



TSJ/EMD/C-41/212/23

Date: 28 Nov 2023

Deputy Director General of Forests (C)

Ministry of Environment, Forest and Climate Change
Integrated Regional Office, 2nd Floor, Headquarter- Jharkhand State Housing Board
Harmu Chowk, Ranchi, Jharkhand – 834002, Ranchi

Sub.: Submission of Half Yearly (April 2023 to September 2023) Environment Clearances Compliance Reports (ECCR) for Tata Steel Works by M/s Tata Steel Ltd. located at Jamshedpur District East Singhbhum, Jharkhand

Reference:

1. EC of TSJ Works for 5 MTPA vide MoEF letter no. J-11011/221/2003-IA.II (I) dated 24.05.2005
2. EC of TSJ Works for 6.8 MTPA vide MoEF letter no. J-11011/317/2006-IA.II (I) dated 16.04.2007
3. EC of TSJ Works for 9.7 MTPA vide MoEF letter no. J-11011/691/2007-IA.II (I) dated 11.05.2010
4. EC of TSJ Works for 11 MTPA vide MoEF&CC letter no. J-11011/691/2007-IA.II (I) dated 01.03.2016

Dear Sir,

This has reference to the captioned subject and cited references. We wish to inform you that we have uploaded the Half Yearly ECCR's for the period from **April 2023 to September 2023** on MoEF&CC portal <http://environmentclearance.nic.in/>. Confirmation of the same is attached.

We are herewith submitting the softcopy of the same for your ready reference. You are requested to kindly acknowledge the same and place in your records.

Thanking you

Yours Faithfully

For Tata Steel Limited

Utsav Kashyap

Head, Environment Clearance & Compliance (TSL)

Encl: As above

Copy to:

1. Zonal Officer, Central Pollution Control Board, Southern Conclave, Block 502, 5th and 6th Floors, 1582 Rajdanga Main Road, Kolkata - 700 107
2. Member Secretary, Jharkhand State Pollution Control Board, T.A. Division Building, HEC Campus, Dhurwa, Ranchi – 834004
3. Regional Officer, Jharkhand State Pollution Control Board, Jamshedpur

TATA STEEL LIMITED

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**ONLINE SUBMISSION CONFIRMATION OF
EC COMPLIANCE REPORT IN PARIVESH
2.0 PORTAL**

Your application has been **Submitted** with following details

Proposal No	IA/JH/IND/3464/2003
Compliance ID	27582877
Compliance Number(For Tracking)	EC/M/COMPLIANCE/27582877/2023
Reporting Year	2023
Reporting Period	01 Dec(01 Apr - 30 Sep)
Submission Date	28-11-2023
IRO Name	
IRO Email	
State	
IRO Office Address	
Note:- SMS and E-Mail has been sent to , with Notification to Project Proponent.	

Your application has been **Submitted** with following details

Proposal No	IA/JH/IND/4180/2006
Compliance ID	27580787
Compliance Number(For Tracking)	EC/M/COMPLIANCE/27580787/2023
Reporting Year	2023
Reporting Period	01 Dec(01 Apr - 30 Sep)
Submission Date	28-11-2023
IRO Name	
IRO Email	
State	
IRO Office Address	
Note:- SMS and E-Mail has been sent to , with Notification to Project Proponent.	

Your application has been **Submitted** with following details

Proposal No	IA/JH/IND/6143/2009
Compliance ID	27578572
Compliance Number(For Tracking)	EC/M/COMPLIANCE/27578572/2023
Reporting Year	2023
Reporting Period	01 Dec(01 Apr - 30 Sep)
Submission Date	28-11-2023
IRO Name	
IRO Email	
State	
IRO Office Address	
Note:- SMS and E-Mail has been sent to , with Notification to Project Proponent.	

Your application has been **Submitted** with following details

Proposal No	IA/JH/IND/30339/2014
Compliance ID	27573753
Compliance Number(For Tracking)	EC/M/COMPLIANCE/27573753/2023
Reporting Year	2023
Reporting Period	01 Dec(01 Apr - 30 Sep)
Submission Date	29-11-2023
IRO Name	
IRO Email	
State	
IRO Office Address	
Note:- SMS and E-Mail has been sent to , with Notification to Project Proponent.	

ENVIRONMENTAL CLEARANCE COMPLIANCE STATUS REPORT

April 2023 to September 2023

Tata Steel Limited, Jamshedpur
(MAIN WORKS & TOWN)

**Six Monthly Compliance Status report of Environmental
Clearance from expansion of 4 to 5 MTPA Crude Steel
Production**

**ENVIRONMENTAL MANAGEMENT DEPARTMENT
TATA STEEL LIMITED
JAMSHEDPUR**

Compliance Report to Conditions stipulated in Environment Clearance for Expansion of steel manufacturing capacity at Jamshedpur Steel works from 4.0 MTPA to 5.0 MTPA, No. J-11011/221/2003 - IA II (I) dated 24.05.2005

SN	Condition	Compliance Status
Specific Conditions:		
i.	<p>The gaseous emissions from various process units should conform to the load/mass-based standards notified by this Ministry on 19th May 1993 and standards prescribed from time to time. The State Board may specify more stringent standards for the relevant parameters keeping in view the nature of the industry and its size and location. At no time, the emission level should go beyond the prescribed standards. In the event of failure of any pollution control system adopted by the unit, the respective unit should not be restarted until the control measures are rectified to achieve the desired efficiency.</p>	<p>Several Projects have been implemented to control Gaseous Emission levels including secondary fugitive emissions from all the sources.</p> <p>Secondary fugitive dust emissions inside the plant in different areas is being controlled and monitored in line with the CPCB guidelines and MoEF&CC standards.</p> <p>All the existing and new units are provided with adequate pollution control equipment (PCEs) to ensure the emission levels within specific legal requirement. We will be abiding by the stipulated condition in regards of operation of the pollution control systems adopted.</p> <p>Monitoring reports for all relevant parameters from April 2023 to Sept 2023 is attached in Annexure-I.</p>
ii.	<p>As reflected in the EIA/EMP report, the wastewater generation shall not exceed from the existing level from various units namely, Sponge iron plant, steel melting shop, rolling mill, rotary hearth furnace. The company shall undertake closed circuit system for the wastewater treatment and the sludge recycled to the sinter plant. The recovery and recycling of Susangharia nalla water shall be carried to recycle 800m³/hr water. The Jugsalai and Ram Mandir nalla shall be made zero discharge. However, 31300 m³/d of treated effluent after confirming to the prescribed standards shall be discharge into Subarnarekha River. The treated wastewater to be discharged into the Kharkai river should remain at the existing level of 1364m³/d. The domestic wastewater after treatment in STP should be used for green belt development.</p>	<ul style="list-style-type: none"> • Water taken from Subarnarekha River for steelmaking as make-up water is within the recommended capacity by State Government. • A central effluent treatment plant (CETP) of 4 MGD has been constructed to treat and recycle most of the effluent by tertiary treatment with Reverse Osmosis (RO). Treated water from plant (CETP) primary, secondary and tertiary treatment is used through recycling or used for dust suppression, slag quenching and green belt development etc. inside the plant. Capacity of the existing CETP has been commissioned with recovery of additional 5 MGD, enhancing the overall treatment capacity of the CETP from 4 MGD to 9 MGD and is under ramp up stage to treat and recycle the balance wastewater generated from various units. • Wastewater containing suspended solids is passed through clariflocculation plant to recover and reuse the clarified water for cooling or cleaning. All the mills are equipped with respective primary effluent treatment plants with settling tanks and oil skimming facility. • Closed circuit cooling systems have been installed. Catch pits at all the five designated outlets. have been constructed to recycle the treated effluent within plant. Zero effluent discharge status has been achieved for 4 out of 5 designated outlets. • All the effluent quality (pH, Ammoniacal Nitrogen, COD, BOD, Phenol, Cyanide, TSS, etc) are within discharge norms. Monitoring reports for all relevant parameters from April 2023 to Sept 2023 is attached in Annexure-I.

Compliance Report to Conditions stipulated in Environment Clearance for Expansion of steel manufacturing capacity at Jamshedpur Steel works from 4.0 MTPA to 5.0 MTPA, No. J-11011/221/2003 - IA II (I) dated 24.05.2005

iii.	In plant control measures for checking fugitive emission from spillage/raw materials handling should be provided. Further specific measures like provision of dust extraction system at sinter plant, stock house fume extraction system at cast house of blast furnace shall be installed. Particulate emissions shall not exceed 100mg/Nm ³ . Further de-dusting facilities at new lime kiln, sinter plant and wet suppression system at raw material bedding and blending plant shall be provided.	To check the fugitive emission in raw material handling, dry-fog dust suppression systems are effectively operating. Spillage on the road, along the conveyors, if any, is collected and recycled. ESP and Bag Houses are installed in Sinter Plants. Cast Houses of Blast furnaces are having Fume Extraction System. Lime Kilns have been provided with Bag House. The emissions from the stacks are within specified limits.
iv.	The company shall phase out steam coal burning by using by-products fuel gas and replace existing wet quenching facility of coke oven battery No. 5, 6 and 7 by dry quenching to recover energy and reduce CO ₂ greenhouse gas emission.	<ul style="list-style-type: none"> • The conversion of all the coal-fired boilers to gas firing in PH # 3, PH#4 & PH # 5 has been completed since FY'19. • Coke dry quenching facility has been commissioned at battery no. #10 & #11.
v.	As per the solid waste management plan submitted to the Ministry, about 7268 TPD of solid waste shall be generated. There shall be no generation of boiler ash as BF gas would be used instead of coal. The company shall recycle the BF and LD slag for cement manufacturing, road embankment, construction and filling up of low-lying areas. As per the plan submitted to the Ministry the company shall reuse 100% of BF and LD slag by December 2007.	<ul style="list-style-type: none"> • Online slag granulation facilities have been implemented in all Blast Furnaces. • All the BF Slag is being granulated and made available to the Cement plants for cement making. • All the boilers of Captive power plants have been converted from coal fired to gas fired, thus there is no generation of fly ash in the power plant. • Blast furnace (BF) slag are provided to cement manufacturers for further utilization in cement making as per the MoUs signed with M/s Nuvoco Vistas, M/s Dalmia Cement, M/s ACC, M/s JSW Bengal and M/s Emami Cement. • LD Slag after metal recovery is being used internally in the manufacturing process as well as externally in brick and road making works. "Tata Nirmaan" and "Tata Aggretto" are branded product of LD slag for its external utilization. • Additional initiatives undertaken for improving the utilization of LD Slag: <ul style="list-style-type: none"> ○ Co-processing of LD Slag at Cement Kilns. ○ Open & closed Steam Aging inside Works ○ Use of LD Slag in road making & railway ballast. • For the period during April 2023 to Sept 2023, the solid waste utilization was 119% excluding storage of LD slag at Galudih for processing. Status of Solid Waste, hazardous and other waste generation, and utilization from April 2023 to Sept 2023 is enclosed as Annexure – VI.

Compliance Report to Conditions stipulated in Environment Clearance for Expansion of steel manufacturing capacity at Jamshedpur Steel works from 4.0 MTPA to 5.0 MTPA, No. J-11011/221/2003 - IA II (I) dated 24.05.2005

vi.	<p>a. The chrome sludge (251kg/d) generated from the colour coating shall be disposed of in the lined pit within the plant premises and oily sludge (25TPD) shall be incinerated.</p> <p>b. The company shall undertake ground water quality monitoring around the chrome sludge disposal site and data submitted to the Ministry.</p>	<ul style="list-style-type: none"> • Chrome sludge is being disposed through authorized TSDF i.e., Adityapur Waste management Pvt Ltd.
vii.	<p>A green belt adequate width and density should be developed in an area of 7.0 ha of plant area in addition to the 75 ha of area already afforested within and around the plant premises as per the CPCB guidelines.</p>	<ul style="list-style-type: none"> • Total area under green cover within Jamshedpur town including steel works is approx. 2400 ha out of 5094 ha which is more than the required 33% green cover area. • We have planted 1,06,397 nos. saplings during April 2023 to Sept 2023 inside the works, Jugsalai Muck Dump area and in Township in the same period. Every year plantation is done in available space. <p>The following indigenous plant species are being planted:</p> <ul style="list-style-type: none"> • Karanj, Syzygium, fox tail Palm, Arica Palm, Mahagoney, Conocarpus, Juniperious, Kanel, Hibicus, Tecoma, Cassia fistula, <i>Terminalia argintia</i>, Bottel brush, Arjun, Putranjiva, Ashoka, Juniperus, Exeroa , Karanj, Plumeria, Cassia fistula, Hemliya, Spathodia etc.
viii.	<p>The company shall undertake rainwater-harvesting measures to harvest the rainwater for utilisation in the lean season as well as to recharge the ground water table.</p>	<ul style="list-style-type: none"> • 31 nos. of rainwater harvesting structures have been provided inside the plant area of which some area has the facility of Ground Water Recharge system. RWH structures have been constructed based on the maximum rainfall of last 20 yrs.
ix.	<p>Occupational Health Surveillance of the workers shall be done on a regular basis and records maintained as per Factories Act.</p>	<p>The health surveillance is being done as per Factory Act. Records are maintained at the Occupational Health Services. Health check-up for contractor's persons is conducted regularly.</p>
x.	<p>Recommendations made in the CREP shall be implemented.</p>	<p>Tata Steel has implemented the recommendations of CREP. CREP report is enclosed as Annexure-IV.</p>
xi	<p>The company shall carry out life cycle assessment for monitoring to assess the overall environmental improvement of the plant with respect to consumption norms of natural resources and energy and specific norms for waste generation.</p>	<p>Tata Steel had participated in the life cycle assessment conducted with the government agencies.</p>

Compliance Report to Conditions stipulated in Environment Clearance for Expansion of steel manufacturing capacity at Jamshedpur Steel works from 4.0 MTPA to 5.0 MTPA, No. J-11011/221/2003 - IA II (I) dated 24.05.2005

B. General Conditions		
i.	The project authorities must adhere to the stipulations made by the Jharkhand Environment Conservation Board and the State Government.	We are abiding by all the compliance conditions made by JSPCB and State Government of Jharkhand.
ii.	No further expansion or modifications in the plant should be carried out without prior approval of the Ministry of Environment and Forests.	<p>Environmental Clearance for the expansion from 6.8 MTPA to 9.7 MTPA Steel Plant was granted vide MoEF letter no. J-11011/691/2007-IA. (II) dated May 11, 2010.</p> <p>Environmental Clearance for the expansion from 9.7 MTPA to 11 MTPA Steel Plant was granted vide MoEF letter no. J-11011/691/2007-IA. (II) dated March 1, 2016.</p> <p>Necessary Environment Clearance will be taken before any further expansion or modification.</p>
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 state pollution Control Board. Data on ambient air quality and stack emission should be regularly submitted to this Ministry including its Regional office at Bhubaneswar and State Pollution Control Board/Central Pollution Control Board once in six months.	<ul style="list-style-type: none"> 4 online CAAQMS have been commissioned to monitor PM₁₀, PM_{2.5}, SO₂, NO_x, CO continuously inside the Works. There are 8 manual AAQMS located both inside the plant and outside the plant area. The monthly monitoring reports by NABL accredited environment laboratory is being submitted to JSPCB and six-monthly reports are being submitted to ministries. Monitoring reports for all relevant parameters from April 2023 to Sept 2023 is attached in Annexure-I.
iv.	Industrial wastewater should be properly collected, treated 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 wastewater should be utilized be for plantation purpose.	<ul style="list-style-type: none"> A central effluent treatment plant (CETP) of 4 MGD has been constructed to treat and recycle most of the effluent by tertiary treatment with Reverse Osmosis (RO). Treated water from plant (CETP) primary, secondary and tertiary treatment is used through recycling or used for dust suppression, slag quenching and green belt development etc. inside the plant conforming to the standards prescribed under GSR 422 (E) dated 19th May 1993 and 31st December 1993 or as amended from time to time. Capacity of the existing CETP has been commissioned with recovery of additional 5 MGD, enhancing the overall treatment capacity of the CETP from 4 MGD to 9 MGD and is under ramp up stage to treat and recycle the balance wastewater generated from various units. Monitoring reports for all relevant parameters from April 2023 to Sept 2023 is attached in Annexure-I.

Compliance Report to Conditions stipulated in Environment Clearance for Expansion of steel manufacturing capacity at Jamshedpur Steel works from 4.0 MTPA to 5.0 MTPA, No. J-11011/221/2003 - IA II (I) dated 24.05.2005

v.	<p>The overall noise level in and around the plant area should 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 (nighttime).</p>	<ul style="list-style-type: none"> Personal Protective Equipment (PPE) have been provided to all the workers/officers to avoid any accompanied noise hazards. Facilities like silencers, enclosures, hood etc have been provided to reduce noise at source. The monitored data in the work zone reveals that the noise level does not exceeds 85 dB (A) for 8 hr exposures. Similarly, in the ambient also, the noise levels meet the prescribed standards. The ambient noise level monitoring is being done at different part of the Jamshedpur town in frequent interval outside Steel Works to assess the ambient noise level status. Noise level in the town is found beyond the standard on few occasions. The possible reason of equivalent noise levels in respect of all categories of areas exceeded the standards for day and night times is due to heavy traffic movement in the town, market and commercial activities, festivals and other domestic celebrations and frequent religious rituals. <p>Monitoring reports for all relevant parameters from April 2023 to Sept 2023 is attached in Annexure-I.</p>
vi.	<p>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 programmes, educational programmes, drinking water supply and health care etc.</p>	<ul style="list-style-type: none"> All the environmental protection measures and safeguards such as APCEs, ETPs, hazardous waste proper handling, transfer and disposal have been deployed as recommended in the EIA/EMP report. Socio economic development activities are regularly undertaken in and around Jamshedpur through the two agencies namely, Tata Steel Rural Development Society and Tata Steel Community Development & Welfare Services Centres. The development activities undertaken in the surrounding community are need based and are in the field of health care, education, mid-day meals in schools, sports and culture, self-employment, drinking water, rural electrification, etc. Tata Steel also facilitate the Institutes like R D Tata Technical Institute, Tata Football Academy, Tata Archery Foundation, etc. which encourages the local talent to develop themselves and participate at National and International levels.
vii.	<p>The project authorities shall provide an amount of Rs 286 crores (question no. xix part b) funds both 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</p>	<p>The 5 MTPA project has been completed. All the pollution control equipment has been commissioned and are being operated and maintained regularly.</p> <p>In FY 24 (Till Sept'23) total capital expenditure and recurring cost for environment are 170 Crore and 41.85 Crores respectively. The funds for capital</p>

Compliance Report to Conditions stipulated in Environment Clearance for Expansion of steel manufacturing capacity at Jamshedpur Steel works from 4.0 MTPA to 5.0 MTPA, No. J-11011/221/2003 - IA II (I) dated 24.05.2005

	herein. The funds so provided should not be diverted for any other purposes.	investment on pollution control equipment are not diverted.
vii.	The Regional Office of this Ministry at Bhubaneswar/ Central Pollution Control Board/State Pollution Control Board will monitor the stipulated conditions. A six-monthly compliance report and the monitored data along with statistical interpretation should be submitted to them regularly.	Six monthly compliance reports and the monitored data are being submitted regularly. Monitoring reports for all relevant parameters from April 2023 to Sept 2023 is attached in Annexure-I .
ix.	The Project Proponent should inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the State Pollution Control Board/ Committee and may also be seen at Website of the Ministry of Environment and Forests at http://envfor.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.	The Notice has been advertised in two local newspapers viz. Chamakta Aaina (Hindi) and The Avenue Mail (English) on June 04, 2005, and communication to this effect was also sent to the MoEF&CC.
x.	The 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.	It has been complied as the project has already been completed and Consent to Operate has been issued by Jharkhand State Pollution Control Board.

ENVIRONMENTAL CLEARANCE COMPLIANCE STATUS REPORT

April 2023 to September 2023

Tata Steel Limited, Jamshedpur
(MAIN WORKS & TOWN)

**Six Monthly Compliance Status report of Environmental
Clearance from expansion of 5 to 6.8 MTPA Crude Steel
Production**

**ENVIRONMENTAL MANAGEMENT DEPARTMENT
TATA STEEL LIMITED
JAMSHEDPUR**

Compliance Report of Environmental Clearance of Expansion of Crude Steel Plant (5.0 MTPA to 6.8 MTPA) at Tata Steel Works, Jamshedpur, District East Singhbhum, Jharkhand vide MoEF Letter no J-11011/317/2006.IA.II (I) dated April 16, 2007

SN	Condition	Compliance Status
Specific Conditions		
i.	The gaseous emissions from various process units shall conform to the load/mass-based standards notified by this Ministry on 11 th May 1993 and standards prescribed from time to time. The state Board may specify more stringent standards for the relevant parameters keeping in view the nature of the industry and its size and location. At no time, the emission level shall go beyond the prescribed standards. Interlocking facilities shall be provided so that process can be automatically stopped in case emission level exceeds the limit.	<p>Several Projects have been implemented to control Gaseous Emission levels including secondary fugitive emissions from all the sources.</p> <p>Secondary fugitive dust emissions inside the plant in different areas is being controlled and monitored in line with the CPCB guidelines and MoEF&CC standards.</p> <p>All the existing and new units are provided with adequate pollution control equipment (PCEs) to ensure the emission levels within specific legal requirement.</p> <p>Monitoring reports for all relevant parameters from April 2023 to Sept 2023 is attached in Annexure-I.</p>
ii.	Efforts shall be made to reduce RSPM levels in the ambient air and a time bound action plan shall be submitted. On-line stack monitoring facilities for all the stacks including new sinter plant and powerhouse and sufficient air pollution control devices shall be provided to keep the emission levels below 50 mg/Nm ³ and reports submitted to the Jharkhand SPCB and CPCB.	<ul style="list-style-type: none"> • 4 online CAAQMS have been commissioned to monitor PM10, PM2.5, SO2, NO2, CO continuously. • All ESPs have been upgraded of all relevant production units while the same is under progress at LD Shop #1. The agreed emission for their upgraded emission has been guaranteed to be ≤50 mg/Nm³. • Low NOx burners have been provided in all the new units. • Similarly, in almost all the unit's alert facility have been provided in case of units exceed any prescribed emission level as the interlocking is technically not feasible in all the production units. • Please find enclosed a list of air pollution control devices for each of production unit as Annexure-II. • Please find enclosed the updated status of implementation of action plan to reduce dust emission level in each of production unit and raw material storage area as Annexure III.
iii.	In-plant control measures for checking fugitive emissions from all the vulnerable sources shall be provided. Dust extraction system and dry fogging system will be provided to control air emissions at material transfer and sizing plants. ESP and bag filters shall be provided wherever required to keep the emission levels below 50 mg/Nm ³ particularly in 'H'-BF stock house, BF cast houses and Sinter stock house. Low NO burners will be installed to control NO emissions. Gas cleaning plant shall be provided to BF. Further, specific measures like water sprinkling shall be carried out and fugitive emissions shall be controlled, regularly monitored and records maintained.	<p>The status of control measures in the units are as follows.</p> <ul style="list-style-type: none"> • Installed ESPs and Bag Houses in the "H" Blast Furnace, Sinter Plant#4. • Dust control systems, dry fog system and water spraying have been provided at the material handling systems. • Low NOx burners have been installed. <p>The following control measures are in place to check the fugitive emissions.</p> <ul style="list-style-type: none"> • Bag Houses, water-spraying arrangements are provided at all potential dust generating points. • All the boilers of Captive power plants have been converted from coal fired to gas fired, thus there is no generation of fly ash in the power plant. • Regular cleaning of shop floor area with the help of mechanical dust collector, road sweepers, is being done. • Monitoring of fugitive emission is being done at the regular intervals and records kept.

