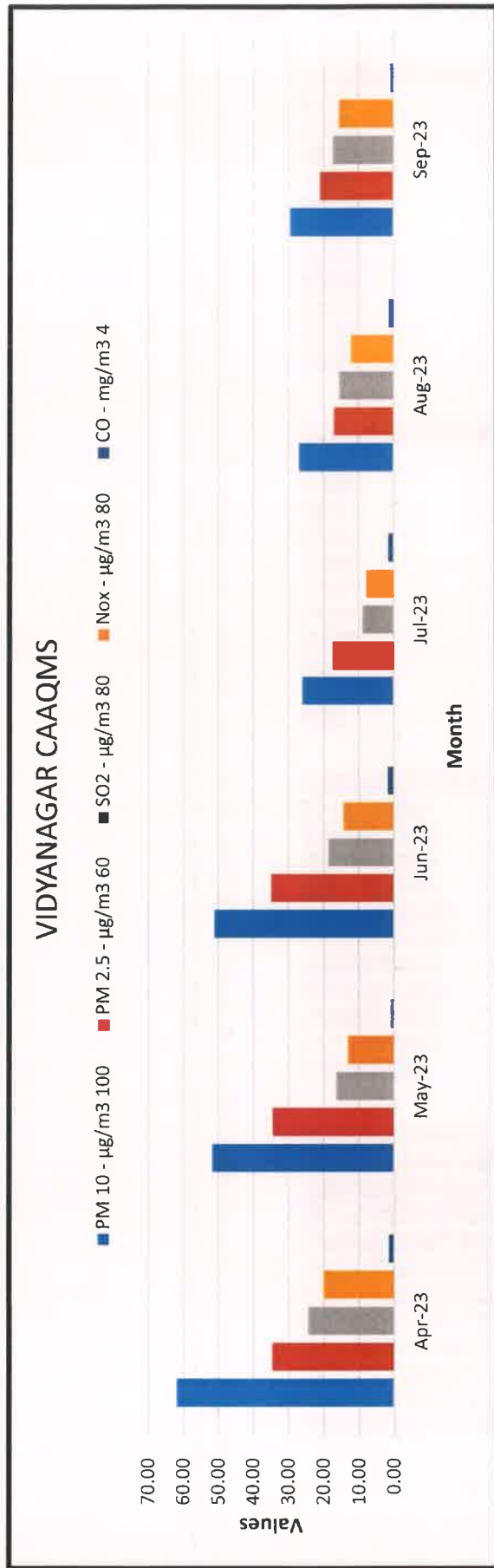
	vi. The project proponent shall submit the environmental statement for each Financial year in Form-V to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company.	<b>Complied</b>  • The environment statement in Form V is submitted to KSPCB, MoEF regularly and also displayed in website
	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.	Noted & agreed
	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.	Noted & agreed
	ix. No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forests and Climate Change (MoEF&CC).	Noted & agreed
	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.	Noted & agreed
	xi. The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.	Noted & agreed
	xii. The Ministry reserves the right to stipulate additional conditions if found necessary. The Company in a time bound manner shall implement these conditions.	Noted & agreed
	xiii. The RO 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.	Agreed
	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.	Noted & agreed