Compliance Report of Environmental Clearance of Expansion of Crude Steel Plant (5.0 MTPA to 6.8 MTPA) at Tata Steel Works, Jamshedpur, District East Singhbhum, Jharkhand vide MoEF Letter no J-11011/317/2006.IA.II (I) dated April 16, 2007

		<ul style="list-style-type: none"> 1 no. of High-Pressure Jet Cleaning Machine operating at 60 bar pressure is installed for effective road cleaning inside main works area. <p>Monitoring reports for all relevant parameters from April 2023 to Sept 2023 is attached in Annexure-I.</p>
iv.	Gaseous emission levels including secondary fugitive emissions shall be controlled within the latest permissible limits issued by the Ministry and regularly monitored. Guidelines / Code of Practice issued by the CPCB in this regard shall be followed.	<ul style="list-style-type: none"> Several Projects have been implemented to control Gaseous Emission levels including secondary fugitive emissions from all the sources. Secondary fugitive dust emissions inside the plant in different areas is being controlled and monitored in line with the CPCB guidelines and MoEF&CC standards.
v.	Total water requirement from River Subarnarekha shall not exceed 3,91,800 m ³ /day as per the permission accorded by the State Govt. No ground water shall be used. GCP wastewater treatment plants for 'H'-BF and Billet Caster no. 3 shall be provided. The treated process effluent shall be recycled and re-used in cooling tower as well as for green belt development. Cooling towers blow down shall be used for granulation, coke quenching, dust suppression and other non-product uses. Treated effluent discharge into the streams/river shall not exceed 37,000 m ³ /day. Domestic effluent shall be treated in Sewage Treatment Plant (STP).	<ul style="list-style-type: none"> Water taken from Subarnarekha River for steelmaking as make-up water is within the recommended capacity by State Government. A central effluent treatment plant (CETP) of 4 MGD has been constructed to treat and recycle most of the effluent by tertiary treatment with Reverse Osmosis (RO). Treated water from plant (CETP) primary, secondary and tertiary treatment is used through recycling or used for dust suppression, slag quenching and green belt development etc. inside the plant. Capacity of the existing CETP has been commissioned with recovery of additional 5 MGD, enhancing the overall treatment capacity of the CETP from 4 MGD to 9 MGD and is under ramp up stage to treat and recycle the balance wastewater generated from various units. New BOD plant has been commissioned and existing BOD has been upgraded to treat the additional effluent generated from Coke Oven Batteries including Batteries 10 & 11. A tertiary treatment with RO is being implemented at BOD plant to ensure zero discharge from coke oven. Wastewater containing suspended solids is passed through clariflocculation plant to recover and reuse the clarified water for cooling or cleaning. All the mills are equipped with respective primary effluent treatment plants with settling tanks and oil skimming facility. Closed circuit cooling systems have been installed. Catch pits at all the five designated outlets have been constructed to recycle the treated effluent within plant. Zero effluent discharge status has been achieved for 4 out of 5 designated outlets. All the effluent quality (pH, Ammoniacal Nitrogen, COD, BOD, Phenol, Cyanide, TSS, etc) are within discharge norms. Monitoring reports for all relevant parameters from April 2023 to Sept 2023 is attached.
vi.	Continuous monitoring of Total Organic Compounds (TOC) shall be done at the outlet of ETP (BOD plant).	<ul style="list-style-type: none"> The BOD plant has facility of continuous monitoring of TOC. Similarly monitoring of other parameters on the outlet of the BOD plant is being done regularly.
vii.	Ground water monitoring around the solid waste disposal site / secured landfill (SLF) shall be carried out regularly and report	We are regularly conducting the ground water monitoring around the waste disposal site at five locations. Analysis report submitted to JSPCB

Compliance Report of Environmental Clearance of Expansion of Crude Steel Plant (5.0 MTPA to 6.8 MTPA) at Tata Steel Works, Jamshedpur, District East Singhbhum, Jharkhand vide MoEF Letter no J-11011/317/2006.IA.II (I) dated April 16, 2007

	submitted to the Ministry's Regional Office at Bhubaneswar, CPCB and OPCB.	indicates that concentration of heavy metals is well within the prescribed limits. Monitoring reports for all relevant parameters from April 2023 to Sept 2023 is attached in Annexure-I .
viii.	Solid wastes shall be reused in the cement plant, road construction and railway ballast. BF slag shall be granulated in cast house and used for cement making. LD slag shall be processed in Waste Recycling Plant and subsequently recycled in the BF LD sludge and sinter plants. Remaining slag shall be used for road construction and filling the low-lying areas. The Chrome sludge in the form of Cr ⁺³ shall be dumped only in the secured landfill located within the plant premises and proper disposal of Chrome sludge shall be ensured. Oily waste shall be burnt in the incinerator.	<ul style="list-style-type: none"> • All the BF Slag is being granulated and made available to the Cement plants for cement making. • Blast furnace (BF) slag are provided to cement manufacturers for further utilization in cement making as per the MoUs signed with M/s Nuvoco Vistas, M/s Dalmia Cement, M/s ACC, M/s JSW Bengal and M/s Emami Cement. • LD Slag after metal recovery is being used internally in the manufacturing process as well as externally in brick and road making works. "Tata Nirmaan" and "Tata Aggretto" are branded product of LD slag for its external utilization. • Additional initiatives undertaken for improving the utilization of LD Slag: <ul style="list-style-type: none"> • Co-processing of LD Slag at Cement Kilns. • Open & closed Steam Aging inside Works • Use of LD Slag in road making & railway ballast. • Flue dust generated are recycled within the plant, Mill scales, LD sludge, lime fines and flue dust are also recycled back to sinter plant. • Blast Furnace gas cleaning plant (GCP) sludge is re-utilized within the manufacturing process. • Chrome sludge is being disposed through authorized TSDF i.e., Adityapur Waste management Pvt Ltd.
ix.	Fly ash shall be used in cement plants. 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.	<ul style="list-style-type: none"> • All the boilers of Captive power plants have been converted from coal fired to gas fired, thus there is no generation of fly ash in the power plant. • Ash generation from the captive power plants has been stopped due to no coal firing at Power Plants since FY'19.
x.	Practice of disposal of solid wastes along the river shall be immediately stopped and efforts shall be made to remove the solid waste from the banks of the river.	There is no disposal of solid waste along the riverbank from Tata Steel.

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xi.	A time bound action plan should be submitted to reduce solid waste, its proper utilization and disposal. Action plan for the reclamation of Jugsalai Muck disposal site submitted to the Ministry shall be implemented in a time bound manner.	<p>An action plan for Solid waste management has been submitted to JSPCB vide our letter no. EMD/C-02/460/11 dated December 16, 2011.</p> <p>We have also submitted road map regarding future generation and the disposal of solid waste vide our letter no. EMD/C-33/124/13 dated June 22, 2013.</p> <p>Tata Steel has taken several steps to improve the solid waste utilization. For the period during April 2023 to Sept 2023, the solid waste utilization was 119 % excluding storage of LD slag at Galudih for processing. Various actions have been already planned to improve the solid waste utilization further.</p> <p>The reclamation of JMD has been completed. A rainwater harvesting facility has been constructed at the top of the JMD which is being utilized for development of greenery. Besides this, there is a provision to pump surface drainage carry out from the plant to JMD area for development of greenery.</p>
xii.	The company shall develop surface as well as ground water harvesting structures to harvest the rainwater for utilization in the lean season besides recharging the ground water table.	31 nos. of rainwater harvesting structures have been provided inside the plant area of which some area has the facility of Ground Water Recharge system. RWH structures have been constructed based on the maximum rainfall of last 20 yrs.
xiii.	Green belt shall be developed in 1157.7 ha (33 %) out of total 4391.85 ha. within and around the plant premises as per the CPCB guidelines in consultation with DFO.	<ul style="list-style-type: none"> • Total area under green cover within Jamshedpur town including steel works is approx. 2400 ha out of 5094 ha which is more than the required 33% green cover area. • We have planted 1,06,397 nos. saplings during April 2023 to Sept 2023 inside the works, Jugsalai Muck Dump area and in Township in the same period. Every year plantation done in available space. <p>The following indigenous plant species are being planted:</p> <p>Karanj, Syzygium, fox tail Palm, Arica Palm, Mahagoney, Conocarpus, Juniperious, Kanel, Hibicus, Tecoma, Cassia fistula, <i>Terminalia argintia</i>, Bottel brush, Arjun, Putranjiva, Ashoka, Juniperus, Exeroa, Karanj, Plumeria, Cassia fistula, Hemliya, Spathodia etc.</p>
xiv.	Occupational Health Surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.	<p>The health surveillance is being done as per Factory Act. Records are maintained at the Occupational Health Services.</p> <p>Regular health surveillance is being conducted i.e., 2 times in a year to all the workers who have already attended more than 40 years of age. The workers having age less than 40 years are undergone occupational health surveillance program once in a year.</p>
xv.	Recommendations made in the Corporate Responsibility for Environment Conservation (CREP) issued for the steel plants shall be implemented.	CREP recommendations have been implemented. CREP report is enclosed as Annexure-IV of Monitoring and Analysis report.

Compliance Report of Environmental Clearance of Expansion of Crude Steel Plant (5.0 MTPA to 6.8 MTPA) at Tata Steel Works, Jamshedpur, District East Singhbhum, Jharkhand vide MoEF Letter no J-11011/317/2006.IA.II (I) dated April 16, 2007

General Conditions		
i.	The project authorities must strictly adhere to the stipulations made by the Jharkhand Pollution Control Board (Jharkhand SPCB) and the State Government.	We are abiding by all the compliance conditions made by JSPCB and State Government of Jharkhand.
ii.	No further expansion or modifications in the plant should be carried out without prior approval of the Ministry of Environment and Forests.	<ul style="list-style-type: none"> Environmental Clearance for the expansion from 6.8 MTPA to 9.7 MTPA Steel Plant was granted vide MoEF letter no. J-11011/691/2007-IA. (II) dated May 11, 2010. Environmental Clearance for the expansion from 9.7 MTPA to 11 MTPA Steel Plant was granted vide MoEF letter no. J-11011/691/2007-IA. (II) dated March 1, 2016. Necessary Environment Clearance will be taken before any further expansion or modification.
iii.	At least four ambient air quality monitoring stations shall be established in the downward direction as well as where maximum ground level concentration of SPM, SO ₂ and NO _x are anticipated in consultation with the Jharkhand SPCB. Data on ambient air quality and stack emission should be regularly submitted to this Ministry including its Regional Office at Bhopal and the Jharkhand SPCB/CPCB once in six months.	<ul style="list-style-type: none"> 4 online CAAQMS have been commissioned to monitor PM₁₀, PM_{2.5}, SO₂, NO_x, CO continuously inside the Works. There 8 manual AAQMS located both inside the plant and outside the plant area. The monthly monitoring reports by NABL accredited environment laboratory is being submitted to JSPCB and six-monthly reports are being submitted to regional office of MoEF&CC, Ranchi and CPCB. Monitoring reports for all relevant parameters from April 2023 to Sept 2023 is attached in Annexure-I.
iv.	Industrial wastewater shall be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 11 th May 1993 and 31 st December, 1993 or as amended from time to time. The treated wastewater shall be utilized for plantation purpose.	<ul style="list-style-type: none"> A central effluent treatment plant (CETP) of 4 MGD has been constructed to treat and recycle most of the effluent by tertiary treatment with Reverse Osmosis (RO). Treated water from plant (CETP) primary, secondary and tertiary treatment is used through recycling or used for dust suppression, slag quenching and green belt development etc. inside the plant conforming to the standards prescribed under GSR 422 (E) dated 19th May 1993 and 31st December 1993 or as amended from time to time. Capacity of the existing CETP has been commissioned with recovery of additional 5 MGD, enhancing the overall treatment capacity of the CETP from 4 MGD to 9 MGD and is under ramp up stage to treat and recycle the balance wastewater generated from various units. Monitoring reports for all relevant parameters from April 2023 to Sept 2023 is attached in Annexure-I.
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 (nighttime).	<ul style="list-style-type: none"> Personal Protective Equipment (PPE) have been provided to all the workers/officers to avoid any accompanied noise hazards. Facilities like silencers, enclosures, hood etc have been provided to reduce noise at source. The monitored data in the work zone reveals that the noise level does not exceeds 85 dB (A) for 8 hr exposures. Similarly, in the ambient also, the noise levels meet the prescribed standards.

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		<ul style="list-style-type: none"> The ambient noise level monitoring is being done at different part of the Jamshedpur town in frequent interval outside Steel Works to assess the ambient noise level status. Noise level in the town is found beyond the standard on few occasions. The possible reason of equivalent noise levels in respect of all categories of areas exceeded the standards for day and night times is due to heavy traffic movement in the town, market and commercial activities, festivals and other domestic celebrations and frequent religious rituals. Monitoring reports for all relevant parameters from April 2023 to Sept 2023 is attached in Annexure-I.
vi.	The project proponent shall also comply with all the environmental protection measures and safeguards recommended in the EIA and EMP report. Further, the company must undertake socio-economic development activities in the surrounding villages like community development programs, educational programs, drinking water supply and health care etc.	<ul style="list-style-type: none"> Implementation of protection measures as indicated in the EIA for 6.8 MTPA plant units have been complied which includes ESPs, bag filters, on-line slag granulation system for blast furnaces and wastewater treatment plants etc. Socio economic development activities are regularly undertaken in and around Jamshedpur through the two agencies namely, Tata Steel Rural Development Society and Tata Steel Community Development and Welfare Services Centers. The development activities undertaken in the surrounding community are need based and are in the field of health care, education, mid-day meal at schools, sports and culture, self-employment, drinking water, rural electrification, etc. Tata Steel also facilitate the Institutes like R D Tata Technical Institute, Tata Football Academy, Tata Archery Foundation, etc. which encourages the local talent to develop themselves and participate at National and International levels.
vii.	As mentioned in the EIA and EMP, ₹ 259.00 Crores and ₹18.5 Crores earmarked towards the capital cost and recurring cost/annum for environmental pollution control measures shall be judiciously utilized to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government. The funds so provided shall not be diverted for any other purpose.	The funds for capital investment on pollution control equipment were not diverted. The 6.8 MTPA project has been completed. All the pollution control equipment has been commissioned and are being operated and maintained regularly. In FY 24 (Till Sept'23) total capital expenditure and recurring cost for environment are 170 Crore and 41.85 Crores respectively. The funds for capital investment on pollution control equipment are not diverted.
viii.	The Regional Office of this Ministry at Bhubaneswar/ CPCB/Jharkhand SPCB will monitor the stipulated conditions. A six-monthly compliance report and the monitored data along with statistical interpretation shall be submitted to them regularly.	Six monthly compliance reports and the monitored data are being submitted regularly to MoEF&CC and JSPCB. Monitoring reports for all relevant parameters from April 2023 to Sept 2023 is attached in Annexure-I .
ix.	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 OSPCB/Committee and may also be seen at Website of the Ministry of Environment and Forests at http://envfor.nic.in . This shall be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the	The Notice has been advertised in two local newspapers viz. Uditvani (Hindi) and Avenue Mail (English) on April 21, 2007 and communication to this effect was also sent to the MoEF vide our letter no. EMD/C-32/2118/07 dated August 18, 2007.

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	vernacular language of the locality concerned and a copy of the same shall be forwarded to the regional office.	
x.	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.	It has been complied as the project has already been completed and Consent to Operate has been issued by Jharkhand State Pollution Control Board.

ENVIRONMENTAL CLEARANCE COMPLIANCE STATUS REPORT

April 2023 to September 2023

Tata Steel Limited, Jamshedpur
(MAIN WORKS & TOWN)

**Six Monthly Compliance Status report of Environmental
Clearance from expansion of 6.8 to 9.7 MTPA Crude Steel
Production**

**ENVIRONMENTAL MANAGEMENT DEPARTMENT
TATA STEEL LIMITED
JAMSHEDPUR**

A. Specific Conditions:

- i. **Compliance to all the specific and general conditions stipulated for the existing plant by the Central/State Govt. shall be ensured and regular reports submitted to the Ministry and its Regional Office at Bhubaneswar.**

Compliance Status:

- a. The compliance reports of environmental safeguard stipulated in the earlier environment clearance letter dated 11th May 2010 was submitted to Ministry's Regional Office vide letter no. **TSJ/EMD/C-41/091/23.**
- b. **MoEF&CC:** <http://environmentclearance.nic.in/>
- c. **Company:** (<https://www.tatasteel.com/corporate/our-organisation/environment/environment-compliance-reports/>)

- ii. **Efforts shall be made to reduce RSPM levels in the ambient air and a time bound action plan shall be submitted. 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), bag house, gas cleaning plant, bag filters etc. shall be provided to keep the emission levels below 50 mg/Nm³ by installing energy efficient technology. Low NOx burners shall be installed to control NOx emissions. At no time, the emission level shall go beyond the prescribed standards. Interlocking facilities shall be provided so that process can be automatically stopped in case emission level exceeds the limit.**

Compliance Status:

- 4 nos. of online CAAQMS have been commissioned to monitor PM10, PM2.5, SO2, NO2, CO continuously.
- All ESPs have been upgraded of all relevant production units while the same is under progress at LD Shop #1. The agreed emission for their upgraded emission has been guaranteed to be ≤50 mg/Nm³.
- Low NOx burners have been provided in all the new units.
- Similarly, in almost all the unit's alert facility have been provided in case of units exceed any prescribed emission level as the interlocking is technically not feasible in all the production units.
- Please find enclosed a list of air pollution control devices for each of production unit as **Annexure-II.**
- Please find enclosed the updated status of implementation of action plan to reduce dust emission level in each of production unit and raw material storage area as **Annexure III.**

- iii. **Existing electrostatic precipitator (ESP) shall be upgraded and provided to new units to control gaseous emissions within 50 mg/Nm³. ESPs shall be provided to pellet plant, cast house and stock house of blast furnaces and LD#3 shop. Waste gas from the drying and grinding unit of pellet plant shall be cleaned by bag filters. Adequate provisions shall be made to control NOx emissions. Bag house shall be provided to Lime kilns. Data on ambient air quality stack emissions and fugitive emissions shall regularly submit to the Ministry's Regional Office at Bhubaneswar, Jharkhand Pollution Control Board (JPCB) and Central Pollution Control Board (CPCB) once in six months.**

Compliance Status:

- All ESPs have been upgraded of all relevant production units while the same is under progress at LD Shop #1. The agreed emission for their upgraded emission has been guaranteed to be ≤50 mg/Nm³.
- 3 nos. of bag filters have been provided in the Pellet Plant to control waste gas from the drying and grinding unit.
- Low NOx burners have been provided in all the new units to meet the prescribed standards.
- 12 nos. of Bag House have been provided in Lime Plant in process and dedusting units.
- Bag Filters have been provided in the Cast House and Stock House of all the Blast Furnaces.
- Monthly monitoring reports are being submitted to JSPCB and six-monthly monitoring reports are being submitted along with EC compliance reports to Ministry's Regional office, CPCB and

Compliance Report of Environmental Clearance of Expansion of Steel Plant (6.8 MTPA to 9.7 MTPA, Crude Steel Production) at Tata Steel Works, Jamshedpur, District East Singhbhum, Jharkhand vide MoEF Letter no J-11011/691/2007-IA. II (I) dated May 11, 2010

JSPCB. Monitoring reports for all relevant parameters from April 2023 to Sept 2023 is attached in **Annexure-I**.

- The status of completed and Ongoing projects is mentioned in **Annexure-III**.

- iv. **Land based fume extraction system shall be provided to coke oven battery # 10 and 11 to arrest fugitive emissions during charging and pushing operations. The coke oven gas shall be desulphurised by reduction of H₂S content of coke oven gas in the by-product recovery section to below 500 mg/Nm³. On-line charging with high pressure liquor aspiration (HPLA) for extraction of oven gas, leak proof oven doors, hydraulic door and door frame cleaner, water sealed AP caps and charging & pusher side emission extractor device shall be provided for the coke oven batteries to maintain VOC emissions within permissible limit. Land based fume extraction system for pushing emission control from coke ovens shall be provided.**

Compliance Status:

- Land based fume extraction, desulphurization facilities, online charging with HPLA, Hydraulic door and door frame clearance, water seal AP caps and charging and pusher side emission extractor device etc. are in place in both coke ovens battery #10 & #11 to minimize leaks from doors CAPs, etc. and to meet the CREP recommendations. Coke oven gas is being desulphurized in Battery #10 & #11. H₂S content is maintained below 500 mg/Nm³. Land based fume extraction system for pushing emission control for new coke ovens batteries #10 & #11 have been provided.

- v. **All the standards prescribed for the coke oven plants shall be followed as per the latest guidelines. Proper and full utilization of coke oven gases in power plant using heat recovery steam generators shall be ensured and no flue gases shall be discharged into the air. Sulphur shall be recovered from the coke oven gases from new product plant.**

Compliance Status:

- As per the CREP guidelines, % of PLD, PLL & PLO of all batteries are being monitored thrice in a month. The max % of PLD is found to be 9.23 in Battery#8, max % of PLL found to be 2.00 in Battery#7 and % of maximum PLO is found to be 4.08 in Battery#7 and maximum charging emission is found to be 94 sec in Battery#9.
- Byproduct gas is recovered and used for power generation in captive Powerhouse # 3, #4 & #5, and heating purpose in all the mills. Power is also being generated in TRT at G, H & I Blast Furnace. 625 tons of Sulphur has been recovered from coke oven gas in FY'24 (Till Sept'23) and sold to authorized buyers.

- vi. **Only dry quenching method in the coke oven in new battery # 10 & 11 shall be adopted.**

Compliance Status:

- Coke dry quenching (CDQ) facility is commissioned in the new Coke Oven Batteries #10 and #11 and are in operation.

- vii. **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.**

Compliance Status:

- 4 nos. of Ambient Air Quality stations have been commissioned inside plant for the monitoring of all 12 parameters as per G.S.R. No. 826(E) dated 16th November' 2009 and is being analyzed by the environment laboratory inside Works accredited with NABL accreditation no.TC-8363 dated 21.02.2022 having validity till 20.02.2024. All the monitoring results are found within prescribed limit.
- Monthly monitoring reports are being submitted to JSPCB and six-monthly monitoring reports are being submitted along with EC compliance reports to Ministry's Regional office, CPCB and JSPCB. Monitoring reports for all relevant parameters from April 2023 to Sept 2023 is attached in **Annexure-I**.

- viii. **In-plant control measures for checking fugitive emissions from all the vulnerable sources including bag filters and fume extraction system shall be provided. Dry fog dust suppression system / water sprinkling system shall be provided in raw material handling areas to control fugitive dust emissions. Fugitive emissions from different sources shall also be controlled by covered conveyors, water sprinkling in open yards and with dry fogging in the closed zones. Further, specific measures like asphaltting of the roads within premises shall be carried out to control fugitive emissions. Fugitive emissions shall be controlled, regularly monitored and records maintained.**

Compliance Status:

- Necessary air pollution control measures are provided to control fugitive dust emission. Please find enclosed a list of air pollution control devices for each of production unit as **Annexure-II**.
- All the areas of dedusting operation as junction house, transfer tower, conveyors relate to bag filters and/or dry fog dust suppression system.
- All these locations are being monitored once in month.
- A total of 419 nos. of dust suppression system (DS) are operational at various locations inside Works.
- A total of 71 nos. Industrial vacuum cleaners (IVC) are operational at various locations inside Works.
- All the internal roads have been constructed with concrete.
- All the fugitive emissions within plant locations are monitored and records are maintained.

- ix. **Gaseous emission levels including secondary fugitive emissions from all the sources shall be controlled within the latest permissible limits issued by the Ministry and regularly monitored. Guidelines / Code of Practice issued by the CPCB shall be followed. New standards issued by the Ministry vide G.S.R. 414(E) dated 30th May 2008 shall be followed.**

Compliance Status:

- Several Projects have been implemented to control Gaseous Emission levels including secondary fugitive emissions from all the sources.
- Secondary fugitive dust emissions inside the plant in different areas is being controlled and monitored in line with the CPCB guidelines and MoEF&CC standards.

- x. **As proposed, Traffic decongestion plan shall be implemented in a time bound manner to reduce emissions in the Jamshedpur city and separate budget shall be allocated for implementing the same. Maximum in bound and out bound material movement shall be done by railway wagons only to reduce dust emissions. Measures like covered conveyors for handling of bulk materials, centralized screening of iron ore, rationalization of weighing system, use of higher capacity vehicles etc. shall be adopted to reduce dust emissions. Mechanized vacuum cleaning of arterial roads shall be carried out on regular basis to further reduce the dust emissions.**

Compliance Status:

Under the traffic decongestion plan in Jamshedpur city:

- Strengthening of marine drive (Western corridor) has been implemented.
- Southeastern corridor is under development with the government of Jharkhand.
- To control high traffic on the major roads of the town, decongestion work is being continued with the effort based on evolving need.

Inside the plant:

- Automatic traffic control system is in place to control the traffic density as well as the safety including secondary emission inside the plant.
- Maximum in bound and out bound material movements are done by railway wagons to reduce dust emissions.
- All the loaded trucks are ensured to be covered with tarpaulin sheets to avoid dust getting air borne and thus generation of secondary emission.

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- Sign board have been placed on all the critical areas to keep the speed of the vehicle within 35 kmph to control secondary emission along the internal road (VIP Road) and similarly the vehicle speed is limited to 16 kmph in the units.
- All the loaded trucks/dumpers coming inside the plant with their valid PUC.
- 4 nos. of mechanized vacuum cleaning sweepers are deployed within Works for regular cleaning and dust evacuation of roads.
- Dust from road being collected by these mechanized vacuum cleaning sweepers which are being reused in sinter making through RMBB.
- 2 nos. of mechanized vacuum cleaning sweepers are deployed in Jamshedpur town for regular cleaning and dust evacuation of roads.
- 1 no. of High-Pressure Jet Cleaning Machine operating at 60 bar pressure is installed for effective road cleaning inside main works area.

- xi. Vehicular pollution due to transportation of raw materials and finished products shall be controlled. Proper arrangements shall also be made to control dust emissions during loading and unloading of the raw material and finished product.**

Compliance Status:

- Approx. all the raw material is being transported through railways to reduce the road transport load and vehicular pollution.
- Dry fog dust suppression and water sprinklers are provided to control dust emission during loading and unloading activity. A total of 419 nos. of points for dust suppression system (DS) are commissioned at various locations inside Works.
- Tyre washing facility has also been provided in 08 strategic locations to keep tyres clean to reduce dust emission on roads.
- 1 no. of High-Pressure Jet Cleaning Machine operating at 60 bar pressure is installed for effective road cleaning inside main works area.

- xii. As proposed, total water requirement from River Subarnarekha shall not exceed 33.3 MGD although permission for 227 MGD water is obtained vide letter dated 7th January, 1992. Closed circuit cooling system shall be provided to reduce further water consumption. All the wastewater from various units shall be treated in the common effluent treatment plant (CETP) for primary, secondary, and tertiary treatment shall be either recycled or used for dust suppression, slag quenching and green belt development etc. within the lease hold area. The phenolic effluent from the by-product recovery section of coke oven battery # 10 and 11 shall be treated in BOD plant. Wastewater containing suspended solids shall be passed through clariflocculation plant to recover and reuse the clarified water for cooling or cleaning. Mill effluent containing oil and suspended solids shall be passed through oil skimmers and filter press. No treated wastewater shall be released out the premises and 'Zero' discharge shall be adopted by recycling all the treated water in the plant itself including from the existing plant.**

Compliance Status:

- Due to water recycling facilities, the total water requirement from River Subarnarekha shall not cross 33.3 MGD for Steel Works.
- A central effluent treatment plant (CETP) of 4 MGD has been constructed to treat and recycle most of the effluent by tertiary treatment with Reverse Osmosis (RO). Treated water from plant (CETP) primary, secondary and tertiary treatment is used through recycling or used for dust suppression, slag quenching and green belt development etc. inside the plant. This CETP is being augmented from 4 MGD to 9 MGD to treat and recycle the balance wastewater generated from various units.
- Capacity of the existing CETP has been commissioned with recovery of additional 5 MGD, enhancing the overall treatment capacity of the CETP from 4 MGD to 9 MGD and is under ramp up stage to treat and recycle the balance wastewater generated from various units.

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- New BOD plant has been commissioned and existing BOD has been upgraded to treat the additional effluent generated from Coke Oven Batteries including Batteries 10 & 11. A tertiary treatment with RO is being implemented at BOD plant to ensure zero discharge from coke oven.
- Wastewater containing suspended solids is passed through clariflocculation plant to recover and reuse the clarified water for cooling or cleaning. All the mills are equipped with respective primary effluent treatment plants with settling tanks and oil skimming facility.
- Closed circuit cooling systems have been installed. Catch pits at all the five designated outlets. have been constructed to recycle the treated effluent within plant. Zero effluent discharge has been achieved in 4 out of 5 designated outlets.
- All the effluent quality (pH, Ammoniacal Nitrogen, COD, BOD, Phenol, Cyanide, TSS, etc) are within discharge norms. Monitoring reports for all relevant parameters from April 2023 to Sept 2023 is attached in **Annexure-I**.

xiii. Efforts shall be made to make use of rainwater harvested. 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.

Compliance Status:

- There are two ponds inside Steel works viz. Upper Cooling Pond (UCP) and Lower Cooling Pond (LCP), which stores and harvest most of the surface run off with cooling water of the units.
- 31 nos. of rainwater harvesting structures in different office buildings have been provided inside the plant area of which some area has the facility of Ground Water Recharge system.
- RWH structure has been constructed based on the maximum rainfall of last 20 yrs.

xiv. Continuous monitoring of Total Organic Compounds (TOC) in the wastewater treated in BOD plant from the coke oven plant shall be done at the outlet of ETP (BOD plant). All the treated wastewaters shall be monitored for pH, BOD, COD, oil & grease, cyanide, phenolic compounds, Chromium+6 etc. besides other relevant parameters.

Compliance Status:

- The BOD plant has facility of continuous monitoring of TOC. TOC Analyzer has been installed at the outlet.
- Similarly monitoring of other parameters on the outlet of the BOD plant is being done regularly.
- The monthly monitoring report for all the relevant parameters are being submitted to JSPCB and six-monthly reports are being submitted to regional office of MoEF&CC at Ranchi and CPCB.

xv. Regular monitoring of influent and effluent and surface, sub-surface and ground water shall be ensured and treated wastewater shall meet the norms prescribed by the State Pollution Control Board or prescribed under the E(P) Act whichever are more stringent. Leachate study for the effluent generated and analysis shall also be regularly carried out and report submitted to the Ministry's Regional Office at Bhubaneswar, Jharkhand, SPCB and CPCB.

Compliance Status:

- All the treated effluent from outlets is being monitored regularly.
- Online effluent monitoring system has been commissioned in all the outlets to monitor effluent quality on a real-time basis.
- Online effluent monitoring data relates to CPCB and JSPCB.
- Surface water quality of rivers Subarnarekha and Kharkai is also being monitored as a part of regular monitoring.
- There are two cooling waters pond whose water quality is also regularly monitored as part of sub surface water quality.
- Ground water quality is also being monitored at 5 locations both inside and outside plant premises.
- The monthly monitoring data is being submitted to JSPCB and six-monthly reports are being submitted to regional office of MoEF&CC at Ranchi and CPCB.

Compliance Report of Environmental Clearance of Expansion of Steel Plant (6.8 MTPA to 9.7 MTPA, Crude Steel Production) at Tata Steel Works, Jamshedpur, District East Singhbhum, Jharkhand vide MoEF Letter no J-11011/691/2007-IA. II (I) dated May 11, 2010

- Monitoring reports for all relevant parameters from April 2023 to Sept 2023 is attached in **Annexure-I**.

xvi. Zero effluent discharge shall be strictly followed, and no additional wastewater shall be discharged outside the premises. Domestic wastewater shall be treated in septic tanks followed by soak pit and used for green belt development.

Compliance Status:

- As per the water balance and plan of zero effluent discharge, all the plant effluent is being recycled into different process units for various uses. The rainwater which is being discharged into the nearby nallah is being collected and in low lying area and settled water is let out thereafter.
- Closed circuit cooling systems have been installed. Catch pits at all the five designated outlets. have been constructed to recycle the treated effluent within plant. Zero effluent discharge has been achieved in 4 out of 5 designated outlets.

xvii. As proposed, the water consumption shall not exceed 5.7 m³/Ton of steel at 9.7 MTPHY stage.

Compliance Status:

The specific water consumption has been reduced to 1.74 m³/tcs during FY'24(Till Sept'23) as compared to 5.58 m³/tcs for FY'14.

Year	Specific Water Consumption (m³/tcs)
FY 14	5.58
FY 15	5.54
FY 16	4.39
FY 17	3.83
FY 18	3.68
FY 19	3.27
FY 20	2.80
FY 21	2.25
FY 22	2.18
FY 23	1.97
FY 24 (Till Sept'23)	1.74

xviii. All the blast furnace (BF) slag shall be granulated and provided to cement manufacturers for further utilization in cement making as per the MoUs signed with various companies including M/s Lafarge, M/s Eco-cement & M/s ACC. LD slag after metal recovery shall be used in sinter plant, blast furnaces and LD convertor, aggregates making, road ballast making, soil conditioning etc. All the flue dust generated shall be recycled within the plant to the maximum extent. Mill scales, LD sludge, lime fines and flue dust shall be recycled back to the sinter plant. The BF gas cleaning plant sludge shall be used for manufacturing briquettes.

Compliance Status:

- Online slag granulation facilities have been implemented in all Blast Furnaces.
- All the BF Slag is being granulated and made available to the Cement plants for cement making.
- Blast furnace (BF) slag are provided to cement manufacturers for further utilization in cement making as per the MoUs signed with M/s Nuvoco Vistas, M/s Dalmia Cement, M/s ACC, M/s JSW Bengal and M/s Emami Cement.
- LD Slag after metal recovery is being used internally in the manufacturing process as well as externally in brick and road making works. "Tata Nirmaan" and "Tata Aggretto" are branded product of LD slag for its external utilization.
- Additional initiatives undertaken for improving the utilization of LD Slag:
 - Co-processing of LD Slag at Cement Kilns.
 - Open & closed Steam Aging inside Works
 - Use of LD Slag in road making & railway ballast.

Compliance Report of Environmental Clearance of Expansion of Steel Plant (6.8 MTPA to 9.7 MTPA, Crude Steel Production) at Tata Steel Works, Jamshedpur, District East Singhbhum, Jharkhand vide MoEF Letter no J-11011/691/2007-IA. II (I) dated May 11, 2010

- Flue dust generated are recycled within the plant, Mill scales, LD sludge, lime fines and flue dust are also recycled back to sinter plant.
- Blast Furnace gas cleaning plant (GCP) sludge is re-utilized within the manufacturing process.

xix. As proposed, coal tar sludge and BOD sludge shall be recycled for coke making by mixing with the coal charge and used in the coke ovens. Chromium sludge shall be disposed in a HDPE lined secured landfills as per the CPCB guidelines within the complex. All the other solid waste including broken refractory mass shall be properly disposed of in environment-friendly manner. Oily waste and spent oil shall be provided to authorized recyclers/reprocesses.

Compliance Status:

- Coal Tar sludge and BOD Sludge generated from By Product Plant is being recycled in coke plant by mixing with raw materials. The report for FY'24 (Till Sept'23) is enclosed under **Annexure-IV**.
- Chrome sludge is being disposed through authorized TSDF i.e., Adityapur Waste management Pvt Ltd.
- All other kind of process wastes are being reutilized in sinter plant.
- Oily waste and spent oil are sold to authorized recyclers/reprocesses.

xx. All the slag shall be used for land filling inside the plant or used as building material only after passing through Toxic Chemical Leachability Potential (TCLP) test. Toxic Chromium sludge and other hazardous substances recovered from the slag and output waste shall be disposed of in secured landfill as per CPCB guidelines.

Compliance Status:

- LD Slag are used for road making.
- The TCLP test conducted by external approved agency. The test report is enclosed under **Annexure-VIII**.
- Leachate potential of all heavy metals is negligible.
- Chrome sludge is being disposed through authorized TSDF i.e., Adityapur Waste management Pvt Ltd.

xxi. As proposed, Jugsalai muck dump (JMD) shall be reclaimed in a time bound manner by covering the dump site with geo-netting and vegetation along with localized water harvesting.

Compliance Status:

- The reclamation of JMD has been completed. A rainwater harvesting facility has been constructed at the top of the JMD which is being utilized for development of greenery. Besides this, there is a provision to pump surface drainage carry out from the plant to JMD area for development of greenery.

xxii. A time bound action plan shall be submitted to reduce solid waste, its proper utilization and disposal to the Ministry's Regional Office at Bhubaneswar, Jharkhand SPCB and CPCB.

Compliance Status:

- An action plan for Solid waste management has been submitted to JSPCB vides our letter no. EMD/C-02/460/11 dated December 16, 2011. We had also submitted road map regarding future generation and the disposal of solid waste vide our letter no. EMD/C-33/124/13 dated June 22, 2013.
- For the period during April 2023 to Sept 2023, the solid waste utilization was 119% excluding storage of LD slag at Galudih for processing. Status of Solid Waste, hazardous and other waste generation, and utilization from April 2023 to Sept 2023 is enclosed as **Annexure - VI**.

Compliance Report of Environmental Clearance of Expansion of Steel Plant (6.8 MTPA to 9.7 MTPA, Crude Steel Production) at Tata Steel Works, Jamshedpur, District East Singhbhum, Jharkhand vide MoEF Letter no J-11011/691/2007-IA. II (I) dated May 11, 2010

- xxiii. 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 Ranchi, Jharkhand SPCB and CPCB.**

Compliance Status:

- Most of the process solid waste are reutilized within the manufacturing process.
- Information regarding solid waste and hazardous waste is being submitted in Environment Statement to the Board every year. Environment statement for FY'23 is attached as **Annexure-V**.
- Status of Solid Waste, hazardous and other waste generation, and utilization from April 2023 to Sept 2023 is enclosed as **Annexure – VI**.

- xxiv. Proper utilization of fly ash shall be ensured as per Fly Ash Notification, 1999 and subsequent amendment in 2003. All the fly ash shall be provided to cement and brick manufacturers for further utilization and "Memorandum of Understanding" shall be submitted to Ministry's Regional Office at Bhubaneswar.**

Compliance Status:

- All the boilers of Captive power plants have been converted from coal fired to gas fired, thus there is no generation of fly ash in the power plant.
- Ash generation from the captive power plants has been stopped due to no coal firing at Power Plants since FY'19.

- xxv. A Risk and Disaster Management Plan along with the mitigation measures shall be prepared and a copy submitted to the Ministry's Regional Office at Ranchi, Jharkhand SPCB and CPCB within 3 months of issue of environment clearance letter.**

Compliance Status:

- Disaster Management Institute, Bhopal has verified and certified the Risk assessment report and Disaster Management Plan vide their letter no. DMI/IDMU/Con-227/24 dated April 16, 2012. The same has been submitted to JSPCB.
- Copy of updated On-site Emergency Plan & Disaster Control approval by Chief Inspector of Factories, Jharkhand vide letter no. 615 dated 29.05.2020 is attached as **Annexure-VII**.

- xxvi. As proposed, green belt shall be developed in more than 33 % area within and around the plant premises as per the CPCB guidelines in consultation with DFO.**

Compliance Status:

- Total area under green cover within Jamshedpur town including steel works is approx. 2400 ha out of 5094 ha which is more than the required 33% green cover area.
- We have planted 1,06,397 nos. saplings during April 2023 to Sept 2023 inside the works, Jugsalai Muck Dump area and in Township in the same period. Every year plantation done in available space.

The following indigenous plant species are being planted:

Karanj, Syzygium, Fox tail Palm, Arica Palm, Mahagoney, Conocarpus, Juniperious, Kanel, Hibicus, Tecoma, Cassia fistula, Terminalia argintia, Bottel brush, Arjun, Putranjiva, Ashoka, Juniperus, Exeroa, Karanj, Plumeria, Cassia fistula, Hemliya, Spathodia etc.

- xxvii. Prior permission from the State Forest Department shall be taken regarding likely impact of the expansion of the proposed steel plant on the reserve forests. Measures shall be taken to prevent impact of particulate emissions / fugitive emissions, if any from the proposed plant on the surrounding reserve forests viz. Jora Pahar PF, Sand Pcha Rahar PF, Deluse RF located within 10 km radius of the project. Further, Conservation Plan for the conservation of wild fauna in consultation with the State Forest Department shall be prepared and implemented.**

Compliance Report of Environmental Clearance of Expansion of Steel Plant (6.8 MTPA to 9.7 MTPA, Crude Steel Production) at Tata Steel Works, Jamshedpur, District East Singhbhum, Jharkhand vide MoEF Letter no J-11011/691/2007-IA. II (I) dated May 11, 2010

Compliance Status:

- Prior Permission from State Forest Department has been obtained vide their memo. No. 2605 dated 20.10.2010.
- Wildlife Conservation Plan for Tata Steel has been prepared with the help of approved external agency recommended by State Forest Department and the same has been approved by Principal Chief Conservator of Forests – Wildlife (PCCF-WL) GoJ on Nov 13, 2017. Further, Payment of levies as per w.r.t. approved SSWLCP of Tata Steel Limited has been deposited into DFO Jamshedpur account vide challan no. 108 dated: 20.02.2023 (Annexure-). Wildlife Conservation Plan will be implemented as directed by Department of Forest, Jharkhand and approved SSWLCP.

xxviii. All the recommendations made in the Charter on Corporate Responsibility for Environment Protection (CREP) for the Steel Plants shall be implemented.

Compliance Status:

- CREP recommendations have been implemented. Please find enclosed the same as **Annexure – IV**.

xxix. All the commitments made to the public during the Public Hearing / Public Consultation meeting held on 18th June, 2009 shall be satisfactorily implemented and a separate budget for implementing the same shall be allocated and information submitted to the Ministry’s Regional Office at Bhubaneswar.

Compliance Status:

All the commitments made to the public during the Public Hearing are being implemented.

xxx. At least 5 % of the total cost of the project i.e. ₹ 750.00 Crores shall be earmarked towards the corporate social responsibility and item-wise details along with time bound action plan shall be prepared and submitted to the Ministry’s Regional Office at Bhubaneswar. Implementation of such program shall be ensured accordingly in a time bound manner.

Compliance Status:

- It is being complied as per the requirement under the Companies Act. The amount spent by the Company on Corporate Social Responsibility (CSR) activities is given below.
- A total of ₹ 1525 Crores spent in and around Jamshedpur since FY’11 (since inception of 9.7 MTPA Projects) till FY’24 (Till Sept’23) are as follows:

FY	Total Spent on CSR in Cr.	CSR spent in and around Jamshedpur in Cr.
2011	126	97.15
2012	146	106.43
2013	171	120.34
2014	212	136.95
2015	171	56.11
2016	204	83.62
2017	194	73.36
2018	232	82.19
2019	315	159.73
2020	193	76.52
2021	267	102.42
2022	406	185.62
2023	481	160
2024(Till Sept’23)	217	84.60
	Total	1525

Compliance Report of Environmental Clearance of Expansion of Steel Plant (6.8 MTPA to 9.7 MTPA, Crude Steel Production) at Tata Steel Works, Jamshedpur, District East Singhbhum, Jharkhand vide MoEF Letter no J-11011/691/2007-IA. II (I) dated May 11, 2010

- It is reported in the Company's Integrated Report. These reports are available on the website of Tata Steel and may be seen/downloaded from <https://www.tatasteel.com/investors/integrated-reportannual-report/>

xxxxi. The company shall provide housing for construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.

Compliance Status:

- The construction work has been completed. All the necessary infrastructure and facilities such as food, medical health care, toilets, safe drinking water, etc. had been provided to construction labor during the project work.

B. General Conditions:

i. The project authorities must strictly adhere to the stipulations made by the Jharkhand Pollution Control Board and the State Government.

Compliance Status:

- We are abiding by all the compliance conditions made by JSPCB and State Government of Jharkhand.

ii. No further expansion or modifications in the plant should be carried out without prior approval of the Ministry of Environment, Forests and Climate Change (MoEF&CC).

Compliance Status:

- No further expansion or modifications beyond the existing capacity of 11 MTPA in the plant will be carried out without prior approval from MoEF&CC. The detail of production of various products for last five years are as follows:

Product	Unit	Capacity granted in EC	FY'18	FY'19	FY'20	FY'21	FY'22	FY'23	FY'24 (Till Sept'23)
Hot Metal	MTPA	12.5	10.9	10.8	10.8	9.87	10.83	11.06	5.27
Crude Steel		11	10.0	10.2	10.2	9.34	10.24	10.64	5.21

iii. The gaseous emissions from various process units shall conform to the load/mass-based standards notified by this Ministry on 19th May, 1993 and standards prescribed from time to time. The state Board may specify more stringent standards for the relevant parameters keeping in view the nature of the industry and its size and location.

Compliance Status:

- ESPs are being upgraded of all relevant production units. Among these 6 ESPs of Sinter Plant have already been upgraded. Several projects have been taken to monitor gaseous emissions from ESPs. The agreed emission for their upgraded emission has been guaranteed to be 50 mg/Nm³.
- ESPs have been provided in pellet plant (Hood Stack, Wind Box Stack and Central dedusting stack) and bag filters in other areas where dedusting as the main criteria.
- Bag Filters are provided in the Cast House and Stock House of H and I Blast Furnace each. As explained as above, 3 bag filters have been provided in the pellet plant to control waste gas from the drying and grinding unit of pellet plant.

iv. At least four ambient air quality monitoring stations shall be established in the downward direction as well as where maximum ground level concentration of 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 Ranchi and the SPCB/CPCB once in six months.

Compliance Report of Environmental Clearance of Expansion of Steel Plant (6.8 MTPA to 9.7 MTPA, Crude Steel Production) at Tata Steel Works, Jamshedpur, District East Singhbhum, Jharkhand vide MoEF Letter no J-11011/691/2007-IA. II (I) dated May 11, 2010

Compliance Status:

- 4 nos. of online CAAQMS have been commissioned to monitor PM₁₀, PM_{2.5}, SO₂, NO_x & CO continuously inside the Works. There is one mobile monitoring facility & 8 manual AAQMS located both inside the plant and outside the plant area.
- The monthly monitoring reports by NABL accredited environment laboratory is being submitted to JSPCB and six-monthly reports are being submitted to regional office of MoEF&CC, Ranchi and CPCB.
- Monitoring reports for all relevant parameters from April 2023 to Sept 2023 is attached in **Annexure-I**.

- v. **Industrial wastewater shall be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May, 1993 and 31st December, 1993 or as amended from time to time. The treated wastewater shall be utilized for plantation purpose.**

Compliance Status:

- A central effluent treatment plant (CETP) of 4 MGD has been constructed to treat and recycle most of the effluent by tertiary treatment with Reverse Osmosis (RO). Treated water from plant (CETP) primary, secondary and tertiary treatment is used through recycling or used for dust suppression, slag quenching and green belt development etc. inside the plant conforming to the standards prescribed under GSR 422 (E) dated 19th May 1993 and 31st December 1993 or as amended from time to time.
- Capacity of the existing CETP has been commissioned with recovery of additional 5 MGD, enhancing the overall treatment capacity of the CETP from 4 MGD to 9 MGD and is under ramp up stage to treat and recycle the balance wastewater generated from various units.
- Monitoring reports for all relevant parameters from April 2023 to Sept 2023 is attached in **Annexure-I**.

- vi. **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. 75 dB (A) (daytime) and 70 dB (A) (night-time).**

Compliance Status:

- Personal Protective Equipment (PPE) have been provided to all the workers/officers to avoid any accompanied noise hazards. Facilities like silencers, enclosures, hood etc have been provided to reduce noise at source. The monitored data in the work zone reveals that the noise level does not exceeds 85 dB (A) for 8 hr exposures. Similarly, in the ambient also, the noise levels meet the prescribed standards.
- The ambient noise level monitoring is being done at different part of the Jamshedpur town in frequent interval outside Steel Works to assess the ambient noise level status. Noise level in the town is found beyond the standard on few occasions. The possible reason of equivalent noise levels in respect of all categories of areas exceeded the standards for day and night times is due to heavy traffic movement in the town, market and commercial activities, festivals and other domestic celebrations and frequent religious rituals.
- Monitoring reports for all relevant parameters from April 2023 to Sept 2023 is attached in **Annexure-I**.

- vii. **Occupational Health Surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.**

Compliance Status:

- Regular health surveillance is being conducted i.e., 2 times in a year to all the workers who have already attended more than 40 years of age. The workers having age less than 40 years are undergone occupational health surveillance program once in a year.

Compliance Report of Environmental Clearance of Expansion of Steel Plant (6.8 MTPA to 9.7 MTPA, Crude Steel Production) at Tata Steel Works, Jamshedpur, District East Singhbhum, Jharkhand vide MoEF Letter no J-11011/691/2007-IA. II (I) dated May 11, 2010

- viii. **The company shall develop surface as well as ground water harvesting structures to harvest the rainwater for utilization in the lean season besides recharging the ground water table.**

Compliance Status:

- 31 nos. of rainwater harvesting structures have been provided inside the plant area of which some area has the facility of Ground Water Recharge system. RWH structures have been constructed based on the maximum rainfall of last 20 yrs.

- ix. **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.**

Compliance Status:

- All the environmental protection measures and safeguards such as APCEs, ETPs, hazardous waste proper handling, transfer and disposal have been deployed as recommended in the EIA/EMP report.
- Socio economic development activities are regularly undertaken in and around Jamshedpur through the two agencies namely, Tata Steel Rural Development Society and Tata Steel Community Development & Welfare Services Centres. The development activities undertaken in the surrounding community are need based and are in the field of health care, education, mid-day meals in schools, sports and culture, self-employment, drinking water, rural electrification, etc. Tata Steel also facilitate the Institutes like R D Tata Technical Institute, Tata Football Academy, Tata Archery Foundation, etc. which encourages the local talent to develop themselves and participate at National and International levels.

- x. **As proposed, 2,107.00 Crores and ₹ 60.00 Crores shall be earmarked towards total capital cost and recurring cost/annum for environmental pollution control measures and judiciously utilized to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government. The funds so provided shall not be diverted for any other purpose.**

Compliance Status:

- Capital expenditure on environment is being spent on Air Pollution Control, Solid Waste Management, Zero Wastewater Discharge and Others including Greenery, Online Monitoring, etc.
- In FY 24 (Till Sept'23) total capital expenditure and recurring cost for environment are 170 Crore and 41.85 Crores respectively.
- The funds for capital investment on pollution control equipment are not diverted.

- xi. **The Regional Office of this Ministry at Bhubaneswar/CPCB/Jharkhand SPCB will monitor the stipulated conditions. A six-monthly compliance report and the monitored data along with statistical interpretation shall be submitted to them regularly.**

Compliance Status:

- Six monthly compliance reports and the monitored data are being submitted regularly.

- xii. **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 shall be forwarded to the Regional office.**

Compliance Report of Environmental Clearance of Expansion of Steel Plant (6.8 MTPA to 9.7 MTPA, Crude Steel Production) at Tata Steel Works, Jamshedpur, District East Singhbhum, Jharkhand vide MoEF Letter no J-11011/691/2007-IA. II (I) dated May 11, 2010

Compliance Status:

The Notice has been advertised in two local newspapers viz. Hindustan (Hindi) and Hindustan Times (English) on May 18, 2010, and communication to this effect was also sent to the MoEF vide our letter no. EMD/C-33/128/10 dated June 15, 2010.