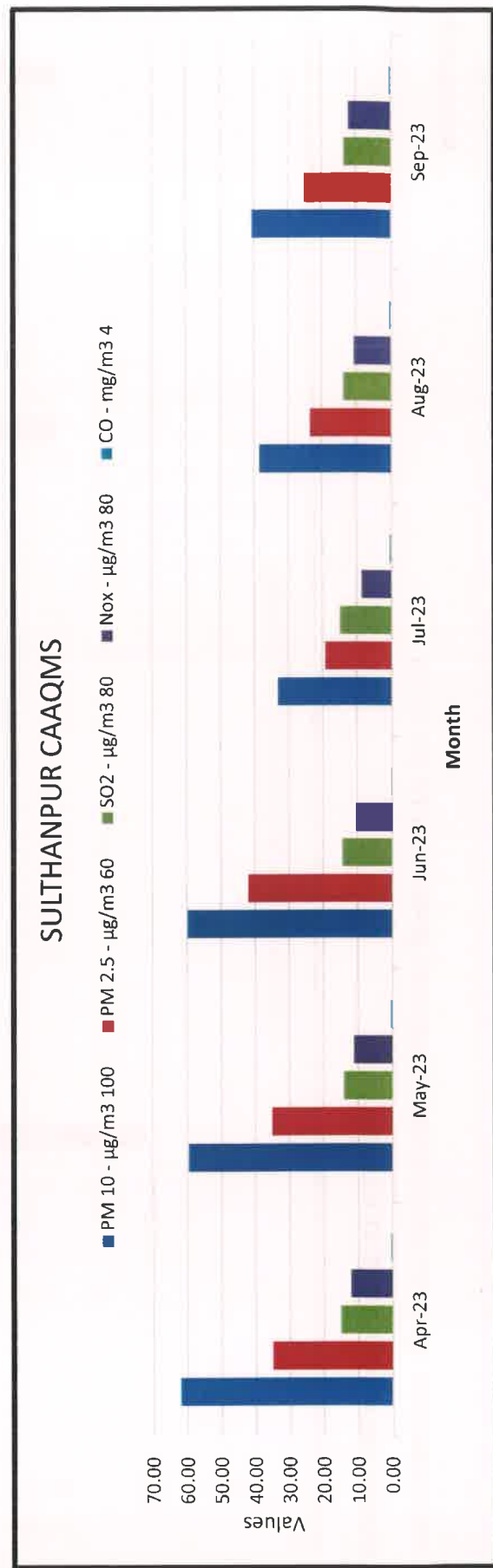




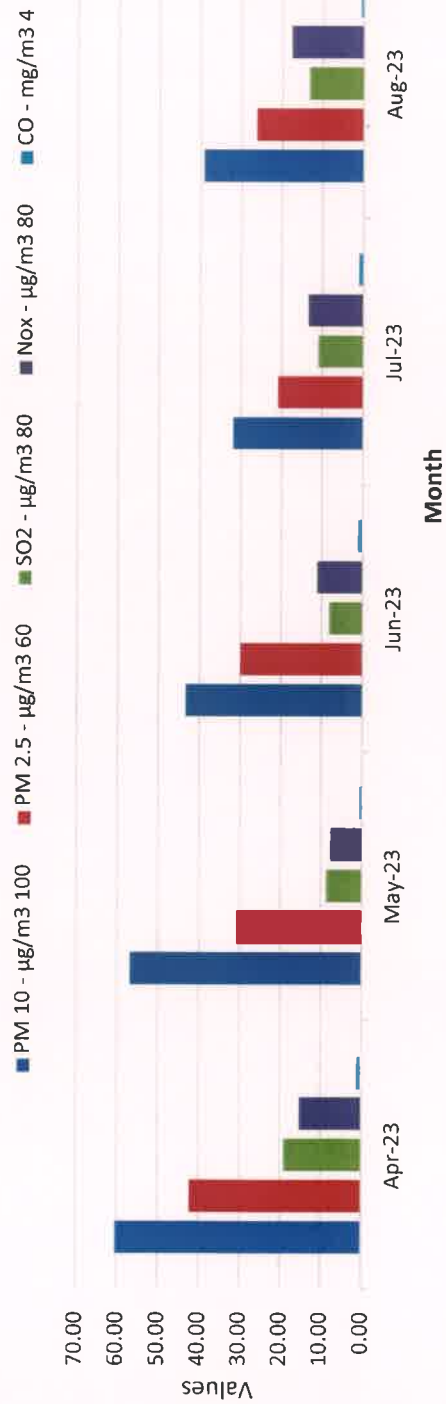
# CONTINUOUS AMBIENT AIR QUALITY MONITORING SYSTEM - MONTH AVERAGE (FROM APR'23 TO SEP'23)