- xiii. **A copy of Clearance letter shall be sent by proponent to concerned Panchayat, Zila Parishad/Municipal Corporation/Urban Local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the company by the proponent.**

Compliance Status:

- The copy of Clearance letter has been sent to Zila Parishad, DIC, Local Body and all concerned vide EMD/C-33/129-137/10 dated June 15, 2010.
- The clearance letter is also uploaded on the company website: (<https://www.tatasteel.com/corporate/our-organisation/environment/environment-compliance-reports/>)

- xiv. **The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the MoEF&CC at Ranchi, the respective Zonal Office of CPCB and the JPCB. 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.**

Compliance Status:

- Six monthly compliance reports and the monitored data are being submitted regularly. The ambient air quality parameters are being monitored and displayed at the main gate of the company in the public domain.
- The six-monthly compliance reports along the monitored data is also uploaded in the website: (<https://www.tatasteel.com/corporate/our-organisation/environment/environment-compliance-reports/>)

- xv. **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 at Bhubaneswar, the respective Zonal Office of CPCB and the JSPCB. The Regional Office of this Ministry at Bangalore / CPCB / JPCB shall monitor the stipulated conditions.**

Compliance Status:

- Six monthly compliance reports are being submitted regularly in soft copy by e-mail as well as uploaded on MoEF&CC website.

- xvi. **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 Offices of the MoEFCC at Ranchi by e-mail.**

Compliance Status:

- The environmental statement for each financial year in Form-V is regularly being submitted to the Jharkhand State Pollution Control Board.
- Environment Statement for FY'23 has been submitted vide our letter no. TSJ/EMD/C-23/175/23 dated 28.09.2023.

Compliance Report of Environmental Clearance of Expansion of Steel Plant (6.8 MTPA to 9.7 MTPA, Crude Steel Production) at Tata Steel Works, Jamshedpur, District East Singhbhum, Jharkhand vide MoEF Letter no J-11011/691/2007-IA. II (I) dated May 11, 2010

- The environmental statement has also been uploaded on the company's website: (<https://www.tatasteel.com/corporate/our-organisation/environment/environment-compliance-reports/>)

xvii. 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.

Compliance Status:

- It has been complied as the project has been already completed and Consent to Operate has been issued by Jharkhand State Pollution Control Board.

ENVIRONMENTAL CLEARANCE COMPLIANCE STATUS REPORT

April 2023 to September 2023

Tata Steel Limited, Jamshedpur
(MAIN WORKS & TOWN)

**Six Monthly Compliance Status report of Environmental
Clearance from expansion of 9.7 to 11 MTPA Crude Steel
Production**

**ENVIRONMENTAL MANAGEMENT DEPARTMENT
TATA STEEL LIMITED
JAMSHEDPUR**

Compliance Report of Environmental Clearance of Expansion of Steel Plant (9.7 MTPA to 11 MTPA, Crude Steel Production) at Tata Steel Works, Jamshedpur, District East Singhbhum, Jharkhand vide MoEF&CC Letter no J-11011/691/2007-IA. II (I) dated March 01, 2016

A. Specific Conditions:

- i. **The project proponent should install 24x7 air monitoring devices to monitor air emissions, as provided by the CPCB and submit report to Ministry and its Regional Office.**

Compliance Status:

- 4 nos. of online Continuous Ambient Air Quality Monitoring System (CAAQMS) have been commissioned to monitor PM₁₀, PM_{2.5}, SO₂, NO₂, CO continuously.
- All stacks are being monitored by Online Continuous Emission Monitoring System (OCEMS) as per the standard given in MoEF&CC notification dated 31.03.2012.
- Real-time data of OCEMS relate to the server at CPCB, New Delhi and real-time data of AAQMS and OCEMS relate to the server at JSPCB, Ranchi.
- Monitoring reports for all relevant parameters from April 2023 to Sept 2023 are attached in **Annexure-I**.

- ii. **The Project Proponent should ensure the compliance of environmental safeguard stipulated in the earlier environment clearance letter dated 11th May 2010 and submit the compliance report to the Ministry and its Regional Office, Ranchi.**

Compliance Status:

The six-monthly compliance reports of environmental safeguard stipulated in the earlier environment clearance letter dated 11th May 2010 and was submitted to Ministry's Regional Office vide letter no. **TSJ/EMD/C-41/091/23**

- The six-monthly compliance reports along with the monitored data is also uploaded on the following websites:
 - a. **MoEF&CC:** <http://environmentclearance.nic.in/>
 - b. **Company:** <https://www.tatasteel.com/corporate/our-organisation/environment/environment-compliance-reports/>

- iii. **On-line ambient air quality monitoring shall be provided and sufficient air pollution control devices viz. Electrostatic precipitator (ESP), bag house, gas cleaning plant, bag filters etc. shall be provided to keep the emission levels below 50 mg/Nm³ by installing energy efficient technology. Low NO_x burners shall be installed to control NO_x emissions. At no time, the emission level shall go beyond the prescribed standards. Interlocking facilities shall be provided so that process can be automatically stopped in case emission level exceeds the limit. Efforts shall be made to further reduce PM₁₀ and PM_{2.5} levels in the ambient air and a time bound action plan shall be submitted.**

Compliance Status:

- 4 nos. of online CAAQMS have been commissioned to monitor PM₁₀, PM_{2.5}, SO₂, NO₂, and CO continuously.
- All ESPs have been upgraded of all relevant production units while the same is under progress at LD Shop #1. The agreed emission for their upgraded ESPs has been guaranteed to be ≤50 mg/Nm³.
- Low NO_x burners have been provided in all the new units.
- Similarly, in almost all the unit's alert facility have been provided in case of units exceed any prescribed emission level as the interlocking is technically not feasible in all the production units.
- Please find enclosed a list of air pollution control devices for each of production unit as **Annexure-II**.
- Please find enclosed the updated status of implementation of action plan to reduce dust emission level in each of production unit and raw material storage area as **Annexure-III**.

Compliance Report of Environmental Clearance of Expansion of Steel Plant (9.7 MTPA to 11 MTPA, Crude Steel Production) at Tata Steel Works, Jamshedpur, District East Singhbhum, Jharkhand vide MoEF&CC Letter no J-11011/691/2007-IA. II (I) dated March 01, 2016

- iv. **Existing Electrostatic Precipitator (ESP) shall be upgraded and provided to new units to control gaseous emissions within 50 mg/Nm³. Waste gas from the drying and grinding unit of pellet plant shall be cleaned by bag filters. Adequate provisions shall be made to control NO_x emissions. Bag house shall be provided to Lime kilns.**

Compliance Status:

- All ESPs have been upgraded of all relevant production units while the same is under progress at LD Shop #1. The agreed emission for their upgraded ESP's has been guaranteed to be ≤50 mg/Nm³.
- 3 nos. of bag filters have been provided in the Pellet Plant to control waste gas from the drying and grinding unit.
- Low NO_x burners have been provided in all the new units to meet the prescribed standards.
- 12 nos. of Bag House have been provided in Lime Plant in process and dedusting units.

- v. **Land based fume extraction system shall be provided to coke oven battery to arrest fugitive emissions during charging and pushing operations. The coke oven gas shall be desulphurized by reduction of H₂S content of coke oven gas in the by-product recovery section to below 500 mg/Nm³. On-line charging with high pressure liquor aspiration (HPLA) for extraction of oven gas, leak proof oven doors, hydraulic door and door frame cleaner, water sealed AP caps and charging & pusher side emission extractor device shall be provided for the coke oven batteries to maintain VOC emissions within permissible limit. Land based fume extraction system for pushing emission control from coke ovens shall be provided.**

Compliance Status:

Land based fume extraction, desulphurization facilities, online charging with HPLA, Hydraulic door and door frame clearance, water seal AP caps and charging and pusher side emission extractor device etc. are in place in both coke ovens battery#10 & #11 to minimize leaks from doors CAPs, etc. and to meet the CREP recommendations. Coke oven gas is being desulphurized in Battery#10 & #11. H₂S content is maintained below 500 mg/Nm³. Land based fume extraction system for pushing emission control for new coke ovens batteries #10 & #11 have been provided.

- vi. **All the standards prescribed for the coke oven plants shall be followed as per the latest guidelines. Proper and full utilization of coke oven gases in power plant using heat recovery steam generators shall be ensured and no flue gases shall be discharged into the air. Sulphur shall be recovered from the coke oven gases from new product plant.**

Compliance Status:

- As per the CREP guidelines, % of PLD, PLL & PLO of all batteries are being monitored thrice in a month. The max % of PLD is found to be 9.23 in Battery#8, max % of PLL found to be 2.00 in Battery#7 and % of maximum PLO is found to be 4.08 in Battery#7 and maximum charging emission is found to be 94 sec in Battery#9.
- Byproduct gas is recovered and used for power generation in captive Powerhouse # 3, #4 & #5, and heating purpose in all the mills. Power is also being generated in TRT at G, H & I Blast Furnace. 625 tons of Sulphur has been recovered from coke oven gas in FY'24(Till Sept'23) and sold to authorized buyers.

- vii. **Only dry quenching method in the coke oven in new battery shall be adopted.**

Compliance Status:

- Coke dry quenching (CDQ) facility is commissioned in the new Coke Oven Batteries #10 and #11 and are in operation.

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- viii. **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.**

Compliance Status:

- 4 nos. of Ambient Air Quality stations have been commissioned inside plant for the monitoring of all 12 parameters as per G.S.R. No. 826(E) dated 16th November' 2009 and is being analyzed by the environment laboratory inside Works accredited with NABL accreditation no.TC-8363 dated 21.02.2022 having validity till 20.02.2024. All the monitoring results are found within prescribed limit.
- Monthly monitoring reports are being submitted to JSPCB and six-monthly monitoring reports are being submitted along with EC compliance reports to Ministry. Monitoring reports for all relevant parameters from April 2023 to Sept 2023 is attached in **Annexure-I**.

- ix. **In-plant control measures for checking fugitive emissions from all the vulnerable sources including bag filters and fume extraction system shall be provided. Dry fog dust suppression system / water sprinkling system shall be provided in raw material handling areas to control fugitive dust emissions. Fugitive emissions from different sources shall also be controlled by covered conveyors, water sprinkling in open yards and with dry fogging in the closed zones. Further, specific measures like asphaltting of the roads within premises shall be carried out to control fugitive emissions. Fugitive emissions shall be controlled, regularly monitored and records maintained.**

Compliance Status:

- Necessary air pollution control measures are provided to control fugitive dust emission. Please find enclosed a list of air pollution control devices for each of production unit as **Annexure-II**.
- All the areas of dedusting operation as junction house, transfer tower, conveyors relate to bag filters and/or dry fog dust suppression system.
- All these locations are being monitored once in month.
- A total of 419 nos. of dust suppression system (DS) are operational in present at various locations inside Works.
- A total of 71 nos. Industrial Vacuum Cleaners (IVC) are operational at various locations inside Works.
- All the internal roads have been constructed with concrete.
- All the fugitive emissions within plant locations are monitored and records are maintained.

- x. **Gaseous emission levels including secondary fugitive emissions from all the sources shall be controlled within the latest permissible limits issued by the Ministry and regularly monitored. Guidelines / Code of Practice issued by the CPCB shall be followed. New standards issued by the Ministry vide G.S.R. 414(E) dated 30th May, 2008 shall be followed.**

Compliance Status:

- Several Projects have been implemented to control Gaseous Emission levels including secondary fugitive emissions from all the sources.
- Secondary fugitive dust emissions inside the plant in different areas is being controlled and monitored in line with the CPCB guidelines and MoEF&CC standards.

- xi. **Traffic decongestion plan shall be implemented in a time bound manner to reduce emissions in the Jamshedpur city and separate budget shall be allocated for implementing the same. Maximum in bound and out bound material movement shall be done by railway wagons only to reduce dust emissions. Measures like covered conveyors for handling of bulk materials, centralized screening of iron ore, rationalization of weighing system, use of higher capacity vehicles etc. shall be adopted to reduce dust emissions. Mechanized vacuum cleaning of arterial roads shall be carried out on regular basis to further reduce the dust emissions.**

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Compliance Status:

Under the traffic decongestion plan in Jamshedpur city:

- Strengthening of marine drive (Western corridor) has been implemented.
- Southeastern corridor is under development with the government of Jharkhand.
- To control high traffic on the major roads of the town, decongestion work is being continued with the effort based on evolving need.

Inside the plant:

- Automatic traffic control system is in place to control the traffic density as well as the safely including secondary emission inside the plant.
- Maximum in bound and out bound material movements are done by railway wagons to reduce dust emissions.
- All the loaded trucks are ensured to be covered with tarpaulin sheets to avoid dust getting air borne and thus generation of secondary emission.
- Sign board have been placed on all the critical areas to keep the speed of the vehicle within 35 kmph to control secondary emission along the internal road (VIP Road) and similarly the vehicle speed is limited to 16 kmph in the units.
- All the loaded trucks/dumpers coming inside the plant with their valid PUC.
- 4 nos. of mechanized vacuum cleaning sweepers are deployed within Works for regular cleaning and dust evacuation of roads.
- Dust from road being collected by these mechanized vacuum cleaning sweepers which are being reused in sinter making through RMBB.
- 2 nos. of mechanized vacuum cleaning sweepers are deployed in Jamshedpur town for regular cleaning and dust evacuation of roads.
- 1 no. of High-Pressure Jet Cleaning Machine operating at 60 bar pressure is installed for effective road cleaning inside main works area.

- xii. Vehicular pollution due to transportation of raw materials and finished products shall be controlled. Proper arrangements shall also be made to control dust emissions during loading and unloading of the raw material and finished product.**

Compliance Status:

- Approx. all the raw material is being transported through railways to reduce the road transport load and vehicular pollution.
- Dry fog dust suppression and water sprinklers are provided to control dust emission during loading and unloading activity. A total of 419 nos. of points for dust suppression system (DS) are commissioned at various locations inside Works.
- Tyre washing facility has also been provided in 08 strategic locations to keep tyres clean to reduce dust emission on roads.
- 1 no. of High-Pressure Jet Cleaning Machine operating at 60 bar pressure is installed for effective road cleaning inside main works area.

- xiii. All the wastewater from various units shall be treated in the common effluent treatment plant (CETP) for primary, secondary, and tertiary treatment and shall be either recycled or used for dust suppression, slag quenching and green belt development etc. within the lease hold area. The phenolic effluent from the by-product recovery section of coke oven battery shall be treated in BOD plant. Wastewater containing suspended solids shall be passed through clariflocculation plant to recover and reuse the clarified water for cooling or cleaning. Mill effluent containing oil and suspended solids shall be passed through oil skimmers and filter press. No treated wastewater shall be released outside the premises and 'Zero' discharge shall be adopted by recycling all the treated wastewater in the plant itself including from the existing plant.**

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Compliance Status:

- A central effluent treatment plant (CETP) of 4 MGD has been constructed to treat and recycle most of the effluent by tertiary treatment with Reverse Osmosis (RO). Treated water from plant (CETP) primary, secondary and tertiary treatment is used through recycling or used for dust suppression, slag quenching and green belt development etc. inside the plant. Capacity of the existing CETP has been commissioned with recovery of additional 5 MGD, enhancing the overall treatment capacity of the CETP from 4 MGD to 9 MGD and is under ramp up stage to treat and recycle the balance wastewater generated from various units.
- New BOD plant has been commissioned and existing BOD has been upgraded to treat the additional effluent generated from Coke Oven Batteries including Batteries 10 & 11. A tertiary treatment with RO is being implemented at BOD plant to ensure zero discharge from coke oven.
- Wastewater containing suspended solids is passed through clariflocculation plant to recover and reuse the clarified water for cooling or cleaning. All the mills are equipped with respective primary effluent treatment plants with settling tanks and oil skimming facility.
- Closed circuit cooling systems have been installed. Catch pits at all the five designated outlets. have been constructed to recycle the treated effluent within plant. Zero effluent discharge has been achieved in 4 out of 5 designated outlets.
- All the effluent quality (pH, Ammoniacal Nitrogen, COD, BOD, Phenol, Cyanide, TSS, etc) are within discharge norms. Monitoring reports for all relevant parameters from April 2023 to Sept 2023 is attached in **Annexure-I**.

- xiv. Efforts shall be made to make use of rainwater harvested. 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.**

Compliance Status:

- There are two ponds inside Steel works viz. Upper Cooling Pond (UCP) and Lower Cooling Pond (LCP), which stores and harvest most of the surface run off with cooling water of the units.
- **31 nos.** of rainwater harvesting structures in different office buildings have been provided inside the plant area of which some area has the facility of Ground Water Recharge system.
- RWH structure has been constructed based on the maximum rainfall of last 20 yrs.

- xv. Continuous monitoring of Total Organic Compounds (TOC) in the wastewater treated in BOD plant from the coke oven plant shall be done at the outlet of ETP (BOD plant). All the treated wastewaters shall be monitored for pH, BOD, COD, oil & grease, cyanide, phenolic compounds, Chromium+6 etc. besides other relevant parameters.**

Compliance Status:

- The BOD plant has facility of continuous monitoring of TOC.
- Similarly monitoring of other parameters on the outlet of the BOD plant is being done regularly.
- The monthly monitoring report for all the relevant parameters are being submitted to JSPCB and six-monthly reports are being submitted to regional office of MoEF&CC at Ranchi and CPCB.

- xvi. Regular monitoring of influent and effluent and surface, sub-surface and ground water shall be ensured and treated wastewater shall meet the norms prescribed by the State Pollution Control Board or prescribed under the E(P) Act whichever are more stringent. Leachate study for the effluent generated and analysis shall also be regularly carried out and report submitted to the Ministry's Regional Office at Ranchi, Jharkhand, SPCB and CPCB.**

Compliance Status:

- All the treated effluent from outlets is being monitored regularly.
- Online effluent monitoring system has been commissioned in all the outlets to monitor effluent quality on a real-time basis.
- Online effluent monitoring data relates to CPCB and JSPCB.

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- Surface water quality of rivers Subarnarekha and Kharkai is also being monitored as a part of regular monitoring.
- There are two cooling waters pond whose water quality is also regularly monitored as part of sub surface water quality.
- Ground water quality is also being monitored at 5 locations both inside and outside plant premises.
- The monthly monitoring data is being submitted to JSPCB and six-monthly reports are being submitted to regional office of MoEF&CC at Ranchi and CPCB.
- Monitoring reports for all relevant parameters from April 2023 to Sept 2023 is attached in **Annexure-I**.

xvii. All the blast furnace (BF) slag shall be granulated and provided to cement manufacturers for further utilization in cement making as per the MoUs signed with various companies including M/s Lafarge, M/s Eco-cement & M/s ACC. LD slag after metal recovery shall be used in sinter plant, blast furnaces and LD convertor, aggregates making, road ballast making, soil conditioning etc. All the flue dust generated shall be recycled within the plant to the maximum extent. Mill scales, LD sludge, lime fines and flue dust shall be recycled back to the sinter plant. The BF gas cleaning plant sludge shall be used for manufacturing briquettes.

Compliance Status:

- Online slag granulation facilities have been implemented in all Blast Furnaces.
- All the BF Slag is being granulated and made available to the Cement plants for cement making.
- Blast furnace (BF) slag are provided to cement manufacturers for further utilization in cement making as per the MoUs signed with M/s Nuvoco Vistas, M/s Dalmia Cement, M/s ACC, M/s JSW Bengal and M/s Emami Cement.
- LD Slag after metal recovery is being used internally in the manufacturing process as well as externally in brick and road making works. "Tata Nirmaan" and "Tata Aggretto" are branded product of LD slag for its external utilization.
- Additional initiatives undertaken for improving the utilization of LD Slag:
 - Co-processing of LD Slag at Cement Kilns.
 - Open & closed Steam Aging inside Works
 - Use of LD Slag in road making & railway ballast.
- Flue dust generated are recycled within the plant, Mill scales, LD sludge, lime fines and flue dust are also recycled back to sinter plant.
- Blast Furnace gas cleaning plant (GCP) sludge is re-utilized within the manufacturing process.

xviii. As proposed, coal tar sludge and BOD sludge shall be recycled for coke making by mixing with the coal charge and used in the coke ovens. Chromium sludge shall be disposed in a HDPE lined secured landfills as per the CPCB guidelines within the complex. All the other solid waste including broken refractory mass shall be properly disposed off in environment-friendly manner. Oily waste and spent oil shall be provided to authorized recyclers/reprocessors.

Compliance Status:

- Coal Tar sludge and BOD Sludge generated from By Product Plant is being recycled in coke plant by mixing with raw materials. The report for FY'24 (April'23 to Sept'23) is enclosed under **Annexure-IV**.
- Chrome sludge is being disposed through authorized TSDF i.e., Adityapur Waste management Pvt Ltd.
- All other kind of process wastes are being reutilized in sinter plant.
- Oily waste and spent oil are sold to authorized recyclers/reprocessors.

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- xix. All the slag shall be used for land filling inside the plant or used as building material only after passing through Toxic Chemical Leachability Potential (TCLP) test. Toxic Chromium sludge and other hazardous substances recovered from the slag and output waste shall be disposed off in secured landfill as per CPCB guidelines.**

Compliance Status:

- LD Slag are used for road making.
- The TCLP test conducted by external approved agency. The report is enclosed under **Annexure-VIII**.
- Leachate potential of all heavy metals is negligible.
- Chrome sludge is being disposed through authorized TSDF i.e., Adityapur Waste management Pvt Ltd.

- xx. 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 Ranchi, Jharkhand SPCB and CPCB.**

Compliance Status:

- Most of the process solid waste are reutilized within the manufacturing process.
- Information regarding solid waste and hazardous waste is being submitted in Environment Statement to the Board every year. Environment statement for FY'23 is attached as **Annexure-V**.
- Status of Solid Waste, hazardous and other waste generation, and utilization from April 2023 to Sept 2023 is enclosed as **Annexure – VI**.

- xxi. Proper utilization of fly ash shall be ensured as per Fly Ash Notification, 1999 and subsequent amendment in 2003. All the fly ash shall be provided to cement and brick manufacturers for further utilization and "Memorandum of Understanding" shall be submitted to Ministry's Regional Office at Ranchi.**

Compliance Status:

- All the boilers of Captive power plants have been converted from coal fired to gas fired, thus there is no generation of fly ash in the power plant.
- Ash generation from the captive power plants has been stopped due to no coal firing at Power Plants since FY'19.

- xxii. A Risk and Disaster Management Plan along with the mitigation measures shall be prepared and a copy submitted to the Ministry's Regional Office at Ranchi, Jharkhand SPCB and CPCB within 3 months of issue of environment clearance letter.**

Compliance Status:

- Disaster Management Institute, Bhopal has verified and certified the Risk assessment report and Disaster Management Plan vide their letter no. DMI/IDMU/Con-227/24 dated April 16, 2012. The same has been submitted to JSPCB.
- Copy of updated On-site Emergency Plan & Disaster Control approval by Chief Inspector of Factories, Jharkhand vide letter no. 615 dated 29.05.2020 is attached as **Annexure-VII**.

- xxiii. As proposed, green belt shall be developed in more than 33 % area within and around the plant premises as per the CPCB guidelines in consultation with DFO.**

Compliance Status:

- Total area under green cover within Jamshedpur town including steel works is approx. 2400 ha out of 5094 ha which is more than the required 33% green cover area.

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- We have planted 1,06,397 nos. saplings during April 2023 to Sept 2023 inside the works, Jugsalai Muck Dump area and in Township in the same period. Every year plantation done in available space.

The following indigenous plant species are being planted:

Karanj, Syzygium, Fox tail Palm, Arica Palm, Mahagoney, Conocarpus, Juniperious, Kanel, Hibicus, Tecoma, Cassia fistula, Terminalia argintia, Bottel brush, Arjun, Putranjiva, Ashoka, Juniperus, Exeroa, Karanj, Plumeria, Cassia fistula, Hemliya, Spathodia etc.

- xxiv. Prior permission from the State Forest Department shall be taken regarding likely impact of the expansion of the proposed steel plant on the reserve forests. Measures shall be taken to prevent impact of particulate emissions / fugitive emissions, if any from the proposed plant on the surrounding reserve forests viz. Jora Pahar PF, Sand Pcha Rahar PF, Deluse RF located within 10 km radius of the project. Further, Conservation Plan for the conservation of wild fauna in consultation with the State Forest Department shall be prepared and implemented.**

Compliance Status:

- Prior Permission from State Forest Department has been obtained vide their memo. No. 2605 dated 20.10.2010.
- Wildlife Conservation Plan for Tata Steel has been prepared with the help of approved external agency recommended by State Forest Department and the same has been approved by Principal Chief Conservator of Forests – Wildlife (PCCF-WL) GoJ on Nov 13, 2017. Further, Payment of levies as per w.r.t. approved SSWLCP of Tata Steel Limited has been deposited into DFO Jamshedpur account vide challan no. 108 dated: 20.02.2023 (Annexure-). Wildlife Conservation Plan will be implemented as directed by Department of Forest, Jharkhand and approved SSWLCP.