## CAAQMS Vidyanagar Township

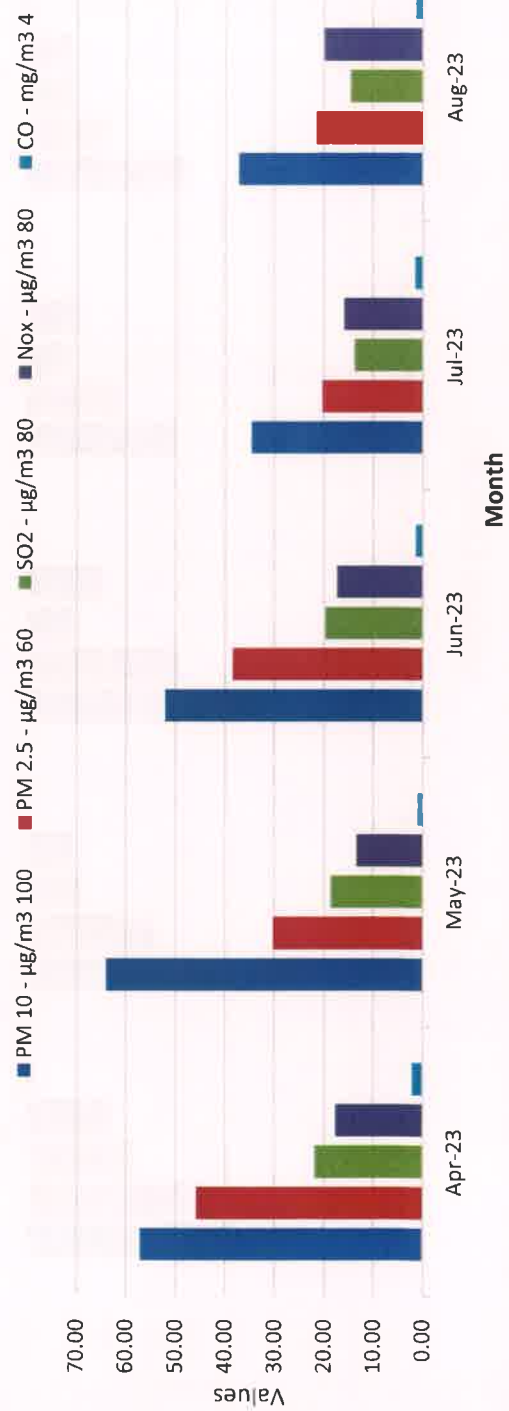


### SHT CAAQMS

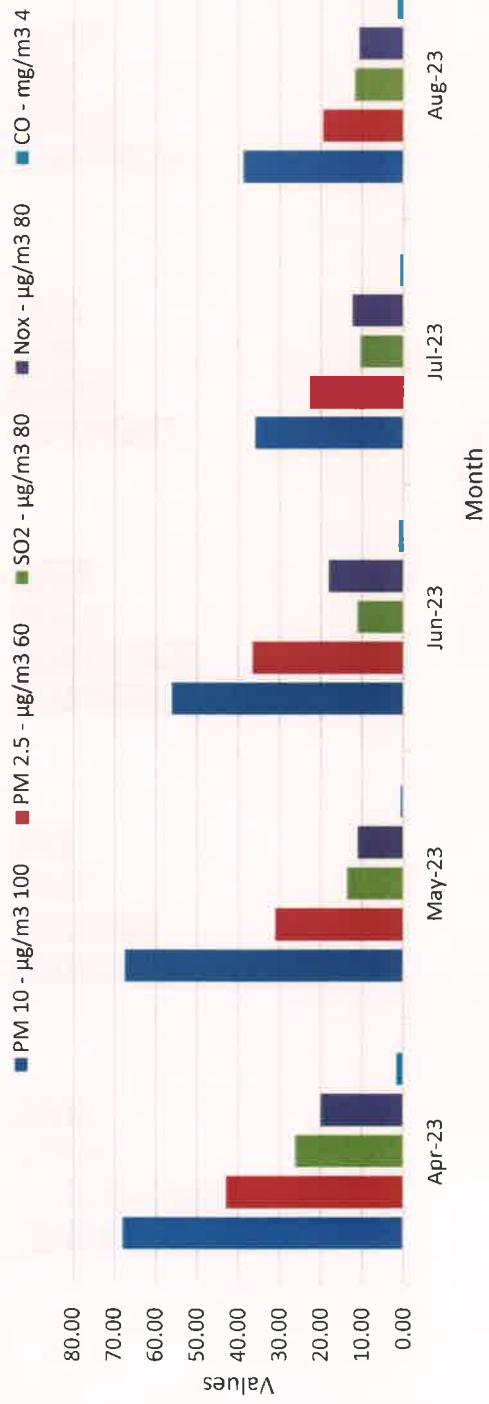


### CAAQMS SHT

#### 10 MT CAAQMS

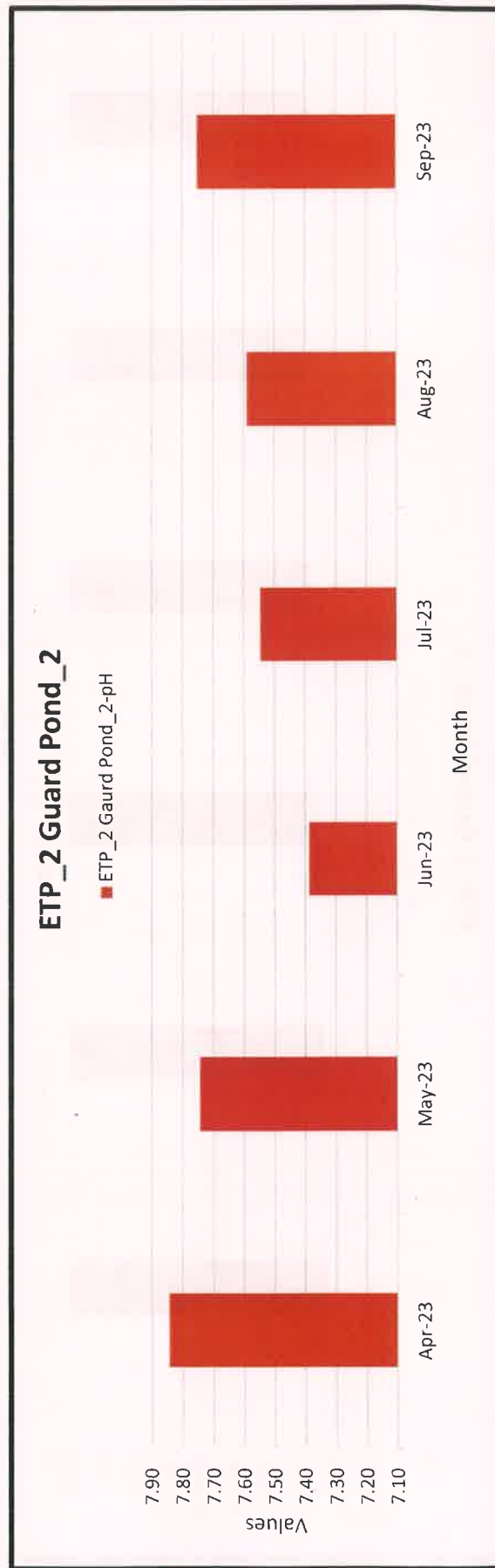
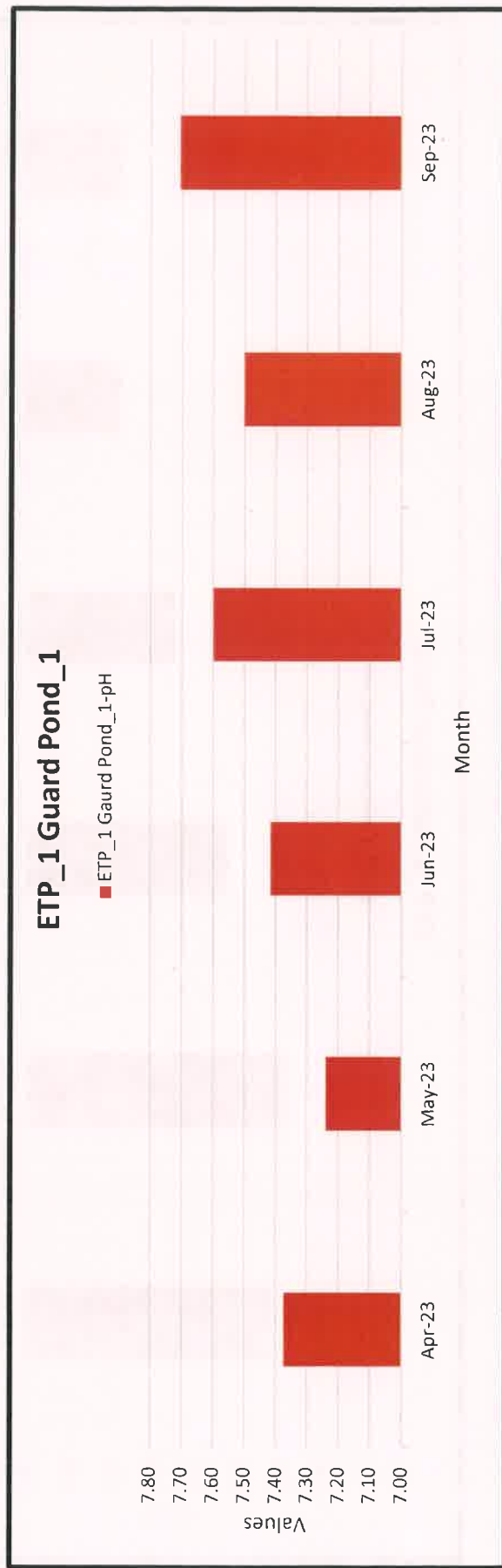


# VADDU CAAQMS

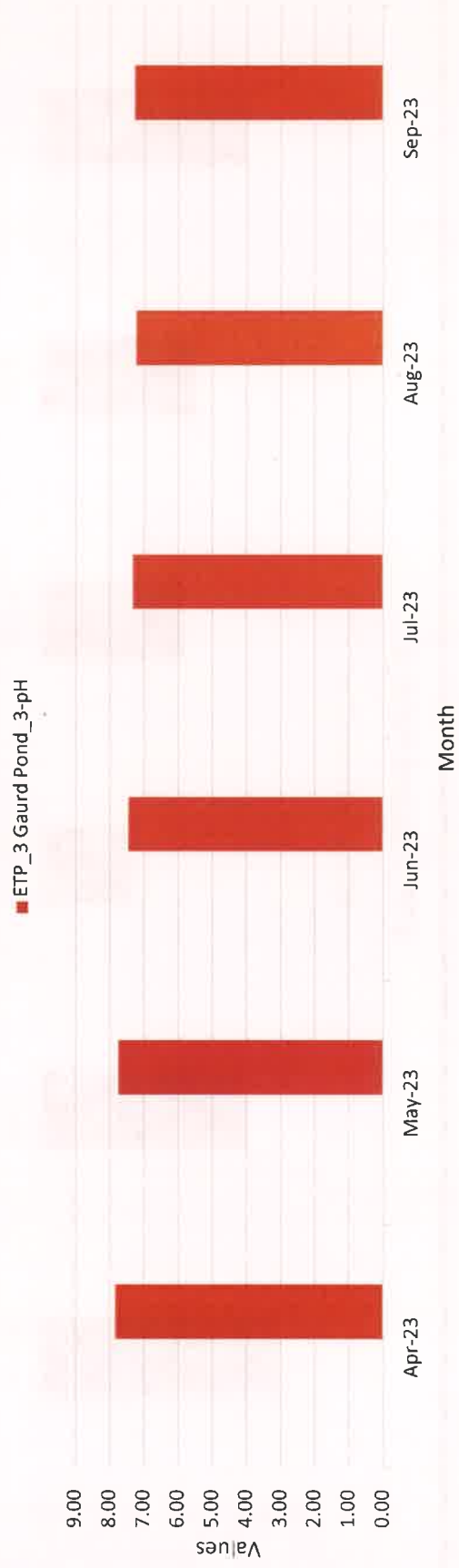


CAAQMS Vaddu Village

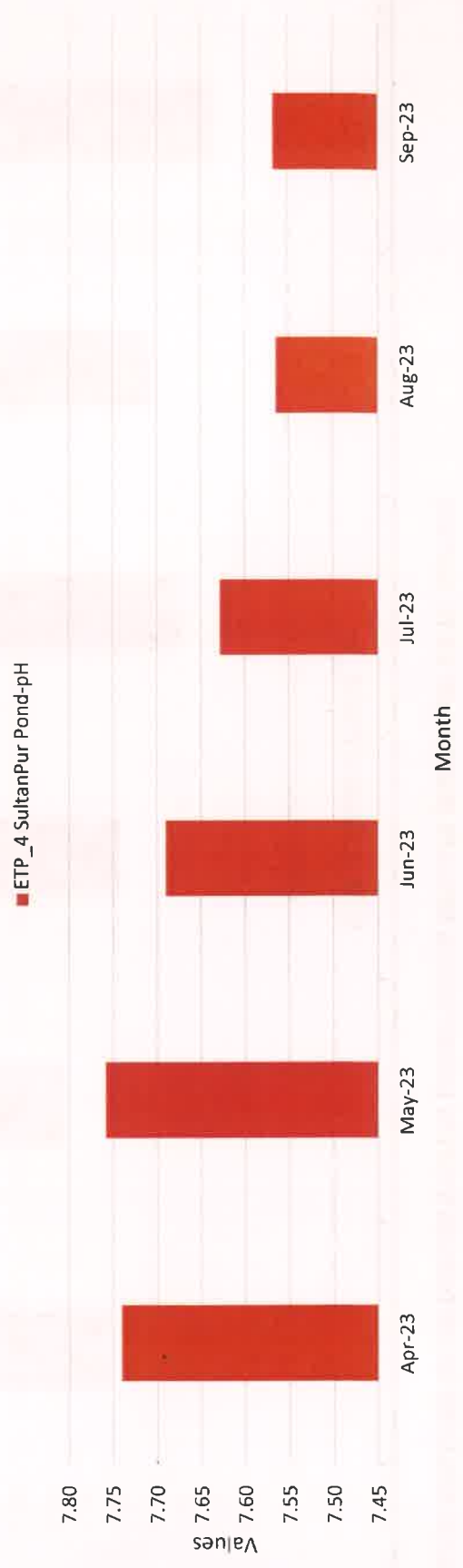
ONLINE EFFLUENT MONITORING SYSTEM MONITORING RESULTS (FROM APR'23 TO SEP'23)