- xxv. All the recommendations made in the Charter on Corporate Responsibility for Environment Protection (CREP) for the Steel Plants shall be implemented.**

Compliance Status:

- CREP recommendations have been implemented. Please find enclosed the same as **Annexure – IV**.

- xxvi. At least 5 % of the total cost of the project shall be earmarked towards the corporate social responsibility and item-wise details along with time bound action plan shall be prepared and submitted to the Ministry’s Regional Office at Ranchi. Implementation of such program shall be ensured accordingly in a time bound manner.**

Compliance Status:

- It is being complied as per the requirement under the Companies Act. The amount spent by the Company on Corporate Social Responsibility (CSR) activities is given below.
- A total of ₹ 1525 Crores spent in and around Jamshedpur since FY’11 (since inception of 9.7 MTPA Projects) till FY’24 (Till Sept’23) are as follows:

FY	Total Spent on CSR in Cr.	CSR spent in and around Jamshedpur in Cr.
2011	126	97.15
2012	146	106.43
2013	171	120.34
2014	212	136.95
2015	171	56.11
2016	204	83.62
2017	194	73.36

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2018	232	82.19
2019	315	159.73
2020	193	76.52
2021	267	102.42
2022	406	185.62
2023	481	160
2024(Till Sept'23)	217	84.60
	Total	1525

- It is reported in the Company's Integrated Report. These reports are available on the website of Tata Steel and may be seen/downloaded from <https://www.tatasteel.com/investors/integrated-reportannual-report/>

xxvii. The company shall provide housing for construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.

Compliance Status:

- The construction work has been completed. All the necessary infrastructure and facilities such as food, medical health care, toilets, safe drinking water, etc. had been provided to construction labor during the project work.

B. General Conditions:

i. The project authorities must strictly adhere to the stipulations made by the Jharkhand Pollution Control Board and the State Government.

Compliance Status:

- We are abiding by all the compliance conditions made by JSPCB and State Government of Jharkhand.

ii. No further expansion or modifications in the plant should be carried out without prior approval of the Ministry of Environment, Forests and Climate Change (MoEF&CC).

Compliance Status:

- No further expansion or modifications beyond the existing capacity of 11 MTPA in the plant will be carried out without prior approval from MoEF&CC. The detail of production of various products for last five years are as follows:

Product	Unit	Capacity granted in EC	FY'18	FY'19	FY'20	FY'21	FY'22	FY'23	FY'24(Till Sept'23)
Hot Metal	MTPA	12.5	10.9	10.8	10.8	9.87	10.83	11.06	5.27
Crude Steel		11	10.0	10.2	10.2	9.34	10.24	10.64	5.21

iii. At least four ambient air quality monitoring stations shall 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 Ranchi and the SPCB/CPCB once in six months.

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Compliance Status:

- 4 nos. of online CAAQMS have been commissioned to monitor PM₁₀, PM_{2.5}, SO₂, NO_x & CO continuously inside the Works. There are 8 nos. of manual AAQMS located both inside and outside the plant area.
- The monthly monitoring reports by NABL accredited environment laboratory is being submitted to JSPCB and six-monthly reports are being submitted to regional office of MoEF&CC, Ranchi and CPCB.
- Monitoring reports for all relevant parameters from April 2023 to Sept 2023 is attached in **Annexure-I**.

- iv. Industrial wastewater shall be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May, 1993 and 31st December,1993 or as amended from time to time. The treated wastewater shall be utilized for plantation purpose.**

Compliance Status:

- A central effluent treatment plant (CETP) of 4 MGD has been constructed to treat and recycle most of the effluent by tertiary treatment with Reverse Osmosis (RO). Treated water from plant (CETP) primary, secondary and tertiary treatment is used through recycling or used for dust suppression, slag quenching and green belt development etc. inside the plant conforming to the standards prescribed under GSR 422 (E) dated 19th May 1993 and 31st December 1993 or as amended from time to time.
- Capacity of the existing CETP has been commissioned with recovery of additional 5 MGD, enhancing the overall treatment capacity of the CETP from 4 MGD to 9 MGD and is under ramp up stage to treat and recycle the balance wastewater generated from various units.
- Monitoring reports for all relevant parameters from April 2023 to Sept 2023 is attached in **Annexure-I**.

- v. 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. 75 dB (A) (daytime) and 70 dB (A) (night-time).**

Compliance Status:

- Personal Protective Equipment (PPE) have been provided to all the workers/officers to avoid any accompanied noise hazards. Facilities like silencers, enclosures, hood etc have been provided to reduce noise at source. The monitored data in the work zone reveals that the noise level does not exceeds 85 dB (A) for 8 hr exposures. Similarly, in the ambient also, the noise levels meet the prescribed standards.
- The ambient noise level monitoring is being done at different part of the Jamshedpur town in frequent interval outside Steel Works to assess the ambient noise level status. Noise level in the town is found beyond the standard on few occasions. The possible reason of equivalent noise levels in respect of all categories of areas exceeded the standards for day and night times is due to heavy traffic movement in the town, market and commercial activities, festivals and other domestic celebrations and frequent religious rituals.
- Monitoring reports for all relevant parameters from April 2023 to Sept 2023 is attached in **Annexure-I**.

- vi. Occupational Health Surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.**

Compliance Status:

- Regular health surveillance is being conducted i.e., 2 times in a year for all the workers who have already attended more than 40 years of age. The workers having age less than 40 years are undergone occupational health surveillance program once in a year.

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- vii. **The company shall develop surface as well as ground water harvesting structures to harvest the rainwater for utilization in the lean season besides recharging the ground water table.**

Compliance Status:

- 31 nos. of rainwater harvesting structures have been provided inside the plant area of which some area has the facility of Ground Water Recharge system. RWH structures have been constructed based on the maximum rainfall of last 20 yrs.

- 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.**

Compliance Status:

- All the environmental protection measures and safeguards such as APCEs, ETPs, hazardous waste proper handling, transfer and disposal have been deployed as recommended in the EIA/EMP report.
- Socio economic development activities are regularly undertaken in and around Jamshedpur through the two agencies namely, Tata Steel Rural Development Society and Tata Steel Community Development & Welfare Services Centres. The development activities undertaken in the surrounding community are need based and are in the field of health care, education, mid-day meals in schools, sports and culture, self-employment, drinking water, rural electrification, etc. Tata Steel also facilitate the Institutes like R D Tata Technical Institute, Tata Football Academy, Tata Archery Foundation, etc. which encourages the local talent to develop themselves and participate at National and International levels.

- ix. **Requisite funds shall be earmarked towards total capital cost and recurring cost/annum for environmental pollution control measures to implement the conditions stipulated by the Ministry of Environment, Forests and Climate Change (MoEF&CC) as well as the State Government. An implementation schedule for implementing all the conditions stipulated herein shall be submitted to the Regional Office of the Ministry at Ranchi. The funds so provided shall not be diverted for any other purpose.**

Compliance Status:

- Capital expenditure on environment is being spent on Air Pollution Control, Solid Waste Management, Zero Wastewater Discharge and Others including Greenery, Online Monitoring, etc.
- In FY 24 (Till Sept'23) total capital expenditure and recurring cost for environment are 170 Crore and 41.85 Crores respectively.
- The funds for capital investment on pollution control equipment are not diverted.

- x. **A copy of Clearance letter shall be sent by proponent to concern Panchayat, Zila Parishad/Municipal Corporation/Urban Local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the company by the proponent.**

Compliance Status:

- The copy of Clearance letter has been sent to District Commissioner, Block Development Officer and Jamshedpur Notified Area Committee vide our letter no. EMD/C-41/32-34/16 dated March 04, 2016.
- The clearance letter is also uploaded on the company website: (<https://www.tatasteel.com/corporate/our-organisation/environment/environment-compliance-reports/>)

Compliance Report of Environmental Clearance of Expansion of Steel Plant (9.7 MTPA to 11 MTPA, Crude Steel Production) at Tata Steel Works, Jamshedpur, District East Singhbhum, Jharkhand vide MoEF&CC Letter no J-11011/691/2007-IA. II (I) dated March 01, 2016

- xi. The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the MoEF&CC at Ranchi, the respective Zonal Office of CPCB and the JPCB. 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.**

Compliance Status:

- Six monthly compliance reports and the monitored data are being submitted regularly. The ambient air quality parameters are being monitored and displayed at the main gate of the company in the public domain.
- The six-monthly compliance reports along the monitored data is also uploaded in the website: (<https://www.tatasteel.com/corporate/our-organisation/environment/environment-compliance-reports/>)

- 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 JSPCB. The Regional Office of this Ministry at Ranchi / CPCB / JPCB shall monitor the stipulated conditions.**

Compliance Status:

- Six monthly compliance reports are being submitted regularly in soft copy by e-mail as well as uploaded on MoEF&CC website.

- 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 Offices of the MoEF&CC at Ranchi by e-mail.**

Compliance Status:

- The environmental statement for each financial year in Form-V is regularly being submitted to the Jharkhand State Pollution Control Board.
- Environment Statement for FY'23 has been submitted vide our letter no. TSJ/EMD/C-23/175/23 dated 28.09.2023.
- The environmental statement has also been uploaded on the company's website: (<https://www.tatasteel.com/corporate/our-organisation/environment/environment-compliance-reports/>)

- 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 (MoEF&CC) at <http://envfor.nic.in>. This shall be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same shall be forwarded to the Regional office.**

Compliance Status:

- The Notice has been advertised in two local newspapers viz. Prabhat Khabar (Hindi) and The Telegraph (English) on March 08, 2016. The same has also been informed to the regional office of MoEF&CC at Ranchi on March 09, 2016.

Compliance Report of Environmental Clearance of Expansion of Steel Plant (9.7 MTPA to 11 MTPA, Crude Steel Production) at Tata Steel Works, Jamshedpur, District East Singhbhum, Jharkhand vide MoEF&CC Letter no J-11011/691/2007-IA. II (I) dated March 01, 2016

- 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.**

Compliance Status:

- It is compiled as the project has been already completed and Consent to Operate has been issued by Jharkhand State Pollution Control Board.

MONITORING & ANALYSIS REPORT

April 2023 to September 2023

Tata Steel Limited, Jamshedpur
(MAIN WORKS & TOWN)

ENVIRONMENTAL MANAGEMENT DEPARTMENT
TATA STEEL LIMITED
JAMSHEDPUR



TATA STEEL LIMITED
ENVIRONMENT MANAGEMENT DEPARTMENT – LABORATORY
AMBIENT AIR QUALITY REPORT FOR INSIDE WORKS AREA - APR 2023 TO SEPT 2023

Location	Parameter	UoM	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sept-23
PH#6	Particulate Matter, PM10	µg/m ³	251.90	209.37	159.19	96.21	119.00	77.99
	Particulate Matter, PM2.5		65.07	54.99	62.11	37.26	49.62	32.65
	Sulphur Dioxide (SO ₂)		22.07	17.23	13.82	10.45	16.25	10.85
	Nitrogen Dioxide, (NO ₂)		45.24	24.46	30.27	37.41	56.46	27.74
	Carbon Monoxide (CO)		0.31	0.33	0.22	0.29	0.25	0.30
	Ammonia (NH ₃)		55.21	47.40	44.80	41.15	47.92	44.28
	Ozone (O ₃)		11.96	14.65	11.96	8.79	18.80	10.74
	Nickel (Ni)		0.02	0.01	0.10	< 0.1	< 0.1	0.16
	Arsenic (As)		NT	NT	NT	NT	NT	NT
	Lead (Pb)		0.10	0.14	0.20	0.09	0.08	0.06
	Benzene (C ₆ H ₆)		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
	Benzo alpha Pyrene (BaP)		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10

Note:

Standards applicable as per National Ambient Air Quality Standards vide Notification No.: B-29016/20/90/PCI-L dated 18th November 2009.

UoM - Unit of Measurement, WPFA - West Plant First Aid Station

CRM - Cold Roll, PH - Powerhouse

NT - Not Traced

This test report was generated by TATA STEEL LIMITED JSR EMD LAB having NABL Accreditation No.TC-8363.

Sr. Manager
Monitoring and Analysis

Head
Environment Monitoring, Testing &
Analysis (TSJ)



TATA STEEL LIMITED
ENVIRONMENT MANAGEMENT DEPARTMENT – LABORATORY
NOISE LEVEL MONITORING REPORT SUMMARY FOR INSIDE MAIN WORKS AREA FROM APR-23 to SEPT-23

S.no	Area	UoM	Apr-23		May-23		Jun-23		Jul-23		Aug-23		Sep-23	
			Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
1	Near N Road Boundary Wall	dB(A)Leq	58.0	54.7	53.5	58.2	64.0	67.2	57.3	55.8	63.3	57.0	53.3	54.7
2	Near L Town Boundary Wall		68.1	55.2	66.5	52.9	68.3	65.2	67.7	57.2	68.0	61.8	56.9	55.4
3	Near Burma Mines Gate		64.6	56.9	61.0	56.6	65.2	63.8	61.5	59.8	60.4	57.4	66.4	55.1
4	Near Jugsalai Gate		68.9	54.4	67.9	63.2	63.4	61.2	67.3	66.8	67.8	58.8	62.3	60.0

Note - Standards applicable as per Noise Pollution (Regulation and Control) (Amendment) Rules, 2000 notified vide S. O. 1046 (E), dated 22-11-2000.

UoM - Unit of Measurement,

This test report was generated by TATA STEEL LIMITED JSR EMD LAB having NABL Accreditation No.TC-8363.

Sr. Manager
Monitoring and Analysis

Head Env. Monitoring
Testing & Analysis (TSJ)



TATA STEEL LIMITED
ENVIRONMENT MANAGEMENT DEPARTMENT – LABORATORY
ONLINE STACK MONITORING REPORT FOR INSIDE WORKS AREA - APR 2023 TO SEPT 2023

SL. No.	Department	Stack	Apr-23			May-23			Jun-23		
			PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)
1	Blast Furnace	C - Stove	<5	25.9	<5	<5	22.5	<5	<5	20.6	6.8
2	Blast Furnace	E - Stock & Cast House	5.7	-	-	6.9	-	-	-	-	-
3	Blast Furnace	E - Stove	<5	77.3	30.3	<5	86.1	33.4	-	-	-
4	Blast Furnace	F - Cast House	<5	-	-	<5	-	-	<5	-	-
5	Blast Furnace	F - PCI	<5	-	-	<5	-	-	5.7	-	-
6	Blast Furnace	F - Stock House-DE	<5	-	-	<5	-	-	<5	-	-
7	Blast Furnace	F - Stove	<5	37.3	60.3	<5	40.4	62.6	<5	38.2	85.1
8	Blast Furnace	G - Cast House	8.8	-	-	8.6	-	-	15.0	-	-
9	Blast Furnace	G - PCI-01	<5	-	-	<5	-	-	5.0	-	-
10	Blast Furnace	G - PCI-02	5.3	-	-	<5	-	-	<5	-	-
11	Blast Furnace	G - PCI-03	5.8	-	-	5.3	-	-	7.0	-	-
12	Blast Furnace	G - Stock House	<5	-	-	<5	-	-	<5	-	-
13	Blast Furnace	G - Stove	<5	12.8	14.5	<5	13.6	13.6	<5	17.1	17.4
14	Blast Furnace	H - Cast House	<5	-	-	<5	-	-	<5	-	-
15	Blast Furnace	H - PCI-01	8.9	-	-	6.0	-	-	6.1	-	-



TATA STEEL LIMITED
ENVIRONMENT MANAGEMENT DEPARTMENT – LABORATORY
ONLINE STACK MONITORING REPORT FOR INSIDE WORKS AREA - APR 2023 TO SEPT 2023

SL. No.	Department	Stack	Apr-23			May-23			Jun-23		
			PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)
16	Blast Furnace	H - PCI-02	5.8	-	-	7.0	-	-	6.9	-	-
17	Blast Furnace	H - Stock House	9.1	-	-	9.0	-	-	7.9	-	-
18	Blast Furnace	H - Stock House - DE	<5	-	-	<5	-	-	<5	-	-
19	Blast Furnace	H - Stove	<5	17.5	<5	<5	12.2	5.7	<5	28.6	16.3
20	Blast Furnace	HMPP	<5	-	-	<5	-	-	<5	-	-
21	Blast Furnace	I - Cast House	<5	-	-	<5	-	-	<5	-	-
22	Blast Furnace	I - PCI	6.5	-	-	<5	-	-	<5	-	-
23	Blast Furnace	I - Stock House	<5	-	-	<5	-	-	<5	-	-
24	Blast Furnace	I - Stove	14.2	21.8	7.3	<5	12.3	<5	<5	16.2	6.5
25	Coke Plant	Battery 07	18.7	397.8	106.3	15.3	270.3	145.5	15.7	109.7	111.7
26	Coke Plant	Battery 08	15.9	73.4	213.3	23.3	88.6	158.5	17.5	44.4	125.9
27	Coke Plant	Battery 09	13.2	84.5	233.6	11.8	109.7	227.4	10.0	63.0	234.5
28	Coke Plant	Battery 10	17.7	175.7	414.9	14.9	114.0	381.6	8.9	104.0	249.8
29	Coke Plant	Battery 10 Pushing Dedusting	7.6	-	-	7.4	-	-	7.1	-	-
30	Coke Plant	Battery 11	25.8	142.2	312	24.8	124.9	218.6	28.4	139.2	179.2



TATA STEEL LIMITED
ENVIRONMENT MANAGEMENT DEPARTMENT – LABORATORY
ONLINE STACK MONITORING REPORT FOR INSIDE WORKS AREA - APR 2023 TO SEPT 2023

SL. No.	Department	Stack	Apr-23			May-23			Jun-23		
			PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)
31	Coke Plant	Battery 11 Pushing Dedusting	<5	-	-	6.0	-	-	8.0	-	-
32	LD 1	LD 01 - Ladle Furnace 01	7.7	-	-	10.0	-	-	5.5	-	-
33	LD 1	LD 01 - Ladle Furnace 02	9.3	-	-	11.2	-	-	15.2	-	-
34	LD 1	LD 01 - Ladle Furnace 03	6.3	-	-	<5	-	-	<5	-	-
35	LD 1	LD 01 - Secondary Emission	<5	-	-	<5	-	-	<5	-	-
36	LD 2	LD 02 - DE 01	<5	-	-	<5	-	-	<5	-	-
37	LD 2	LD 02 - DE 02	7.1	-	-	7.1	-	-	7.1	-	-
38	LD 2	LD 02 - DE 03	<5	-	-	<5	-	-	<5	-	-
39	LD 2	LD 02 - DE 04	<5	-	-	<5	-	-	<5	-	-
40	LD 2	LD 02 - DE 05	<5	-	-	<5	-	-	<5	-	-
41	LD 2	LD 02 - DE 06	<5	-	-	<5	-	-	<5	-	-
42	LD 2	LD 02 - DE 07	<5	-	-	<5	-	-	<5	-	-
43	LD 2	LD 02 - DE 08	<5	-	-	<5	-	-	<5	-	-
44	LD 2	LD 02 - DE 09	<5	-	-	<5	-	-	<5	-	-
45	LD 2	LD 02 - Ladle Furnace 01	5.5	-	-	6.2	-	-	7.6	-	-



TATA STEEL LIMITED
ENVIRONMENT MANAGEMENT DEPARTMENT – LABORATORY
ONLINE STACK MONITORING REPORT FOR INSIDE WORKS AREA - APR 2023 TO SEPT 2023

SL. No.	Department	Stack	Apr-23			May-23			Jun-23		
			PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)
46	LD 2	LD 02 - Ladle Furnace 02	5.9	-	-	9.0	-	-	11.2	-	-
47	LD 2	LD 02 - Secondary Emission - 01	6.4	-	-	6.3	-	-	8.3	-	-
48	LD 2	LD 02 - Secondary Emission - 02	<5	-	-	<5	-	-	<5	-	-
49	LD 2	LD 02 - Secondary Emission - 03	8.1	-	-	7.3	-	-	7.2	-	-
50	LD 3	LD 03 - Ladle Furnace 01	<5	-	-	<5	-	-	<5	-	-
51	LD 3	LD 03 - Ladle Furnace 02	5.9	-	-	5.6	-	-	6.2	-	-
52	LD 3	LD 03 - Secondary Emission	<5	-	-	<5	-	-	<5	-	-
53	Lime Plant	Merz Kiln 01	8.4	-	-	7.2	-	-	<5	-	-
54	Lime Plant	Merz Kiln 02	<5	-	-	<5	-	-	<5	-	-
55	Lime Plant	Merz Kiln 03& 04	<5	-	-	<5	-	-	<5	-	-
56	Lime Plant	Merz Kiln 05	8.1	-	-	8.4	-	-	<5	-	-
57	Lime Plant	Merz Kiln 06	<5	-	-	<5	-	-	<5	-	-
58	Lime Plant	Merz Kiln 06 - DE 12	<5	-	-	<5	-	-	<5	-	-
59	Lime Plant	Merz Kiln 07	<5	-	-	<5	-	-	<5	-	-
60	Lime Plant	Merz Kiln 08 - DE 01B	<5	-	-	<5	-	-	<5	-	-



TATA STEEL LIMITED
ENVIRONMENT MANAGEMENT DEPARTMENT – LABORATORY
ONLINE STACK MONITORING REPORT FOR INSIDE WORKS AREA - APR 2023 TO SEPT 2023

SL. No.	Department	Stack	Apr-23			May-23			Jun-23		
			PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)
61	Lime Plant	Merz Kiln 09 - DE 09	<5	-	-	<5	-	-	<5	-	-
62	Lime Plant	Merz Kiln 7 DE15	<5	-	-	<5	-	-	<5	-	-
63	Lime Plant	Merz Kiln 8	6.2	-	-	6.1	-	-	<5	-	-
64	Lime Plant	Merz Kiln 9	<5	-	-	<5	-	-	5.0	-	-
65	Mills	CRM BAF	8.1	-	-	8.2	-	-	5.5	-	-
66	Mills	CRM CGL - 1	-	-	-	-	-	-	-	-	-
67	Mills	CRM CGL - 2	<5	-	-	<5	-	-	<5	-	-
68	Mills	CRM PLTCM	<5	-	-	<5	-	-	<5	-	-
69	Mills	HSM RHF - 1	15.5	-	-	20.8	-	-	25.2	-	-
70	Mills	HSM RHF - 2	9.7	-	-	10.1	-	-	14.9	-	-
71	Mills	HSM RHF - 3	9.2	-	-	8.7	-	-	7.2	-	-
72	Mills	Merchant mill	14.3	-	-	25.6	-	-	11.8	-	-
73	Mills	New Bar Mill	20.8	-	-	13.4	-	-	15.7	-	-
74	Mills	Wire Rod Mill	9.8	-	-	12.2	-	-	13.0	-	-
75	Pellet Plant	PP - Central - Dedusting	5.9	-	-	6.0	-	-	5.3	-	-



TATA STEEL LIMITED
ENVIRONMENT MANAGEMENT DEPARTMENT – LABORATORY
ONLINE STACK MONITORING REPORT FOR INSIDE WORKS AREA - APR 2023 TO SEPT 2023

SL. No.	Department	Stack	Apr-23			May-23			Jun-23		
			PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)
76	Pellet Plant	PP - Drying Section	<5	-	-	<5	-	-	<5	-	-
77	Pellet Plant	PP - Gas - Hood	8.5	-	-	9.6	-	-	10.8	-	-
78	Pellet Plant	PP - Gas - Wind Box	19.9	-	-	21.8	-	-	19.0	-	-
79	Pellet Plant	PP Grinding Section 01	6	-	-	6.0	-	-	5.6	-	-
80	Pellet Plant	PP Grinding Section 02	<5	-	-	<5	-	-	<5	-	-
81	Power House	PH - 3 - Boiler 5	14.8	29.5	21.7	15.3	21.0	16.3	15.3	25.4	19.2
82	Power House	PH - 3 - Boiler 6	13.8	110.2	13	14.1	34.4	16.1	13.3	25.4	17.3
83	Power House	PH - 3 - Boiler - 07&08	17.8	30.2	20.7	21.9	18.7	14.0	21.9	23.8	18.4
84	Power House	PH - 4 - Boiler - 4	10.2	419.7	251.2	11.0	429.2	256.1	11.3	416.2	242.4
85	Power House	PH - 4 - Boiler - 5	7.9	21.6	27.3	8.1	29.0	34.0	8.3	13.7	35.9
86	Power House	PH - 4 - Boiler 1&2	26	94.6	50.5	28.5	92.9	42.9	28.0	70.5	36.7
87	Power House	PH - 5 - Boiler - B&C	12.2	27	19.9	15.6	23.1	14.3	16.6	28.9	9.5
88	Power House	PH - 5 - Boiler A	7.7	19.6	25	8.7	52.6	19.3	9.3	28.8	18.1
89	Sinter Plant 1	SP - 1 Dedusting	<5	-	-	<5	-	-	<5	-	-
90	Sinter Plant 1	SP - 1 Waste Gas	27.8	62.9	37.6	27.9	82.7	60.6	30.3	104.3	43.8