### ETP\_3 Guard Pond\_3



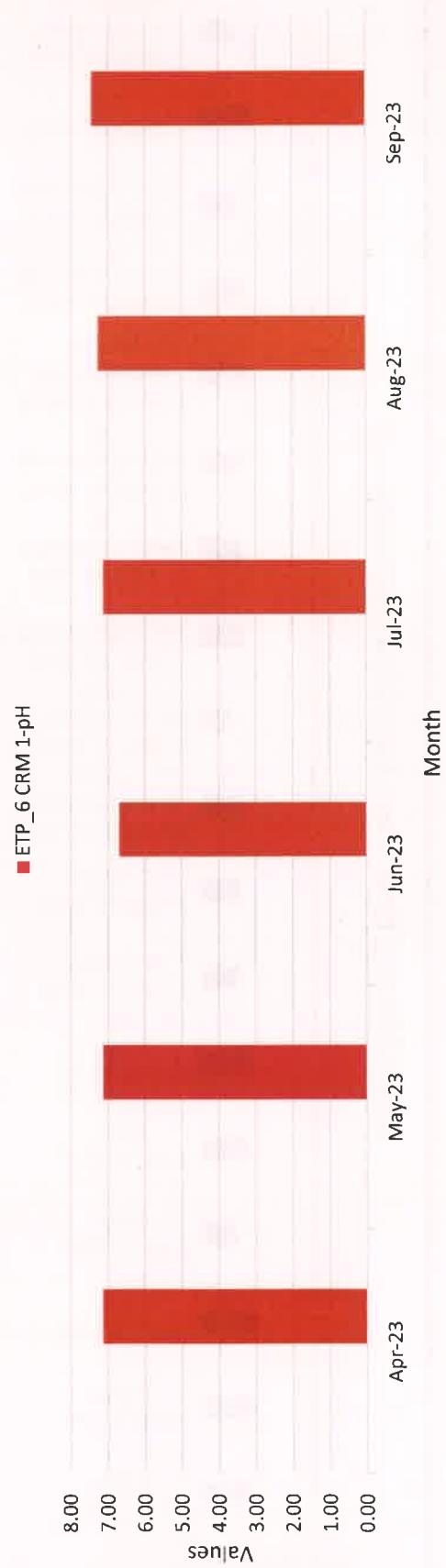
### ETP\_4 Sultanpur Pond



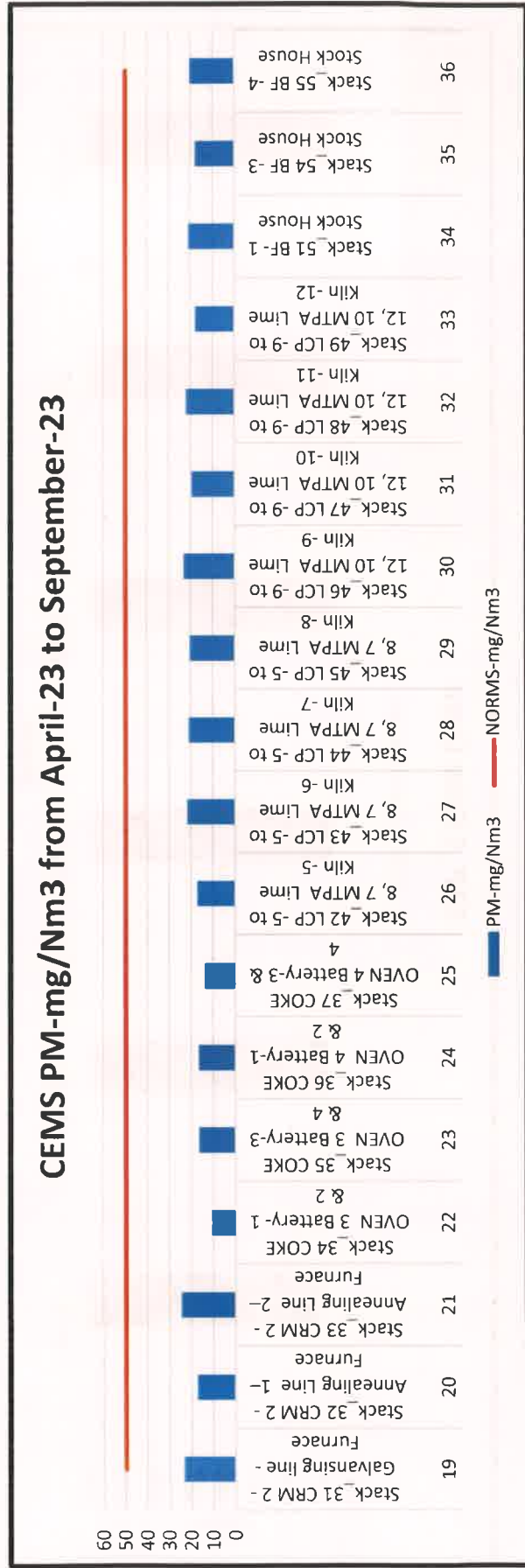
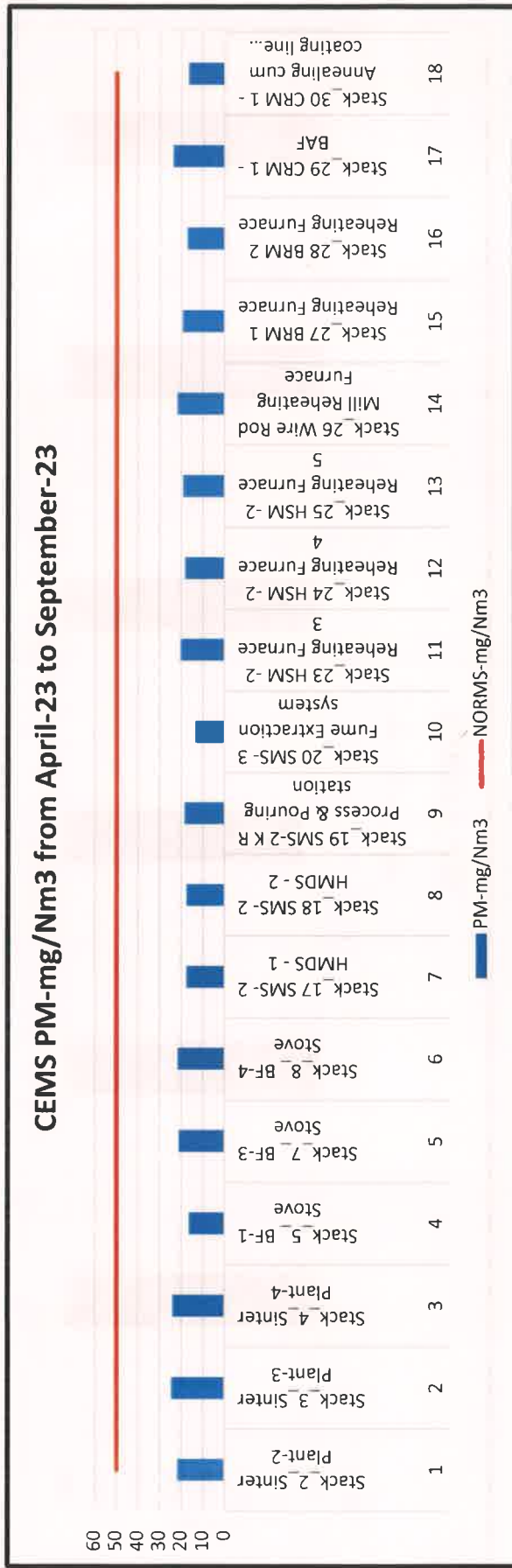
### ETP\_5 Coke Oven



### ETP\_6 CRM 1

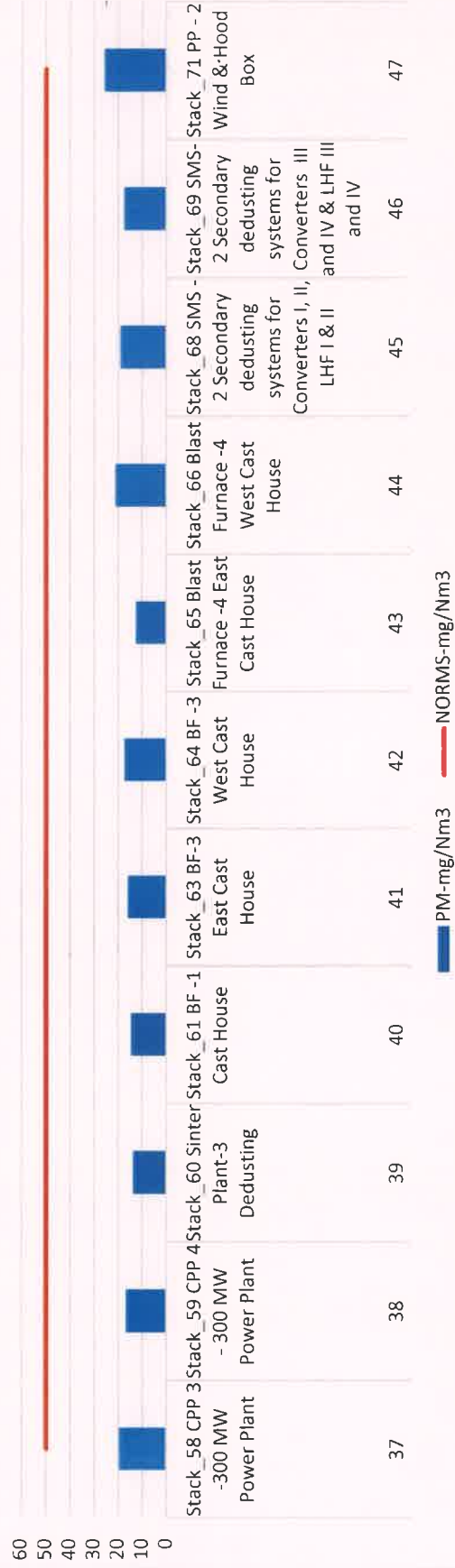


# CEMS STACK RESULTS (From April 23 to September 23)

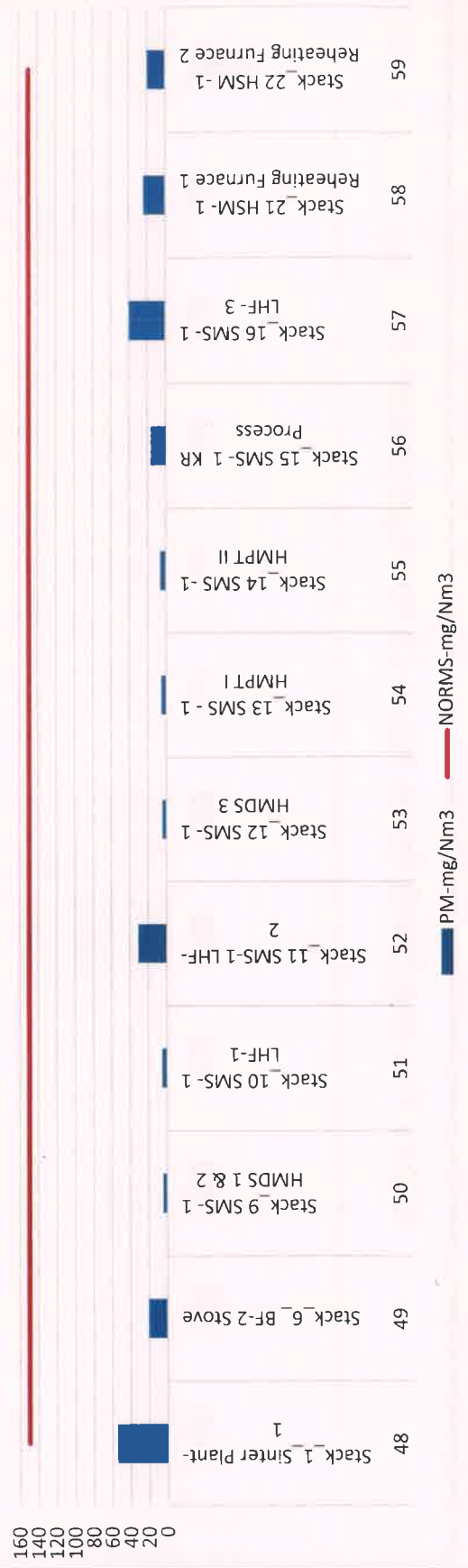




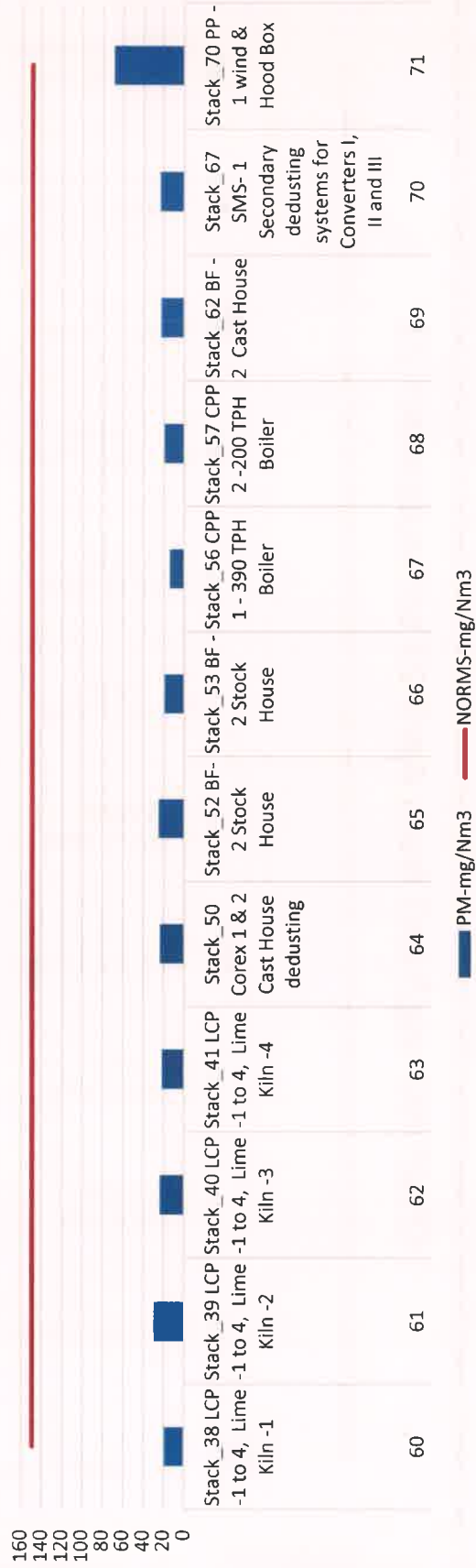
## CEMS PM-mg/Nm3 from April-23 to September-23