TATA STEEL LIMITED
ENVIRONMENT MANAGEMENT DEPARTMENT – LABORATORY
ONLINE STACK MONITORING REPORT FOR INSIDE WORKS AREA - APR 2023 TO SEPT 2023

SL. No.	Department	Stack	Apr-23			May-23			Jun-23		
			PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)
91	Sinter Plant 2	SP - 2 Dedusting	12.3	-	-	18.5	-	-	15.8	-	-
92	Sinter Plant 2	SP - 2 High Line	<5	-	-	<5	-	-	<5	-	-
93	Sinter Plant 2	SP - 2 Waste Gas	23.7	118.9	471.9	25.7	121.8	89.5	18.6	163.4	102.4
94	Sinter Plant 3	SP - 3 Combined (WG & DD)	20.9	256.1	55.6	26.4	150.0	69.3	32.0	131.9	62.7
95	Sinter Plant 3	SP - 3 Dedusting	5.5	-	-	5.8	-	-	5.9	-	-
96	Sinter Plant 4	SP - 4 Combined (WG & DD)	55.8	95.9	102.6	39.9	240.9	99.4	39.2	197.8	87.0
SL. No.	Department	Stack	July-23			Aug-23			Sept-23		
			PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)
1	Blast Furnace	C - Stove	<5	33.7	13.2	<5	34.0	13.9	<5	33.98	13.87
2	Blast Furnace	E - Stock & Cast House	-	-	-	-	-	-	-	-	-
3	Blast Furnace	E - Stove	-	-	-	<5	129.2	43.6	<5	129.24	43.55
4	Blast Furnace	F - Cast House	<5	-	-	<5	-	-	<5	-	-
5	Blast Furnace	F - PCI	5.6	-	-	6.3	-	-	6.27	-	-
6	Blast Furnace	F - Stock House-DE	<5	-	-	<5	-	-	<5	-	-



TATA STEEL LIMITED
ENVIRONMENT MANAGEMENT DEPARTMENT – LABORATORY
ONLINE STACK MONITORING REPORT FOR INSIDE WORKS AREA - APR 2023 TO SEPT 2023

SL. No.	Department	Stack	July-23			Aug-23			Sept-23		
			PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)
7	Blast Furnace	F - Stove	5.2	35.4	60.7	5.3	27.9	42.6	5.33	27.91	42.59
8	Blast Furnace	G - Cast House	21.9	-	-	<5	-	-	<5	-	-
9	Blast Furnace	G - PCI-01	7.3	-	-	7.8	-	-	7.8	-	-
10	Blast Furnace	G - PCI-02	5.2	-	-	5.2	-	-	5.17	-	-
11	Blast Furnace	G - PCI-03	5.2	-	-	5.2	-	-	5.16	-	-
12	Blast Furnace	G - Stock House	<5	-	-	<5	-	-	<5	-	-
13	Blast Furnace	G - Stove	<5	16.1	6.9	<5	36.1	22.4	<5	36.05	22.39
14	Blast Furnace	H - Cast House	<5	-	-	<5	-	-	<5	-	-
15	Blast Furnace	H - PCI-01	<5	-	-	<5	-	-	<5	-	-
16	Blast Furnace	H - PCI-02	<5	-	-	<5	-	-	<5	-	-
17	Blast Furnace	H - Stock House	6.2	-	-	6.1	-	-	6.09	-	-
18	Blast Furnace	H - Stock House - DE	<5	-	-	<5	-	-	<5	-	-
19	Blast Furnace	H - Stove	<5	29.1	20.8	<5	30.3	18.2	<5	30.25	18.24
20	Blast Furnace	HMPP	5.2	-	-	5.9	-	-	5.93	-	-



TATA STEEL LIMITED
ENVIRONMENT MANAGEMENT DEPARTMENT – LABORATORY
ONLINE STACK MONITORING REPORT FOR INSIDE WORKS AREA - APR 2023 TO SEPT 2023

SL. No.	Department	Stack	July-23			Aug-23			Sept-23		
			PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)
21	Blast Furnace	I - Cast House	<5	-	-	<5	-	-	<5	-	-
22	Blast Furnace	I - PCI	<5	-	-	5.1	-	-	5.1	-	-
23	Blast Furnace	I - Stock House	<5	-	-	<5	-	-	<5	-	-
24	Blast Furnace	I - Stove	<5	31.7	15.4	<5	31.8	13.8	<5	31.81	13.8
25	Coke Plant	Battery 07	14.7	143.8	93.9	13.8	409.0	85.6	13.82	409.02	85.63
26	Coke Plant	Battery 08	23.4	52.9	130.5	21.6	50.1	188.1	21.58	50.07	188.1
27	Coke Plant	Battery 09	13.9	59.0	178.6	17.5	37.5	160.1	17.51	37.48	160.05
28	Coke Plant	Battery 10	17.1	140.8	250.2	13.8	98.0	305.0	13.82	98.02	305.01
29	Coke Plant	Battery 10 Pushing Dedusting	7.8	-	-	7.5	-	-	7.47	-	-
30	Coke Plant	Battery 11	25.6	167.0	203.1	28.6	159.3	200.7	28.61	159.31	200.69
31	Coke Plant	Battery 11 Pushing Dedusting	8.6	-	-	8.8	-	-	8.84	-	-
32	LD 1	LD 01 - Ladle Furnace 01	<5	-	-	<5	-	-	<5	-	-
33	LD 1	LD 01 - Ladle Furnace 02	13.9	-	-	13.9	-	-	13.85	-	-
34	LD 1	LD 01 - Ladle Furnace 03	6.6	-	-	<5	-	-	<5	-	-



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SL. No.	Department	Stack	July-23			Aug-23			Sept-23		
			PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)
35	LD 1	LD 01 - Secondary Emission	<5	-	-	<5	-	-	<5	-	-
36	LD 2	LD 02 - DE 01	5.5	-	-	<5	-	-	<5	-	-
37	LD 2	LD 02 - DE 02	7.2	-	-	7.2	-	-	7.17	-	-
38	LD 2	LD 02 - DE 03	<5	-	-	<5	-	-	<5	-	-
39	LD 2	LD 02 - DE 04	<5	-	-	<5	-	-	<5	-	-
40	LD 2	LD 02 - DE 05	<5	-	-	<5	-	-	<5	-	-
41	LD 2	LD 02 - DE 06	<5	-	-	<5	-	-	<5	-	-
42	LD 2	LD 02 - DE 07	<5	-	-	<5	-	-	<5	-	-
43	LD 2	LD 02 - DE 08	<5	-	-	<5	-	-	<5	-	-
44	LD 2	LD 02 - DE 09	<5	-	-	<5	-	-	<5	-	-
45	LD 2	LD 02 - Ladle Furnace 01	9.5	-	-	13.9	-	-	13.91	-	-
46	LD 2	LD 02 - Ladle Furnace 02	6.3	-	-	9.2	-	-	9.18	-	-
47	LD 2	LD 02 - Secondary Emission - 01	<5	-	-	<5	-	-	<5	-	-
48	LD 2	LD 02 - Secondary Emission - 02	<5	-	-	<5	-	-	<5	-	-



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SL. No.	Department	Stack	July-23			Aug-23			Sept-23		
			PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)
49	LD 2	LD 02 - Secondary Emission - 03	6.7	-	-	6.5	-	-	6.53	-	-
50	LD 3	LD 03 - Ladle Furnace 01	<5	-	-	<5	-	-	<5	-	-
51	LD 3	LD 03 - Ladle Furnace 02	6.5	-	-	5.7	-	-	5.68	-	-
52	LD 3	LD 03 - Secondary Emission	<5	-	-	<5	-	-	<5	-	-
53	Lime Plant	Merz Kiln 01	<5	-	-	<5	-	-	<5	-	-
54	Lime Plant	Merz Kiln 02	<5	-	-	<5	-	-	<5	-	-
55	Lime Plant	Merz Kiln 03& 04	<5	-	-	<5	-	-	<5	-	-
56	Lime Plant	Merz Kiln 05	<5	-	-	<5	-	-	<5	-	-
57	Lime Plant	Merz Kiln 06	<5	-	-	<5	-	-	<5	-	-
58	Lime Plant	Merz Kiln 06 - DE 12	<5	-	-	<5	-	-	<5	-	-
59	Lime Plant	Merz Kiln 07	5.3	-	-	5.7	-	-	5.74	-	-
60	Lime Plant	Merz Kiln 08 - DE 01B	<5	-	-	<5	-	-	<5	-	-
61	Lime Plant	Merz Kiln 09 - DE 09	<5	-	-	<5	-	-	<5	-	-
62	Lime Plant	Merz Kiln 7 DE15	<5	-	-	<5	-	-	<5	-	-



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SL. No.	Department	Stack	July-23			Aug-23			Sept-23		
			PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)
63	Lime Plant	Merz Kiln 8	<5	-	-	<5	-	-	<5	-	-
64	Lime Plant	Merz Kiln 9	<5	-	-	<5	-	-	<5	-	-
65	Mills	CRM BAF	11.7	-	-	16.0	-	-	16.04	-	-
66	Mills	CRM CGL - 1	-	-	-	-	-	-	-	-	-
67	Mills	CRM CGL - 2	<5	-	-	<5	-	-	<5	-	-
68	Mills	CRM PLTCM	<5	-	-	<5	-	-	<5	-	-
69	Mills	HSM RHF - 1	24.1	-	-	25.2	-	-	25.18	-	-
70	Mills	HSM RHF - 2	27.5	-	-	10.7	-	-	10.72	-	-
71	Mills	HSM RHF - 3	13.1	-	-	16.3	-	-	16.34	-	-
72	Mills	Merchant mill	14.2	-	-	11.4	-	-	11.36	-	-
73	Mills	New Bar Mill	11.9	-	-	17.6	-	-	17.61	-	-
74	Mills	Wire Rod Mill	11.9	-	-	17.3	-	-	17.32	-	-
75	Pellet Plant	PP - Central - Dedusting	6.2	-	-	6.1	-	-	6.05	-	-
76	Pellet Plant	PP - Drying Section	<5	-	-	5.1	-	-	5.08	-	-



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SL. No.	Department	Stack	July-23			Aug-23			Sept-23		
			PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)
77	Pellet Plant	PP - Gas - Hood	7.4	-	-	8.4	-	-	8.39	-	-
78	Pellet Plant	PP - Gas - Wind Box	18.7	-	-	21.7	-	-	21.7	-	-
79	Pellet Plant	PP Grinding Section 01	5.2	-	-	7.7	-	-	7.65	-	-
80	Pellet Plant	PP Grinding Section 02	<5	-	-	<5	-	-	<5	-	-
81	Power House	PH - 3 - Boiler - 07&08	11.9	38.5	15.7	11.2	25.7	14.3	11.15	25.67	14.26
82	Power House	PH - 3 - Boiler 5	12.1	31.9	8.5	11.6	34.8	12.1	11.6	34.75	12.07
83	Power House	PH - 3 - Boiler 6	17.7	36.2	17.5	18.8	34.7	15.1	18.82	34.69	15.11
84	Power House	PH - 4 - Boiler - 4	9.1	360.9	141.3	7.7	<5	134.0	7.72	<5	134.03
85	Power House	PH - 4 - Boiler - 5	9.8	30.0	39.9	10.1	45.1	43.5	10.12	45.11	43.54
86	Power House	PH - 4 - Boiler 1&2	28.2	89.0	47.9	26.8	74.1	29.2	26.76	74.13	29.23
87	Power House	PH - 5 - Boiler - B&C	14.5	24.9	35.3	12.9	23.2	35.0	12.86	23.21	34.98
88	Power House	PH - 5 - Boiler A	8.6	20.7	19.0	8.8	22.3	18.3	8.84	22.34	18.34
89	Sinter Plant 1	SP - 1 Dedusting	<5	-	-	<5	-	-	<5	-	-
90	Sinter Plant 1	SP - 1 Waste Gas	32.3	80.3	32.6	33.2	93.7	42.2	33.18	93.66	42.16



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SL. No.	Department	Stack	July-23			Aug-23			Sept-23		
			PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)
91	Sinter Plant 2	SP - 2 Dedusting	9.4	-	-	13.1	-	-	13.13	-	-
92	Sinter Plant 2	SP - 2 High Line	<5	-	-	<5	-	-	<5	-	-
93	Sinter Plant 2	SP - 2 Waste Gas	15.9	157.1	81.2	20.6	173.4	69.7	20.62	173.42	69.73
94	Sinter Plant 3	SP - 3 Combined (WG & DD)	30.2	97.4	44.6	26.7	153.8	46.4	26.66	153.81	46.4
95	Sinter Plant 3	SP - 3 Dedusting	7.8	-	-	<5	-	-	<5	-	-
96	Sinter Plant 4	SP - 4 Combined (WG & DD)	37.2	249.3	151.7	37.8	181.7	127.4	37.77	181.72	127.35

MSD: Major Shutdown

Note: Standards applicable as per CTO, Ref No. JSPCB/HO/RNC/CTO-9834149/2021/1532 dated 17/12/2021.

Mgr Env't
(Data Availability & Analysis)
Environment Management

Head - Environment
Monitoring, Testing and Analysis (TSJ)



TATA STEEL LIMITED
ENVIRONMENT MANAGEMENT DEPARTMENT – LABORATORY
MANUAL STACK MONITORING REPORT FOR INSIDE WORKS AREA - APR 2023 TO SEPT 2023

SL. No.	Department	Stack	Apr-23			May-23			Jun-23		
			PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)
60	Lime Plant	Merz Kiln 08 - DE 01B	<5	-	-	-	-	-	-	-	-
61	Lime Plant	Merz Kiln 09 - DE 09	-	-	-	-	-	-	-	-	-
62	Lime Plant	Merz Kiln 7 DE15	-	-	-	-	-	-	-	-	-
63	Lime Plant	Merz Kiln 8	-	-	-	-	-	-	-	-	-
64	Lime Plant	Merz Kiln 9	7.9	-	-	6.4	<5	188.0	-	-	-
65	Mills	CRM BAF	<5	-	-	9.4	<5	10.0	8.3	<5	25.0
66	Mills	CRM CGL - 1	-	-	-	-	-	-	-	-	-
67	Mills	CRM CGL - 2	-	-	-	-	-	-	-	-	-
68	Mills	CRM PLTCM	-	-	-	-	-	-	-	-	-
69	Mills	HSM RHF - 1	-	-	-	20.1	<5	18.8	60.0	14.0	228.0
70	Mills	HSM RHF - 2	14.9	-	-	12.4	-	-	21.6	26.0	211.0
71	Mills	HSM RHF - 3	9.4	-	-	10.2	<5	49.0	7.1	<5	60.0
72	Mills	Merchant mill	11.9	-	-	41.5	-	-	71.3	9.0	246.0
73	Mills	New Bar Mill	23.5	-	-	28.8	-	-	39.3	14.0	329.0
74	Mills	Wire Rod Mill	22.9	-	-	21.8	-	-	11.6	<5	154.0
75	Pellet Plant	PP - Central - Dedusting	23.6	-	-	-	-	-	-	-	-
76	Pellet Plant	PP - Drying Section	-	-	-	9.1	-	-	8.7	<5	14.0
77	Pellet Plant	PP - Gas - Hood	22.0	-	-	11.7	-	-	15.7	<5	<5
78	Pellet Plant	PP - Gas - Wind Box	19.9	<5	<5	23.7	-	-	32.7	-	-
79	Pellet Plant	PP Grinding Section 01	27.7	-	-	13.9	-	-	-	-	-
80	Pellet Plant	PP Grinding Section 02	<5	-	-	<5	-	-	<5	-	-
81	Power House	PH - 3 - Boiler 5	17.0	-	-	9.1	-	-	18.6	<5	21.0
82	Power House	PH - 3 - Boiler 6	-	-	-	13.7	6.0	16.0	-	-	-
83	Power House	PH - 3 - Boiler - 07&08	21.4	-	-	-	-	-	-	-	-
84	Power House	PH - 4 - Boiler - 4	10.0	-	-	31.6	-	-	49.7	11.0	291.0
85	Power House	PH - 4 - Boiler - 5	24.5	-	-	19.5	-	-	22.7	<5	90.0
86	Power House	PH - 4 - Boiler 1&2	24.1	36.0	70.0	22.9	29.0	55.0	25.8	6.0	39.0
87	Power House	PH - 5 - Boiler - B&C	13.4	-	-	12.3	-	-	21.4	-	-
88	Power House	PH - 5 - Boiler A	10.2	<5	17.0	6.6	<5	8.0	11.5	<5	12.0
89	Sinter Plant 1	SP - 1 Dedusting	-	-	-	<5	<5	<5	-	-	-



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SL. No.	Department	Stack	July-23			Aug-23			Sept-23		
			PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)
21	Blast Furnace	I - Cast House	-	-	-	<5	-	-	7.2	<5	<5
22	Blast Furnace	I - PCI	15.7	<5	<5	23.4	-	-	<5	<5	12.0
23	Blast Furnace	I - Stock House	-	-	-	-	-	-	-	-	-
24	Blast Furnace	I - Stove	-	-	-	<5	<5	37.0	-	-	-
25	Coke Plant	Battery 07	18.5	11	410	20.7	-	-	-	-	-
26	Coke Plant	Battery 08	-	-	-	19.6	-	-	15.4	<5	<5
27	Coke Plant	Battery 09	26.5	<5	<5	-	-	-	10.3	10.0	103.0
28	Coke Plant	Battery 10	27.5	14	394	21.4	-	-	-	-	-
29	Coke Plant	Battery 10 Pushing Dedusting	10.3	<5	<5	6.2	-	-	-	-	-
30	Coke Plant	Battery 11	23.8	<5	<5	-	-	-	-	-	-
31	Coke Plant	Battery 11 Pushing Dedusting	9.4	<5	<5	-	-	-	-	-	-
32	LD 1	LD 01 - Ladle Furnace 01	-	-	-	-	-	-	-	-	-
33	LD 1	LD 01 - Ladle Furnace 02	-	-	-	-	-	-	-	-	-
34	LD 1	LD 01 - Ladle Furnace 03	-	-	-	-	-	-	-	-	-
35	LD 1	LD 01 - Secondary Emission	-	-	-	-	-	-	-	-	-
36	LD 2	LD 02 - DE 01	-	-	-	-	-	-	8.7	<5	<5
37	LD 2	LD 02 - DE 02	-	-	-	-	-	-	-	-	-
38	LD 2	LD 02 - DE 03	-	-	-	-	-	-	-	-	-
39	LD 2	LD 02 - DE 04	<5	<5	<5	-	-	-	<5	<5	<5
40	LD 2	LD 02 - DE 05	-	-	-	<5	-	-	-	-	-
41	LD 2	LD 02 - DE 06	<5	<5	<5	-	-	-	-	-	-
42	LD 2	LD 02 - DE 07	-	-	-	-	-	-	-	-	-
43	LD 2	LD 02 - DE 08	<5	<5	<5	-	-	-	-	-	-
44	LD 2	LD 02 - DE 09	-	-	-	-	-	-	-	-	-
45	LD 2	LD 02 - Ladle Furnace 01	-	-	-	-	-	-	-	-	-
46	LD 2	LD 02 - Ladle Furnace 02	-	-	-	-	-	-	-	-	-
47	LD 2	LD 02 - Secondary Emission - 01	16.1	<5	<5	16.6	-	-	-	-	-
48	LD 2	LD 02 - Secondary Emission - 02	-	-	-	<5	-	-	-	-	-
SL. No.	Department	Stack	July-23			Aug-23			Sept-23		
			PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)



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49	LD 2	LD 02 - Secondary Emission - 03	-	-	-	-	-	-	-	-	-
50	LD 3	LD 03 - Ladle Furnace 01	-	-	-	-	-	-	-	-	-
51	LD 3	LD 03 - Ladle Furnace 02	-	-	-	-	-	-	-	-	-
52	LD 3	LD 03 - Secondary Emission	5.1	<5	<5	-	-	-	<5	<5	<5
53	Lime Plant	Merz Kiln 01	<5	14	131	<5	6.0	78.0	<5	<5	<5
54	Lime Plant	Merz Kiln 02	<5	<5	39	<5	9.0	84.0	5.6	<5	<5
55	Lime Plant	Merz Kiln 03& 04	-	-	-	<5	-	-	<5	6.0	88.0
56	Lime Plant	Merz Kiln 05	-	-	-	-	-	-	-	-	-
57	Lime Plant	Merz Kiln 06	-	-	-	-	-	-	-	-	-
58	Lime Plant	Merz Kiln 06 - DE 12	-	-	-	-	-	-	-	-	-
59	Lime Plant	Merz Kiln 07	-	-	-	-	-	-	-	-	-
60	Lime Plant	Merz Kiln 08 - DE 01B	6.0	<5	<5	<5	-	-	-	-	-
61	Lime Plant	Merz Kiln 09 - DE 09	-	-	-	-	-	-	-	-	-
62	Lime Plant	Merz Kiln 7 DE15	-	-	-	-	-	-	-	-	-
63	Lime Plant	Merz Kiln 8	-	-	-	-	-	-	-	-	-
64	Lime Plant	Merz Kiln 9	5.5	<5	<5	<5	<5	51.0	<5	<5	8.0
65	Mills	CRM BAF	10.7	<5	<5	10.5	-	-	5.5	<5	<5
66	Mills	CRM CGL - 1	-	-	-	-	-	-	-	-	-
67	Mills	CRM CGL - 2	-	-	-	-	-	-	-	-	-
68	Mills	CRM PLTCM	-	-	-	-	-	-	-	-	-
69	Mills	HSM RHF - 1	17.7	20	<5	21.5	-	-	-	-	-
70	Mills	HSM RHF - 2	26.4	<5	<5	-	-	-	-	-	-
71	Mills	HSM RHF - 3	-	-	-	-	-	-	-	-	-
72	Mills	Merchant mill	-	-	-	40.0	6.0	195.0	-	-	-
73	Mills	New Bar Mill	28.7	<5	<5	24.2	-	-	-	-	-
74	Mills	Wire Rod Mill	25.2	<5	119	37.5	9.0	183.0	33.3	<5	<5
75	Pellet Plant	PP - Central - Dedusting	9.5	<5	<5	-	-	-	-	-	-
76	Pellet Plant	PP - Drying Section	-	-	-	-	-	-	-	-	-
SL. No.	Department	Stack	July-23			Aug-23			Sept-23		
			PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)
77	Pellet Plant	PP - Gas - Hood	16.7	<5	<5	<5	-	-	14.1	<5	<5
78	Pellet Plant	PP - Gas - Wind Box	34.3	11	<5	22.6	-	-	25.7	<5	172.0
79	Pellet Plant	PP Grinding Section 01	6.7	<5	<5	27.0	-	-	-	-	-



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80	Pellet Plant	PP Grinding Section 02	-	-	-	-	-	-	-	-	-
81	Power House	PH - 3 - Boiler - 07&08	-	-	-	-	-	-	-	-	-
82	Power House	PH - 3 - Boiler 5	21.7	<5	47	17.1	<5	19.0	-	-	-
83	Power House	PH - 3 - Boiler 6	-	-	-	-	-	-	-	-	-
84	Power House	PH - 4 - Boiler - 4	15.3	<5	<5	46.9	6.0	129.0	-	-	-
85	Power House	PH - 4 - Boiler - 5	-	-	-	11.2	-	-	-	-	-
86	Power House	PH - 4 - Boiler 1&2	23.8	<5	<5	28.6	-	-	-	-	-
87	Power House	PH - 5 - Boiler - B&C	13.5	<5	<5	18.1	<5	27.0	26.4	<5	12.0
88	Power House	PH - 5 - Boiler A	15.6	<5	<5	14.5	<5	21.0	11.1	<5	<5
89	Sinter Plant 1	SP - 1 Dedusting	<5	<5	<5	-	-	-	-	-	-
90	Sinter Plant 1	SP - 1 Waste Gas	-	-	-	-	-	-	-	-	-
91	Sinter Plant 2	SP - 2 Dedusting	<5	<5	<5	10.2	-	-	-	-	-
92	Sinter Plant 2	SP - 2 High Line	-	-	-	<5	-	-	-	-	-
93	Sinter Plant 2	SP - 2 Waste Gas	-	-	-	-	-	-	-	-	-
94	Sinter Plant 3	SP - 3 Combined (WG & DD)	-	-	-	-	-	-	-	-	-
95	Sinter Plant 3	SP - 3 Dedusting	<5	<5	<5	-	-	-	-	-	-
96	Sinter Plant 4	SP - 4 Combined (WG & DD)	48.7	<5	<5	49.4	6.0	35.0	-	-	-

MSD: Major Shutdown

Note: Standards applicable as per CTO, Ref No. JSPCB/HO/RNC/CTO-9834149/2021/1532 dated 17/12/2021.

Diptyajit Bhakta

Mgr Emt
(Data Availability & Analysis)
Environment Management

Prig

Head - Environment
Monitoring, Testing and Analysis (TSJ)



TATA STEEL LIMITED
ENVIRONMENT MANAGEMENT DEPARTMENT – LABORATORY
WORKS DRAINS EFFLUENT QUALITY TEST REPORT SUMMARY FROM APR-23 to SEPT-23

Sample Location	Parameter	UoM	Apr-23			May-23			Jun-23			Jul-23			Aug-23			Sept-23		
			Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg
SUSUN GHARIA DRAIN	pH	-	8.5	7.6	8.1	8.4	7.3	8.0	8.5	7.6	8.1	8.5	7.9	8.1	8.3	7.5	8.0	8.5	7.8	8.2
	Total Suspended solids	mg/L	98.0	62.0	89.1	98.0	22.0	64.6	96.0	38.0	66.3	94.0	22.0	60.8	84.0	18.0	44.8	90.0	20.0	62.8
	Oil & Grease	mg/L	3.6	2.4	3.0	3.2	2.0	2.7	3.6	0.4	2.7	3.6	1.6	2.7	3.6	2.0	2.8	4.0	1.6	3.1
	Ammonical Nitrogen (as N)	mg/L	12.5	1.9	5.9	22.5	1.2	7.2	21.4	5.5	10.6	23.9	2.3	8.9	24.3	1.1	9.4	29.4	3.1	15.3
	Cyanide (as CN-)	mg/L	0.2	0.1	0.2	0.2	0.1	0.2	0.2	0.1	0.2	0.2	0.1	0.2	0.2	0.1	0.2	0.2	0.1	0.2
	Biological Oxygen Demand, BOD	mg/L	18.0	8.5	11.9	13.0	9.0	10.9	14.0	6.0	9.3	12.0	6.0	8.1	10.0	5.0	7.3	12.0	5.0	8.2
	Chemical Oxygen Demand, COD	mg/L	169.0	55.0	117.4	160.0	46.0	82.3	115.0	55.0	76.0	144.0	46.0	75.2	93.0	28.0	62.8	92.0	21.0	67.0
	Phenol	mg/L	0.4	0.1	0.2	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.1

Note: Standards applicable as per Environment (Protection) (Third Amendment) Rules, 2012 issued in Gazette of India Notification vide No.: G. S. R. 277 (E) dated March 31, 2012.

UoM - Unit of Measurement,

NT - Not Traced

This test report was generated by TATA STEEL LIMITED JSR EMD LAB having NABL Accreditation No.TC-8363.

Sr. Manager
Monitoring and Analysis

Head Env. Monitoring
Testing & Analysis (TSJ)



TATA STEEL LIMITED
ENVIRONMENT MANAGEMENT DEPARTMENT – LABORATORY
TREATED EFFLUENT QUALITY REPORT OF BOTP & CRM FROM APR-23 to SEPT-23

Note: Standards applicable as per Environment (Protection) (Third Amendment) Rules, 2012 issued in Gazette of India Notification vide No.: G. S. R. 277 (E) dated March 31, 2012.

UoM - Unit of Measurement,

CRM - Cold Roll,

NT - Not Traced

This test report was generated by TATA STEEL LIMITED JSR EMD LAB having NABL Accreditation No.TC-8363.

A handwritten signature in black ink, appearing to read 'Naagazuma', written over a light grey rectangular background.

Sr. Manager
Monitoring and Analysis

A handwritten signature in black ink, appearing to read 'Priy', written over a light grey rectangular background.

Head
Environment Monitoring, Testing &
Analysis (TSJ)



TATA STEEL LIMITED
ENVIRONMENT MANAGEMENT DEPARTMENT – LABORATORY
AMBIENT AIR QUALITY REPORT FOR JSR TOWNSHIP - APR 2023 TO SEPT 2023

Location	Parameter	UoM	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23
Jugsalai Muck Dump	Particulate Matter, PM10	µg/m ³	167.48	57.54	100.09	54.14	89.71	41.18
	Particulate Matter, PM2.5		53.43	20.44	48.66	22.05	32.58	17.12
	Sulphur Dioxide (SO ₂)		15.34	13.57	10.50	13.57	7.88	11.86
	Nitrogen Dioxide, (NO ₂)		45.75	30.82	27.06	34.96	25.85	25.00
	Carbon Monoxide (CO)		0.18	0.16	0.18	0.21	0.17	0.18
	Ammonia (NH ₃)		46.88	51.05	40.11	56.77	48.44	56.77
	Ozone (O ₃)		10.99	11.96	17.82	7.57	7.57	17.82
	Nickel (Ni)		0.01	0.01	0.02	0.02	0.01	0.13
	Arsenic (As)		NT	NT	NT	NT	NT	NT
	Lead (Pb)		0.06	0.06	0.04	0.03	0.02	0.04
	Benzene (C ₆ H ₆)		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	Benzo alpha Pyrene (BaP)		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1

Note:

Standards applicable as per National Ambient Air Quality Standards vide Notification No.: B-29016/20/90/PCI-L dated 18th November 2009.

UoM - Unit of Measurement, WPFA - West Plant First Aid Station

CRM - Cold Roll, PH - Powerhouse

NT - Not Traced

This test report was generated by TATA STEEL LIMITED JSR EMD LAB having NABL Accreditation No.TC-8363.

Sr. Manager
Monitoring and Analysis

Head
Environment Monitoring, Testing &
Analysis (TSJ)



TATA STEEL LIMITED
ENVIRONMENT MANAGEMENT DEPARTMENT – LABORATORY
NOISE LEVEL MONITORING REPORT SUMMARY FOR JSR TOWNSHIP FROM APR 2023 TO SEPT 2023

SN	Area	UoM	Apr-23		May-23		Jun-23		Jul-23		Aug-23		Sept-23	
			Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
A) SILENCE ZONE														
1	TMH (Near Statue)	dB(A) Leq	68.6	60.4	59.6	60.2	67.3	61.8	63.2	62.2	62.6	60.9	65.6	57.0
2	JUSCO School Kadma		67.2	65.1	61.0	57.1	59.7	60.1	62.3	52.0	61.2	55.0	62.3	54.6
3	Narbheram School Bistupur		66.1	59.0	72.6	70.3	71.3	65.7	63.7	64.1	68.5	66.6	69.4	60.7
4	South Park School Bistupur		67.4	65.0	60.2	56.7	60.0	53.6	65.0	61.0	55.5	55.6	56.1	56.1
5	Old Court Area (Jubilee Park Side)		76.3	71.7	70.1	66.9	65.0	68.1	69.8	60.9	66.3	64.4	67.2	67.3
B) RESIDENTIAL ZONE														
1	Circuit House Area (North)	dB(A) Leq	70.1	68.4	59.1	67.3	65.1	61.8	64.5	53.0	63.4	55.5	61.3	56.0
2	B.H. Area		65.6	60.3	63.8	58.7	62.3	58.0	61.3	55.4	59.1	55.9	60.0	56.3
3	Farm Area		71.3	61.8	59.7	57.0	58.4	56.1	61.8	54.3	60.5	52.9	61.2	55.4
4	Baridih Basti		78.6	52.1	58.3	59.0	60.0	61.0	60.3	54.4	63.4	57.6	69.3	52.8
5	Carriage Colony Burma Mines		73.4	66.5	59.4	61.8	61.9	55.5	56.2	61.5	67.9	54.7	71.0	51.2
6	Agrico Colony		73.2	61.3	59.6	62.0	58.5	55.3	60.8	58.3	67.5	56.7	66.3	55.9
7	South Park		75.4	66.9	66.2	61.2	61.4	62.2	65.2	56.8	68.7	55.9	67.9	55.2
C) COMMERCIAL ZONE														
1	Sakchi Market	dB(A) Leq	81.4	70.7	68.2	62.0	59.5	66.5	67.7	61.4	65.7	65.5	66.1	60.1
2	Golmuri Market		78.4	68.8	65.7	61.4	62.9	63.3	69.5	63.2	70.9	59.8	69.4	61.3
3	Burma Mines Market		76.3	68.5	69.8	61.6	62.8	68.9	55.3	60.7	69.0	60.7	66.3	53.7
4	Apna Bazar Bistupur		79.4	69.5	66.8	63.3	66.2	67.6	65.5	65.9	65.8	61.0	67.2	59.0
5	'R' Road Bistupur (behind Nalanda Hotel)		65.6	64.2	69.3	60.8	64.8	61.8	58.9	60.3	66.8	65.4	65.5	59.7
D) INDUSTRIAL ZONE														
1	EAST SIDE/ near HSM Drain	dB(A) Leq	65.8	64.0	59.7	54.5	62.5	64.2	63.2	64.2	64.3	60.3	65.4	53.9
2	WEST SIDE /Near Ramm Mandir		56.6	52.5	69.0	58.6	63.9	63.5	59.6	59.4	58.2	55.5	55.6	57.9
3	NORTH/ Garam Nalla drain		63.5	60.8	59.6	60.6	66.8	67.6	66.7	64.4	67.9	65.9	60.8	60.5
4	NORTH EAST slag road gate		68.9	65.5	60.4	54.6	68.4	69.0	65.3	62.9	69.2	64.8	67.4	62.6
5	NORTH WEST/General Office		55.0	50.2	60.3	62.3	65.6	57.6	57.6	59.4	57.6	57.9	58.4	60.5
6	SOUTH EAST/Burmamines Gate		64.6	56.9	61.0	56.6	65.2	63.8	61.5	59.8	60.4	57.4	66.4	55.1
7	SOUTH WEST/Jugsali Drain		68.9	53.2	61.1	64.1	64.5	61.9	60.2	63.4	64.8	61.8	58.5	58.9

Note: Standards applicable as per Noise Pollution (Regulation and Control) (Amendment) Rules, 2000 notified vide S. O. 1046 (E), dated 22-11-2000.

Sr. Manager
Monitoring and Analysis

Head
Environment Monitoring, Testing & Analysis (TSJ)



TATA STEEL LIMITED
ENVIRONMENT MANAGEMENT DEPARTMENT – LABORATORY
GROUNDWATER MONITORING REPORT- APR 2023 TO SEPT 2023

Month	Sampling Locations	pH	Temperature	Conductivity	Total Dissolved Solids	Total Suspended Solids	Alkalinity as CaCO ₃	Total Hardness as CaCO ₃	Calcium as Ca	Chlorides as Cl ⁻	Sulphates as SO ₄ ⁻²
		--	oC	μMho/Cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Apr-23	Parvati GhatBore water	7.1	26.8	1554	761	22	122	544	163	95	607
	Jugsalai Bore Water	6.9	26.5	1798	881	16	114	518	155	89	673
	Jemco Bore Water	7.0	25.8	2679	1313	< 10	122	54	16	55	450
	SonariBore water	7.0	26.6	950	466	< 10	242	371	58	77	118
	Baganhattu Bore water	6.7	25.9	711	348	< 10	152	221	62	66	22
May-23	SonariBore water	7.1	28.9	955	468	< 10	240	323	63	83	119
	Baganhattu Bore water	6.7	28.1	1080	529	< 10	130	444	57	218	63
	Jemco Bore Water	6.6	28.1	899	441	22	408	257	49	57	93
	Jugsalai Bore Water	7.8	28.3	1072	525	< 10	380	552	66	83	82
	Parvati GhatBore water	7.4	28.9	2454	1202	< 10	140	1285	157	93	450
Jun-23	Jugsalai Bore Water	7.0	26.1	1037	508	< 10	388	418	126	59	163
	Parvati GhatBore water	6.6	25.7	891	437	< 10	156	283	27	104	127
	Baganhattu Bore water	6.8	27.0	983	482	< 10	104	382	88	226	55
	Jemco Bore Water	7.2	26.3	1093	536	< 10	412	361	134	88	132
	SonariBore water	7.0	25.6	899	441	< 10	132	386	62	76	55
Jul-23	Jugsalai Bore Water	7.2	27.0	1188	582	< 10	460	518	109	110	106
	Parvati GhatBore water	7.1	26.9	2587	1268	< 10	590	1074	192	180	32
	SonariBore water	6.9	28.0	940	461	< 10	268	380	94	75	19
	Baganhattu Bore water	6.8	28.4	1013	496	< 10	88	365	78	245	57
	Jemco Bore Water	7.1	27.7	1570	769	12	56	502	121	181	127
Aug-23	SonariBore water	6.6	25.6	1034	507	< 10	98	271	201	232	57
	Baganhattu Bore water	6.8	24.9	818	401	< 10	238	265	197	65	98
	Jemco Bore Water	6.9	25.6	562	275	< 10	136	141	102	47	55
	Jugsalai Bore Water	7.1	28.6	1186	581	< 10	420	512	361	110	306
	Parvati GhatBore water	7.0	27.3	2781	1363	< 10	632	1315	964	215	38
Sep-23	Parvati GhatBore water	7.1	26.4	3177	1557	< 10	684	1486	347	260	468
	Jugsalai Bore Water	7.2	26.7	899	441	< 10	226	319	100	76	167
	Jemco Bore Water	7.1	26.4	886	434	12	146	303	94	95	179
	SonariBore water	6.9	28.3	787	386	< 10	224	271	78	63	99
	Baganhattu Bore water	6.7	27.4	1043	511	< 10	92	384	117	228	55



TATA STEEL LIMITED
ENVIRONMENT MANAGEMENT DEPARTMENT – LABORATORY
GROUNDWATER MONITORING REPORT- APR 2023 TO SEPT 2023

Month	Sampling Locations	Nitrate Nitrogen as N	Nitrite Nitrogen as N	Fluorides as F ⁻	Silica as SiO ₂	Iron as Fe	Manganese as Mn	Hexavalent Chromium as Cr+6	Copper as Cu	Total Chromium as Cr	Cadmium as Cd	Nickel as Ni	Zinc as Zn	Lead as Pb
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Apr-23	Jugsalai Bore Water	< 0.05	0.07	0.62	34.20	0.15	0.23	< 0.05	< 0.01	< 0.05	< 0.003	< 0.02	0.24	< 0.01
	Parvati GhatBore water	0.10	0.04	0.49	45.00	0.42	0.30	< 0.05	< 0.01	< 0.05	< 0.003	< 0.02	0.53	< 0.01
	SonariBore water	5.00	0.17	0.95	59.20	0.12	0.26	< 0.05	< 0.01	< 0.05	< 0.003	< 0.02	0.09	< 0.01
	Baganhattu Bore water	4.90	0.03	0.34	46.70	0.05	0.54	< 0.05	< 0.01	< 0.05	< 0.003	< 0.02	0.09	< 0.01
	Jemco Bore Water	4.00	0.05	0.02	66.10	0.29	0.11	< 0.05	< 0.01	< 0.05	< 0.003	< 0.02	0.15	< 0.01
May-23	SonariBore water	8.30	0.06	0.33	31.30	0.03	0.43	< 0.05	< 0.01	< 0.05	< 0.003	< 0.02	0.08	< 0.01
	Baganhattu Bore water	0.37	0.03	0.56	47.80	0.11	0.57	< 0.05	< 0.01	< 0.05	< 0.003	< 0.02	0.08	< 0.01
	Jemco Bore Water	7.90	< 0.02	0.31	30.00	0.09	0.06	< 0.05	< 0.01	< 0.05	< 0.003	< 0.02	2.15	< 0.01
	Jugsalai Bore Water	1.80	0.02	1.18	27.50	0.10	0.39	< 0.05	0.02	< 0.05	< 0.003	< 0.02	0.07	< 0.01
	Parvati GhatBore water	4.00	0.01	0.79	52.70	0.07	0.21	< 0.05	< 0.01	< 0.05	< 0.003	< 0.02	0.05	< 0.01
Jun-23	Jugsalai Bore Water	1.50	0.02	0.52	27.00	0.10	0.04	< 0.05	< 0.01	< 0.05	< 0.003	< 0.02	0.07	< 0.01
	Parvati GhatBore water	1.70	< 0.02	0.82	17.50	0.19	0.03	< 0.05	< 0.01	< 0.05	< 0.003	< 0.02	0.11	< 0.01
	Baganhattu Bore water	0.06	< 0.02	0.18	43.35	0.17	0.68	< 0.05	< 0.01	< 0.05	< 0.003	< 0.02	0.04	< 0.01
	Jemco Bore Water	8.20	0.02	0.52	34.24	0.11	0.16	< 0.05	< 0.01	< 0.05	< 0.003	< 0.02	0.07	< 0.01
	SonariBore water	0.07	0.03	0.25	35.55	0.12	0.40	< 0.05	< 0.01	< 0.05	< 0.003	< 0.02	0.10	< 0.01
Jul-23	Jugsalai Bore Water	3.70	0.12	0.58	24.80	0.14	0.21	< 0.05	< 0.01	< 0.05	< 0.003	< 0.02	0.11	< 0.01
	Parvati GhatBore water	3.30	0.18	0.88	27.11	0.12	0.27	< 0.05	< 0.01	< 0.05	< 0.003	< 0.02	0.14	< 0.01
	Jemco Bore Water	0.06	0.02	0.40	27.08	0.13	0.31	< 0.05	< 0.01	< 0.05	< 0.003	< 0.02	0.09	< 0.01
	SonariBore water	2.70	0.02	0.14	25.20	0.26	0.53	< 0.05	< 0.01	< 0.05	< 0.003	< 0.02	0.05	< 0.01
	Baganhattu Bore water	6.40	0.03	1.52	28.11	0.22	0.15	< 0.05	< 0.01	< 0.05	< 0.003	< 0.02	0.09	< 0.01
Aug-23	SonariBore water	0.70	0.04	0.30	17.19	0.44	0.78	< 0.05	< 0.01	< 0.05	< 0.003	< 0.02	0.08	< 0.01
	Baganhattu Bore water	1.40	< 0.02	0.35	16.10	0.12	0.49	< 0.05	< 0.01	< 0.05	< 0.003	< 0.02	0.06	< 0.01
	Jemco Bore Water	6.10	0.05	0.32	12.15	0.25	0.10	< 0.05	< 0.01	< 0.05	< 0.003	< 0.02	0.08	< 0.01
	Jugsalai Bore Water	5.00	0.03	0.96	25.42	0.35	0.03	< 0.05	< 0.01	< 0.05	< 0.003	< 0.02	0.17	< 0.01
	Parvati GhatBore water	6.70	0.15	0.32	10.83	0.15	0.24	< 0.05	< 0.01	< 0.05	< 0.003	< 0.02	0.11	< 0.01
Sep-23	Parvati GhatBore water	4.10	0.16	0.93	14.16	0.30	0.42	< 0.05	0.05	< 0.05	< 0.003	< 0.02	0.11	< 0.01
	Jugsalai Bore Water	1.30	0.03	0.55	12.23	0.20	0.42	< 0.05	0.05	< 0.05	< 0.003	< 0.02	0.10	< 0.01
	Jemco Bore Water	5.20	0.30	0.37	15.17	0.94	0.34	< 0.05	0.05	< 0.05	< 0.003	< 0.02	0.11	< 0.01
	SonariBore water	4.80	< 0.02	0.29	8.40	0.10	0.47	< 0.05	0.05	< 0.05	< 0.003	< 0.02	0.06	< 0.01
	Baganhattu Bore water	4.01	< 0.02	0.15	12.14	0.13	0.62	< 0.05	0.05	< 0.05	< 0.003	< 0.02	0.13	< 0.01



TATA STEEL LIMITED
ENVIRONMENT MANAGEMENT DEPARTMENT – LABORATORY
GROUNDWATER MONITORING REPORT- APR 2023 TO SEPT 2023

Month	Sampling Locations	Nitrogen (Ammonia) as N	Residual Chlorine as Cl	Sulphide as S ⁻²	Phenolic Compound as Phenols	Free Cyanide	Arsenic as As	Mercury	Aluminum	Vanadium
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Apr-23	Jugsalai Bore Water	< 1.0	< 0.05	< 0.10	< 0.10	< 0.1	< 0.01	< 0.01	< 0.03	< 0.01
	Parvati Ghat Bore water	< 1.0	< 0.05	< 0.10	< 0.10	< 0.1	< 0.01	< 0.01	< 0.03	< 0.01
	Sonari Bore water	< 1.0	< 0.05	< 0.10	< 0.10	< 0.1	< 0.01	< 0.01	< 0.03	< 0.01
	Baganhattu Bore water	< 1.0	< 0.05	< 0.10	< 0.10	< 0.1	< 0.01	< 0.01	< 0.03	< 0.01
	Jemco Bore Water	< 1.0	< 0.05	< 0.10	< 0.10	< 0.1	< 0.01	< 0.01	< 0.03	< 0.01
May-23	Sonari Bore water	< 1.0	< 0.05	< 0.10	< 0.10	< 0.1	< 0.01	< 0.01	< 0.03	< 0.01
	Baganhattu Bore water	< 1.0	< 0.05	< 0.10	< 0.10	< 0.1	< 0.01	< 0.01	< 0.03	< 0.01
	Jemco Bore Water	< 1.0	< 0.05	< 0.10	< 0.10	< 0.1	< 0.01	< 0.01	< 0.03	< 0.01
	Jugsalai Bore Water	< 1.0	< 0.05	< 0.10	< 0.10	< 0.1	< 0.01	< 0.01	< 0.03	< 0.01
	Parvati Ghat Bore water	< 1.0	< 0.05	< 0.10	< 0.10	< 0.1	< 0.01	< 0.01	< 0.03	< 0.01
Jun-23	Jugsalai Bore Water	< 1.0	< 0.05	< 0.10	< 0.10	< 0.1	< 0.01	< 0.01	< 0.03	< 0.01
	Parvati Ghat Bore water	< 1.0	< 0.05	< 0.10	< 0.10	< 0.1	< 0.01	< 0.01	< 0.03	< 0.01
	Baganhattu Bore water	< 1.0	< 0.05	< 0.10	< 0.10	< 0.1	< 0.01	< 0.01	< 0.03	< 0.01
	Jemco Bore Water	< 1.0	< 0.05	< 0.10	< 0.10	< 0.1	< 0.01	< 0.01	< 0.03	< 0.01
	Sonari Bore water	< 1.0	< 0.05	< 0.10	< 0.10	< 0.1	< 0.01	< 0.01	< 0.03	< 0.01
Jul-23	Jugsalai Bore Water	< 1.0	< 0.05	< 0.10	< 0.10	< 0.1	< 0.01	< 0.01	< 0.03	< 0.01
	Parvati Ghat Bore water	< 1.0	< 0.05	< 0.10	< 0.10	< 0.1	< 0.01	< 0.01	< 0.03	< 0.01
	Jemco Bore Water	< 1.0	< 0.05	< 0.10	< 0.10	< 0.1	< 0.01	< 0.01	< 0.03	< 0.01
	Sonari Bore water	< 1.0	< 0.05	< 0.10	< 0.10	< 0.1	< 0.01	< 0.01	< 0.03	< 0.01
	Baganhattu Bore water	< 1.0	< 0.05	< 0.10	< 0.10	< 0.1	< 0.01	< 0.01	< 0.03	< 0.01
Aug-23	Sonari Bore water	< 1.0	< 0.05	< 0.10	< 0.10	< 0.1	< 0.01	< 0.01	< 0.03	< 0.01
	Baganhattu Bore water	< 1.0	< 0.05	< 0.10	< 0.10	< 0.1	< 0.01	< 0.01	< 0.03	< 0.01
	Jemco Bore Water	< 1.0	< 0.05	< 0.10	< 0.10	< 0.1	< 0.01	< 0.01	< 0.03	< 0.01
	Jugsalai Bore Water	< 1.0	< 0.05	< 0.10	< 0.10	< 0.1	< 0.01	< 0.01	< 0.03	< 0.01
	Parvati Ghat Bore water	< 1.0	< 0.05	< 0.10	< 0.10	< 0.1	< 0.01	< 0.01	< 0.03	< 0.01
Sep-23	Parvati Ghat Bore water	< 1.0	< 0.05	< 0.10	< 0.10	< 0.1	< 0.01	< 0.01	< 0.03	< 0.01
	Jugsalai Bore Water	< 1.0	< 0.05	< 0.10	< 0.10	< 0.1	< 0.01	< 0.01	< 0.03	< 0.01
	Jemco Bore Water	< 1.0	< 0.05	< 0.10	< 0.10	< 0.1	< 0.01	< 0.01	< 0.03	< 0.01
	Sonari Bore water	< 1.0	< 0.05	< 0.10	< 0.10	< 0.1	< 0.01	< 0.01	< 0.03	< 0.01
	Baganhattu Bore water	< 1.0	< 0.05	< 0.10	< 0.10	< 0.1	< 0.01	< 0.01	< 0.03	< 0.01



TATA STEEL LIMITED
ENVIRONMENT MANAGEMENT DEPARTMENT – LABORATORY
GROUNDWATER MONITORING REPORT- APR 2023 TO SEPT 2023

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Sr. Manager
Monitoring and Analysis

A handwritten signature in black ink, appearing to read 'Priy', written on a light-colored rectangular background.

Head
Environment Monitoring, Testing &
Analysis (TSJ)

TATA STEEL LIMITED
ENVIRONMENT MANAGEMENT DEPARTMENT – LABORATORY
RIVER WATER MONITORING REPORT - APR 2023 TO SEPT 2023

Month	Locations	pH	Temperature	Conductivity	Turbidity	Total Dissolved Solids	TSS
		--	oC	µMho/Cm	NTU	mg/L	mg/L
Apr-23	KHARKHAI RIVER (NEAR ADITYAPUR BRIDGE)	7.6	31.5	714	15	350	21
	KHARKHAI RIVER (NEAR DUMUHANI)	7.5	26.2	583	19	286	68
	SWARNA REKHA RIVER NEAR MANGO BRIDGE	8.4	27.0	297	7	146	18
	SWARNA REKHA RIVER BAGUN HATU	7.5	27.0	418	6	205	34
May-23	KHARKHAI RIVER (NEAR ADITYAPUR BRIDGE)	7.0	28.7	826	47	405	74
	KHARKHAI RIVER (NEAR DUMUHANI)	8.5	30.8	690	8	338	16
	SWARNA REKHA RIVER NEAR MANGO BRIDGE	7.3	31.0	382	56	187	80
	SWARNA REKHA RIVER BAGUN HATU	7.1	28.4	480	9	235	20
Jun-23	KHARKHAI RIVER (NEAR ADITYAPUR BRIDGE)	7.5	28.3	957	5	469	< 10
	KHARKHAI RIVER (NEAR DUMUHANI)	7.8	26.2	232	8	114	< 10
	SWARNA REKHA RIVER NEAR MANGO BRIDGE	8.0	26.0	243	8	119	< 10
	SWARNA REKHA RIVER BAGUN HATU	7.5	27.5	388	13	190	< 10
Jul-23	KHARKHAI RIVER (NEAR ADITYAPUR BRIDGE)	7.5	29.3	314	8	154	< 10
	KHARKHAI RIVER (NEAR DUMUHANI)	7.9	28.8	387	12	190	< 10
	SWARNA REKHA RIVER NEAR MANGO BRIDGE	7.8	28.0	358	5	175	< 10
	SWARNA REKHA RIVER BAGUN HATU	7.4	28.4	492	5	241	< 10
Aug-23	KHARKHAI RIVER (NEAR ADITYAPUR BRIDGE)	7.9	25.5	218	48	107	26
	KHARKHAI RIVER (NEAR DUMUHANI)	7.7	26.7	258	8	126	< 10
	SWARNA REKHA RIVER NEAR MANGO BRIDGE	8.5	26.8	218	8	107	< 10
	SWARNA REKHA RIVER BAGUN HATU	7.8	25.9	315	36	154	20
Sep-23	KHARKHAI RIVER (NEAR ADITYAPUR BRIDGE)	8.3	24.5	253	28	124	28
	KHARKHAI RIVER (NEAR DUMUHANI)	8.4	25.0	164	19	80	12
	SWARNA REKHA RIVER NEAR MANGO BRIDGE	8.1	24.5	167	22	82	20
	SWARNA REKHA RIVER BAGUN HATU	8.4	27.9	1708	15	837	< 10

TATA STEEL LIMITED
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RIVER WATER MONITORING REPORT - APR 2023 TO SEPT 2023

Month	Locations	Alkalinity	Total Hardness	Calcium	Magnesium
		mg/L	mg/L	mg/L	mg/L
Apr-23	KHARKHAI RIVER (NEAR ADITYAPUR BRIDGE)	142	135	42	14
	KHARKHAI RIVER (NEAR DUMUHANI)	170	183	36	11
	SWARNA REKHA RIVER NEAR MANGO BRIDGE	156	127	21	6
	SWARNA REKHA RIVER BAGUN HATU	174	131	24	7
May-23	KHARKHAI RIVER (NEAR ADITYAPUR BRIDGE)	144	241	39	16
	KHARKHAI RIVER (NEAR DUMUHANI)	160	197	32	12
	SWARNA REKHA RIVER NEAR MANGO BRIDGE	100	100	16	6
	SWARNA REKHA RIVER BAGUN HATU	140	147	22	6
Jun-23	KHARKHAI RIVER (NEAR ADITYAPUR BRIDGE)	114	269	63	17
	KHARKHAI RIVER (NEAR DUMUHANI)	258	82	35	7
	SWARNA REKHA RIVER NEAR MANGO BRIDGE	108	84	18	5
	SWARNA REKHA RIVER BAGUN HATU	92	118	26	7
Jul-23	KHARKHAI RIVER (NEAR ADITYAPUR BRIDGE)	102	104	8	3
	KHARKHAI RIVER (NEAR DUMUHANI)	98	125	17	4
	SWARNA REKHA RIVER NEAR MANGO BRIDGE	112	114	13	3
	SWARNA REKHA RIVER BAGUN HATU	132	124	10	3
Aug-23	KHARKHAI RIVER (NEAR ADITYAPUR BRIDGE)	90	80	20	6
	KHARKHAI RIVER (NEAR DUMUHANI)	100	94	23	5
	SWARNA REKHA RIVER NEAR MANGO BRIDGE	90	70	18	4
	SWARNA REKHA RIVER BAGUN HATU	96	90	25	6
Sep-23	KHARKHAI RIVER (NEAR ADITYAPUR BRIDGE)	110	108	31	7
	KHARKHAI RIVER (NEAR DUMUHANI)	80	68	19	5
	SWARNA REKHA RIVER NEAR MANGO BRIDGE	82	72	19	5
	SWARNA REKHA RIVER BAGUN HATU	162	289	105	7

TATA STEEL LIMITED
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RIVER WATER MONITORING REPORT - APR 2023 TO SEPT 2023

Month	Locations	Potassium	Chloride	SO ₄ ²⁻	PO ₄ -P (10 mm)	Nitrate Nitrogen as N	Nitrite Nitrogen as N	F	SiO ₂
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Apr-23	KHARKHAI RIVER (NEAR ADITYAPUR BRIDGE)	7.58	64	84	0.75	0.20	0.05	0.58	22
	KHARKHAI RIVER (NEAR DUMUHANI)	5.20	56	55	0.44	<0.05	0.04	0.41	19
	SWARNA REKHA RIVER NEAR MANGO BRIDGE	2.61	60	14	0.08	<0.05	0.06	0.30	14
	SWARNA REKHA RIVER BAGUN HATU	4.53	53	21	0.26	0.20	0.03	0.57	14
May-23	KHARKHAI RIVER (NEAR ADITYAPUR BRIDGE)	4.88	63	24	0.37	0.30	0.02	0.83	29
	KHARKHAI RIVER (NEAR DUMUHANI)	6.16	68	84	0.34	<0.05	0.20	0.50	21
	SWARNA REKHA RIVER NEAR MANGO BRIDGE	0.58	40	28	0.01	<0.05	<0.02	0.28	8
	SWARNA REKHA RIVER BAGUN HATU	4.72	65	32	0.42	0.40	<0.02	0.91	14
Jun-23	KHARKHAI RIVER (NEAR ADITYAPUR BRIDGE)	12.13	63	3	1.71	0.15	0.03	0.58	29
	KHARKHAI RIVER (NEAR DUMUHANI)	6.50	20	6	0.13	0.20	0.16	0.42	13
	SWARNA REKHA RIVER NEAR MANGO BRIDGE	0.80	23	7	0.25	0.14	<0.02	0.35	13
	SWARNA REKHA RIVER BAGUN HATU	4.74	41	12	0.16	0.12	0.22	0.40	9
Jul-23	KHARKHAI RIVER (NEAR ADITYAPUR BRIDGE)	<0.01	24	18	0.04	0.35	0.05	0.63	9
	KHARKHAI RIVER (NEAR DUMUHANI)	<0.01	32	21	0.04	0.65	0.11	0.46	12
	SWARNA REKHA RIVER NEAR MANGO BRIDGE	<0.01	31	18	0.04	0.48	<0.02	0.51	13
	SWARNA REKHA RIVER BAGUN HATU	<0.01	56	30	0.05	0.23	0.27	0.38	13
Aug-23	KHARKHAI RIVER (NEAR ADITYAPUR BRIDGE)	2.20	14	20	0.17	1.00	0.05	0.46	10
	KHARKHAI RIVER (NEAR DUMUHANI)	1.28	15	20	0.08	1.10	0.07	0.26	15
	SWARNA REKHA RIVER NEAR MANGO BRIDGE	1.61	10	16	0.02	0.78	0.11	0.31	15
	SWARNA REKHA RIVER BAGUN HATU	3.34	30	25	0.04	1.50	<0.02	0.44	22
Sep-23	KHARKHAI RIVER (NEAR ADITYAPUR BRIDGE)	1.75	14	14	0.03	0.10	0.02	0.29	10
	KHARKHAI RIVER (NEAR DUMUHANI)	1.45	10	8	0.05	1.30	<0.02	0.26	10
	SWARNA REKHA RIVER NEAR MANGO BRIDGE	1.41	9	8	0.04	1.00	<0.02	0.25	14
	SWARNA REKHA RIVER BAGUN HATU	3.70	28	12	0.03	0.89	<0.02	0.60	14

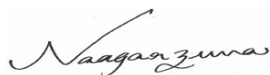
TATA STEEL LIMITED
ENVIRONMENT MANAGEMENT DEPARTMENT – LABORATORY
RIVER WATER MONITORING REPORT - APR 2023 TO SEPT 2023

Month	Locations	Fe	Mn	Cr (VI)	Cu	Cr	Cd	Ni	Zn	Pb	Nitrogen (Ammonia) as N
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Apr-23	KHARKHAI RIVER (NEAR ADITYAPUR BRIDGE)	0.17	0.02	<0.05	<0.01	<0.01	<0.01	<0.01	0.06	<0.01	<1.0
	KHARKHAI RIVER (NEAR DUMUHANI)	0.11	0.07	<0.05	<0.01	<0.01	<0.01	<0.01	0.12	<0.01	<1.0
	SWARNA REKHA RIVER NEAR MANGO BRIDGE	0.18	0.13	<0.05	<0.01	<0.01	<0.01	<0.01	0.03	<0.01	<1.0
	SWARNA REKHA RIVER BAGUN HATU	0.24	0.03	<0.05	<0.01	<0.01	<0.01	<0.01	0.06	<0.01	<1.0
May-23	KHARKHAI RIVER (NEAR ADITYAPUR BRIDGE)	0.26	0.73	<0.05	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<1.0
	KHARKHAI RIVER (NEAR DUMUHANI)	0.13	0.07	0.02	<0.01	<0.01	<0.01	<0.01	0.03	<0.01	<1.0
	SWARNA REKHA RIVER NEAR MANGO BRIDGE	0.17	0.03	0.02	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<1.0
	SWARNA REKHA RIVER BAGUN HATU	0.41	0.2	<0.05	<0.01	<0.01	<0.01	<0.01	0.04	<0.01	<1.0
Jun-23	KHARKHAI RIVER (NEAR ADITYAPUR BRIDGE)	0.06	0.04	<0.05	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<1.0
	KHARKHAI RIVER (NEAR DUMUHANI)	0.09	-	<0.05	<0.01	<0.01	<0.01	<0.01	0.04	<0.01	<1.0
	SWARNA REKHA RIVER NEAR MANGO BRIDGE	0.10	-	<0.05	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<1.0
	SWARNA REKHA RIVER BAGUN HATU	0.15	-	<0.05	<0.01	<0.01	<0.01	<0.01	0.03	<0.01	<1.0
Jul-23	KHARKHAI RIVER (NEAR ADITYAPUR BRIDGE)	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<1.0
	KHARKHAI RIVER (NEAR DUMUHANI)	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<1.0
	SWARNA REKHA RIVER NEAR MANGO BRIDGE	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<1.0
	SWARNA REKHA RIVER BAGUN HATU	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<1.0
Aug-23	KHARKHAI RIVER (NEAR ADITYAPUR BRIDGE)	3.55	0.03	<0.05	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<1.0
	KHARKHAI RIVER (NEAR DUMUHANI)	0.25	0.00	<0.05	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<1.0
	SWARNA REKHA RIVER NEAR MANGO BRIDGE	0.66	0.01	<0.05	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<1.0
	SWARNA REKHA RIVER BAGUN HATU	1.27	0.02	<0.05	<0.01	<0.01	<0.01	<0.01	0.05	<0.01	<1.0
Sep-23	KHARKHAI RIVER (NEAR ADITYAPUR BRIDGE)	0.39	0.06	<0.05	<0.01	<0.01	<0.01	<0.01	0.08	<0.01	<1.0
	KHARKHAI RIVER (NEAR DUMUHANI)	0.96	0.06	<0.05	<0.01	<0.01	<0.01	<0.01	0.05	<0.01	<1.0
	SWARNA REKHA RIVER NEAR MANGO BRIDGE	1.14	0.06	<0.05	<0.01	<0.01	<0.01	<0.01	0.06	<0.01	<1.0
	SWARNA REKHA RIVER BAGUN HATU	0.17	0.10	<0.05	<0.01	<0.01	<0.01	<0.01	0.06	<0.01	<1.0

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RIVER WATER MONITORING REPORT - APR 2023 TO SEPT 2023

Month	Locations	O & G	COD	BOD (3days at 270C)	DO at Site	Barium as Ba	Boron as B	Residual Chlorine as Cl	Sulphide as S ²⁻	Phenolic Compound s as Phenols	Cyanide as CN-	Arsenic as As	Selenium as Se
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Apr-23	KHARKHAI RIVER (NEAR ADITYAPUR BRIDGE)	2.4	25	11.0	6.1	0.05	<0.01	<1.0	<0.10	<0.10	<0.1	<0.01	<0.01
	KHARKHAI RIVER (NEAR DUMUHANI)	1.2	19	7.5	6.5	0.04	<0.01	<1.0	<0.10	<0.10	<0.1	<0.01	<0.01
	SWARNA REKHA RIVER NEAR MANGO BRIDGE	1.6	28	9.0	6.8	0.04	<0.01	<1.0	<0.10	<0.10	<0.1	<0.01	<0.01
	SWARNA REKHA RIVER BAGUN HATU	2.0	32	9.5	5.9	0.04	<0.01	<1.0	<0.10	<0.10	<0.1	<0.01	<0.01
May-23	KHARKHAI RIVER (NEAR ADITYAPUR BRIDGE)	2.8	70	15.0	6.3	0.13	<0.01	<1.0	<0.10	<0.10	<0.1	<0.01	<0.01
	KHARKHAI RIVER (NEAR DUMUHANI)	2.0	22	8.0	6.8	0.04	<0.01	<1.0	<0.10	<0.10	<0.1	<0.01	<0.01
	SWARNA REKHA RIVER NEAR MANGO BRIDGE	2.4	30	9.5	6.9	0.06	<0.01	<1.0	<0.10	<0.10	<0.1	<0.01	<0.01
	SWARNA REKHA RIVER BAGUN HATU	1.2	55	12.0	5.8	0.04	<0.01	<1.0	<0.10	<0.10	<0.1	<0.01	<0.01
Jun-23	KHARKHAI RIVER (NEAR ADITYAPUR BRIDGE)	1.2	51	22.0	7.4	0.07	<0.01	<1.0	<0.10	<0.10	<0.1	<0.01	<0.01
	KHARKHAI RIVER (NEAR DUMUHANI)	0.8	12	6.0	6.1	0.02	<0.01	<1.0	<0.10	<0.10	<0.1	<0.01	<0.01
	SWARNA REKHA RIVER NEAR MANGO BRIDGE	0.8	22	8.0	6.0	0.08	<0.01	<1.0	<0.10	<0.10	<0.1	<0.01	<0.01
	SWARNA REKHA RIVER BAGUN HATU	0.4	71	20.0	5.7	0.04	<0.01	<1.0	<0.10	<0.10	<0.1	<0.01	<0.01
Jul-23	KHARKHAI RIVER (NEAR ADITYAPUR BRIDGE)	0.8	67	24.0	7.1	<0.01	<0.01	<1.0	<0.10	<0.10	<0.1	<0.01	<0.01
	KHARKHAI RIVER (NEAR DUMUHANI)	0.6	49	7.0	7.0	0.01	<0.01	<1.0	<0.10	<0.10	<0.1	<0.01	<0.01
	SWARNA REKHA RIVER NEAR MANGO BRIDGE	1.2	8	6.0	7.0	0.01	<0.01	<1.0	<0.10	<0.10	<0.1	<0.01	<0.01
	SWARNA REKHA RIVER BAGUN HATU	0.8	24	8.0	7.1	<0.01	<0.01	<1.0	<0.10	<0.10	<0.1	<0.01	<0.01
Aug-23	KHARKHAI RIVER (NEAR ADITYAPUR BRIDGE)	0.8	34	7.0	6.2	0.05	<0.01	<1.0	<0.10	<0.10	<0.1	<0.01	<0.01
	KHARKHAI RIVER (NEAR DUMUHANI)	0.4	36	6.0	7.3	0.04	<0.01	<1.0	<0.10	<0.10	<0.1	<0.01	<0.01
	SWARNA REKHA RIVER NEAR MANGO BRIDGE	0.4	28	5.0	6.8	0.03	<0.01	<1.0	<0.10	<0.10	<0.1	<0.01	<0.01
	SWARNA REKHA RIVER BAGUN HATU	0.8	21	6.0	7.6	0.05	<0.01	<1.0	<0.10	<0.10	<0.1	<0.01	<0.01
Sep-23	KHARKHAI RIVER (NEAR ADITYAPUR BRIDGE)	0.4	64	6.0	6.0	0.08	<0.01	<1.0	<0.10	<0.10	<0.1	<0.01	<0.01
	KHARKHAI RIVER (NEAR DUMUHANI)	0.8	12	8.0	7.2	0.07	<0.01	<1.0	<0.10	<0.10	<0.1	<0.01	<0.01
	SWARNA REKHA RIVER NEAR MANGO BRIDGE	1.2	16	6.0	3.2	0.07	<0.01	<1.0	<0.10	<0.10	<0.1	<0.01	<0.01
	SWARNA REKHA RIVER BAGUN HATU	0.4	48	8.0	5.5	0.15	<0.01	<1.0	<0.10	<0.10	<0.1	<0.01	<0.01

This test report was generated by TATA STEEL LIMITED JSR EMD LAB having NABL Accreditation No.TC-8363.



Sr. Manager
Monitoring and Analysis



Head
Environment Monitoring,
Testing & Analysis (TSJ)

Details of Air/Water Pollution Control Equipment and Stacks with sampling arrangement

1. Unit wise Air/Water Pollution Control Equipment

Sl. No.	Area/Location	Air/Water Pollution Control Measures
1	Raw Material Handling Section	Covered storage under shed Covered conveyor Dry Fogging Water sprinkling Fabric filter based DE system Bag Filters Catchpit for storage of storm water
2	Coke Ovens	
	Battery # 7	Charging Gas Cleaning Cars (CGC) Dry Fogging Dust suppression Dust Extraction system for screen house Coke Dry Quenching
	Battery # 8 & 9	Coke Transfer Car (CTC) Charging Gas Transfer (CGT)
	Battery # 10 & 11	Main Charging by High Pressure LA Land based coke side dust extraction Hydro jet door cleaning Pushing and dedusting Bag filter Coke Dry Quenching
	Coke Oven By Product Plant	De-Sulphurisation BOD Plant (Advent Integral System)
3	Pellet Plant	Bag Filters Dust Suppression Wet Scrubber Electrostatic Precipitators
4	Sinter Plants	
	Sinter Plant# 1	Bag Filters Dust Suppression Foam Spray System Electrostatic Precipitators
	Sinter Plant# 2	Bag Filters Dust Suppression Foam Spray System Electrostatic Precipitators
	Sinter Plant# 3	Bag Filters Dust Suppression Foam Spray System Electrostatic Precipitators
	Sinter Plant# 4	Bag Filters Dust Suppression Foam Spray System Electrostatic Precipitators
5	Lime Plant	
	Process and dedusting	Bag Filters
	Stock Pile	DS System
	Track Hopper	DS System
	Wagon Tippler	DS System
6	Blast Furnaces	
	C-F Blast Furnaces	Bag Filters Scrubbers

Annexure-II

		DS System Gas Cleaning Plant with Press filter Effluent Treatment Plant
	G Blast Furnace	Bag Filters Scrubbers DS System Gas Cleaning Plant with Press filter Effluent Treatment Plant
	H Blast Furnace	Bag Filters Scrubbers DS System Gas Cleaning Plant with Press filter Effluent Treatment Plant
	I Blast Furnace	Bag Filters Scrubbers DS System Gas Cleaning Plant with Press filter Effluent Treatment Plant
7	Steel Melting Shops	
	LD 1	Bag Filters Electrostatic Precipitators Gas Cleaning Plant Effluent Treatment Plant
	LD 2	Bag Filters Electrostatic Precipitators Gas Cleaning Plant Effluent Treatment Plant
	LD 3	Bag Filters Electrostatic Precipitators Gas Cleaning Plant Effluent Treatment Plant
8	Power Plants	
	PH# 3	Effluent Treatment Plant
	PH# 4	Electrostatic Precipitators Effluent Treatment Plant
	PH# 5	Effluent Treatment Plant
9	Finishing Mills	
	Cold Rolling Mill	Scrubbers Effluent Treatment Plant
	Hot Strip Mill	Effluent Treatment Plant
	Merchant Mill	Effluent Treatment Plant
	CAPL	Scrubbers Mist Separators Effluent Treatment Plant
	Wire Rod Mill	Effluent Treatment Plant
	New Bar Mill	Effluent Treatment Plant
9	Steel Works – Common	Industrial Vacuum Cleaning System Mechanized Road sweeping system Water sprinklers Tyre Washing facilities Catch-pits at all drains for recycling Central Effluent Treatment Plant

Annexure-III**Present Status of Environmental Upgradation Project****1. Stack Emission Reduction - Progress Status**

SL	Projects	Status	Completion date
1	F Blast furnace APC Systems	Completed	Jul'18
2	LD#1 DE System	Completed	Apr'18
3	LD#2 Dust Extraction System	Completed	Sep'16
4	SP# 1 Waste Gas ESP	Completed	May'14
5	SP# 2 De-dusting System (1 ESP and 1 Bag-filter)	Completed	Aug'17
6	SP# 3 De-dusting System	Completed	Dec'14
7	SP# 3 Waste Gas ESP	Completed	Oct'13
8	SP#2 Waste gas ESP ph.-I	Completed	Feb'13
9	CEMS	Completed	Oct'18
10	Lime Plant Process Bag-Filter (waste gas system)	Completed	Jun'18
11	SP#1&2 De-dusting System (DD ESP, Cold Region Bagfilter & Hi-line Bagfilter)	Completed	May'19
12	SP# 4 Waste Gas ESP	Completed	Jul'19
13	G-BF DD System - Stock House Bagfilter	Completed	Jun'19
14	G-BF DD System - Cast House Tap-B Bagfilter	Completed	Sep'19
15	CEMS (Phase-4) 13 analyzers installed & commissioned	Completed	Sep'19
16	Lime Plant De-dusting System	Completed	Apr'22
17	Upgradation of Waste Gas ESP at SP#4	Completed	Jun'22
18	LD#2 Secondary Emissions	Completed	Dec'22
19	CDQ 10&11 to I-BF coke connectivity DE System	Completed	July'23
20	LD#1 Secondary Emissions	Under progress	Dec'23
21	Upgradation of APC Equipment at G- Blast Furnace	Under progress	Nov'23

2. Fugitive Dust Control – Progress Status

SL	Projects	Status	Completion date
1	a) Tyre Washing at Various Locations – 05 m/c (LD#1,2, RMBB#1 and sludge dewatering) b) Tyre Washing at Various Locations – 05 m/c (LD#1, 2, HSM, Slag gate etc.)	Completed	Oct'16
2	DE System at RMM (Ventilation system)	Completed	Mar'16
3	Dust Extraction (DE) System at H Blast Furnace Stock House	Completed	Nov'17
4	Dust Suppression (DS) System at Coke Plant	Completed	Mar'17
5	Dust Suppression (DS) System at Lime Plant	Completed	Jun'15
6	Dust Suppression (DS) system at Ore circuit and Yard sprinkler	Completed	Mar'17
7	Dust Suppression (DS) System at RMBB#1	Completed	Jan'16
8	Dust Suppression (DS) System at RMBB#2	Completed	May'16
9	Dust Suppression (DS) System at Stock House C&F BF	Completed	Jun'15
10	Dust Suppression (DS) system at various locations (Fogging m/c)	Completed	Jun'15
11	Fabrication and Erection of ducting at H-BF Cast House	Completed	Apr'16
12	Fume Extraction System-HMP	Completed	Feb'15
13	Industrial Vacuum Cleaning (IVC) for Conveyor no. 149	Completed	Jun'13
14	Industrial Vacuum Cleaning (IVC) System at RMBB#1, 2 & SP#1, 2 & 3 (17 machines)	Completed	Sep'14
15	Industrial Vacuum Cleaning (IVC) System for H#BF	Completed	Mar'15
16	IVC at Locations I#BF, Coke Plant, SP#1 & SP#4, RMM & Pellet Plant	Completed	Jun'17
17	New Silo for Pneumatic Conveying System at G-BF	Completed	Apr'15
18	Tyre Washing Facility Inside Works (Phase -1)	Completed	Dec'12
19	Yard Sprinkler System at RMBB#1 & 2	Completed	May'16
20	Dust Extraction (DE) System at Coke Plant DE-#3&4	Completed	July'19

Annexure-III

Present Status of Environmental Upgradation Project

SL	Projects	Status	Completion date
21	Dust Extraction (DE) System at Misc. area (RMBB#1 & G BF surroundings and Diamond crossing area)	