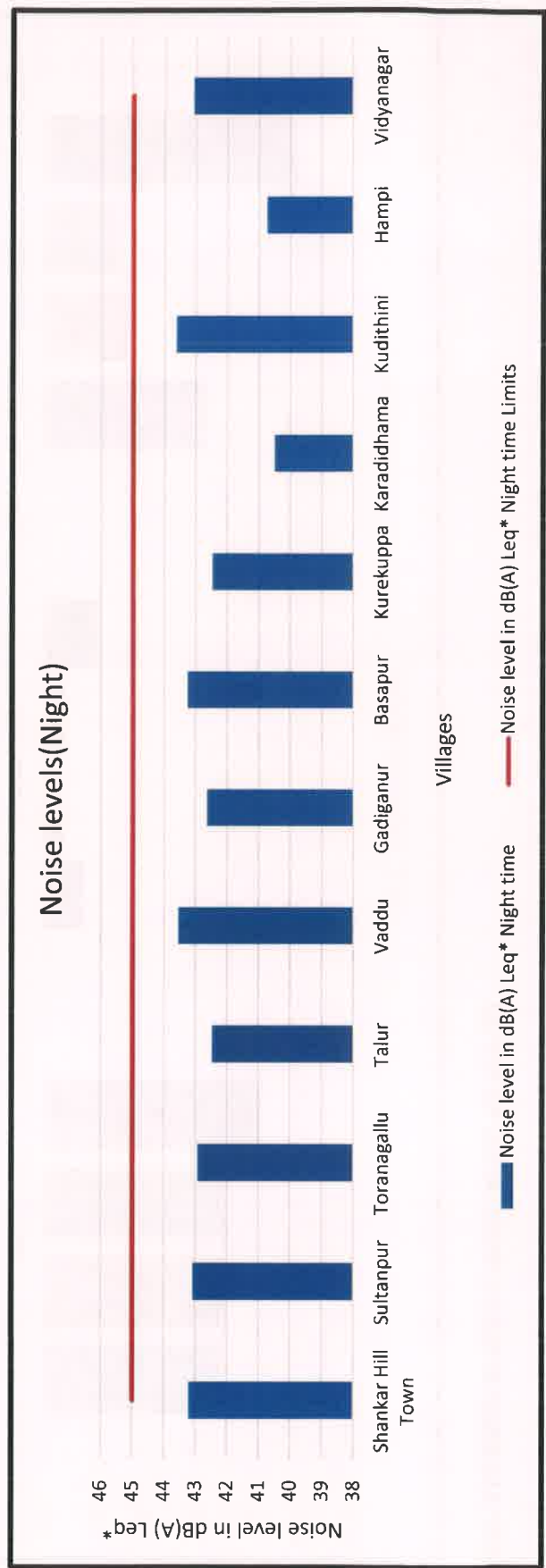
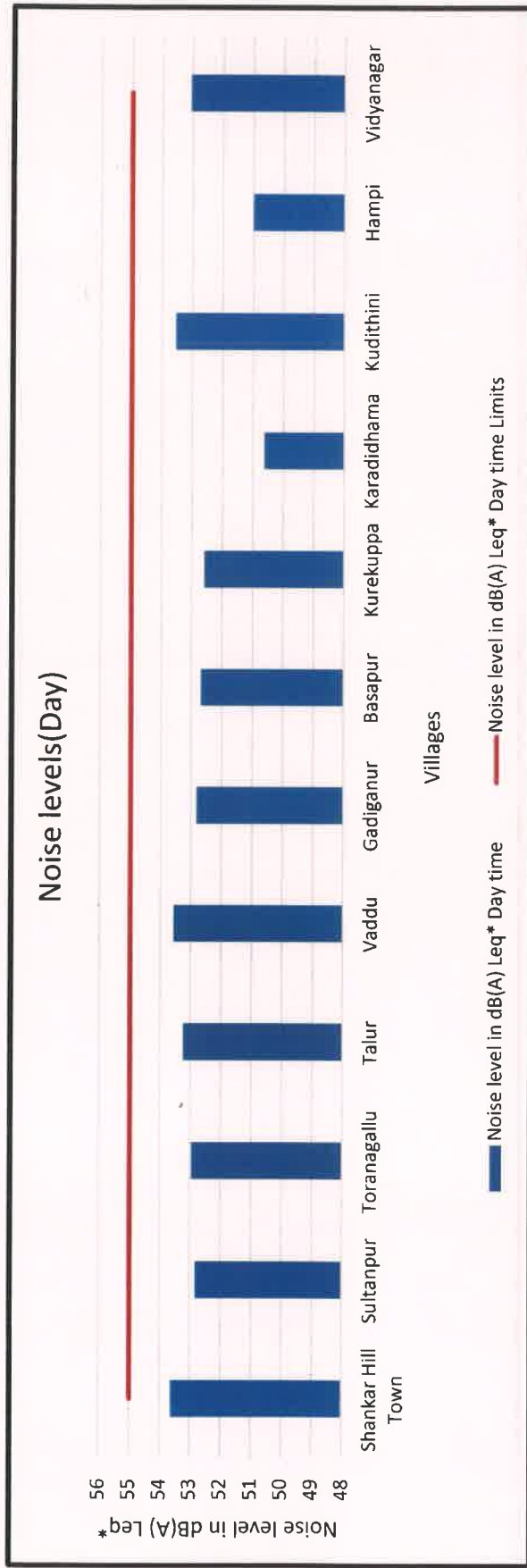
## CEMS PM-mg/Nm3 from April-23 to September-23



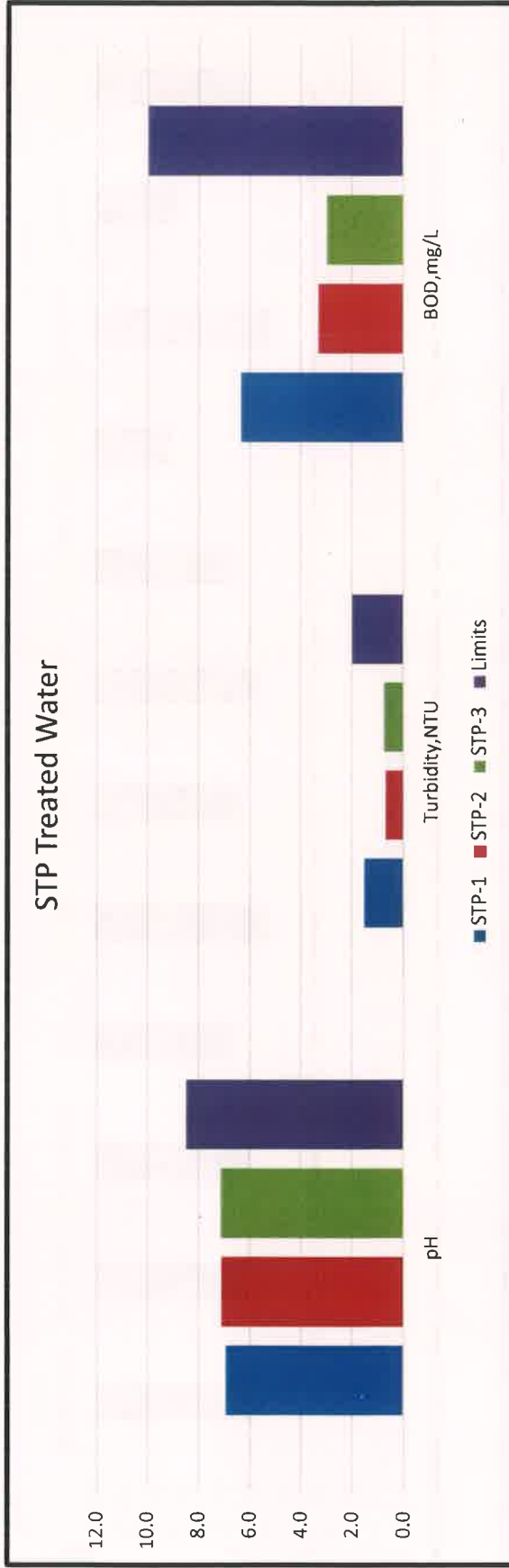
# CEMS PM-mg/Nm3 from April-23 to September-23



## AMBIENT NOISE LEVEL MONITORING AT VILLAGES



# STP AVERAGE RESULTS FROM APRIL TO SEP 23

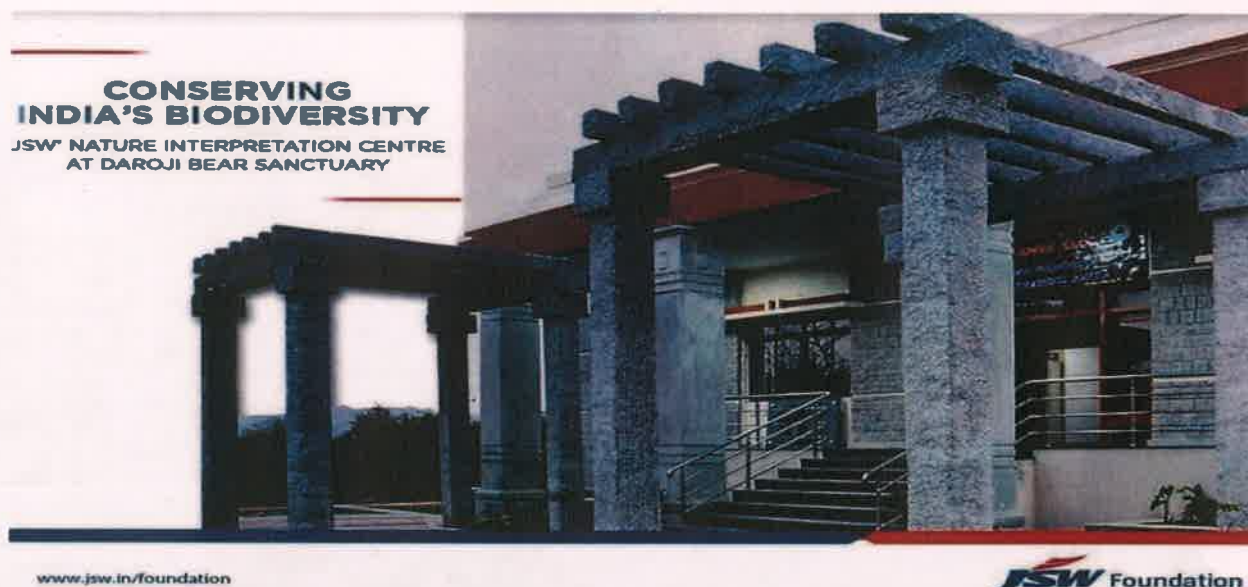


### Wild Life Conservation Plan of JSW Steel Ltd in and around JSW Steel Plant Complex

Leopard, Sloth Bear, Indian Pangolin, Python, Common Indian Monitor, Pea fowl Steppe eagle, short toed snake eagle are the Schedule I species and found within the core zone of Daroji WLS. Wildlife management plan for these species is covered under Daroji Bear Sanctuary Wild Life Management.

As per earlier EC for expansion from 10MTPA to 16 MTPA, specific EC condition no (iii), JSW had to participate in the Wildlife Conservation Plan for Sloth Bears and other Schedule I fauna found in the study area and in the Daroji Bear Sanctuary. JSW has been participating in the Daroji Bear Sanctuary of Karnataka Government

In 2015, a Memorandum of Understanding was signed between Ballari Forest Department, Government of Karnataka and JSW Foundation towards establishment of a Wild life Interpretation Center at Kamalapura Nature Camp site in Ballari District at an estimated cost of Rs 1.5 Cr.







Further, afforestation measures are being carried out in coordination with wildlife department. During 2015-2017, an amount of Rs 21.6 Lakhs and in 2016-17, Rs 10 Lakhs was spent by JSW towards Forest Department's Annual Plan for Afforestation.



As this is a continuous process, JSW is regularly spending towards managing and improving the Daroji Sanctuary and for creating awareness among public about conserving flora and fauna every year.

With reference to PCCF and CWW Karnataka's letter no. PCCF (WL)/D /CR-64 /2020-21 dated 29/01/2021, the Management Plan of Daroji Sloth Bear Sanctuary for the period from 2020-21 to 2029-30 has been approved. JSW shall be participating in the same in the coming years.

JSW recently took part in the Mass Tree Plantation Drive organized by Karnataka State Forest Department. 33000 saplings of various species were planted in the Toranagallu Forest and Talur Reserve forest Padma Shri Smt Aladamara Thimmakka inaugurated the function in presence of DCF – Ballari





In addition to above, the PP through JSW Foundation have executed the following

MoU's with Karnataka Forest department on 23/03/2022 for Rs 10,04,94,532/-(10.04Crores) towards development of greenbelt around Toranagallu Revenue Forest area,the details are as follows:-

- Rs 2,26,01,420/- for a duration of 5 years for developing the greenbelt Toranagallu Reserve Forest area around the periphery of JSW complex for 5years period
- Rs 4,68,93,112/- for development of greenbelt in Daroji Reserve forest areaaround JSW Steel complex for 5 years period
- Rs 3,10,000,00/- for development of public park at Ballari for 3 years.

We, have initiated the greenbelt development work at SASAN VAN nearBasapur in 240 acres of Land at a cost of 10 crores.






## **Environment Policy**

JSW Steel recognizes protecting and nurturing the environment as one of its primary responsibilities in its area of operations.

We are committed to become a role model for the Steel Industry by going beyond compliance through:-

- Integrating risks and opportunities relating to the environment in business strategies and decisions.
- Our commitment to protect the environment, prevention of pollution and complying to other compliances relevant to the context of the organization.
- Continuous evaluation of environmental impact and adoption of appropriate practices and technologies to mitigate adverse effects.
- By fulfilling all the related compliance obligations
- Efficient utilization of natural resources in our areas of operations and minimize wastes
- Continual improvement of Environment Management System and enhancing Environmental performance
- Developing new grades of steel with lower life cycle impact on the environment.
- Effective implementation of Environmental Management System to attain Zero liquid discharge and reduce overall carbon footprint
- Engaging our workforce, suppliers and community to create an eco- friendly society and to build awareness on the subject
- Taking lead on environmental conservation initiatives and preservation of bio-diversity around areas of our operation.

Rev No: 04  
Date: 2<sup>nd</sup> May 2019

  
**Dr. Vinod Nowal**  
Deputy Managing Director



Steel Limited, Vijayanagar Works

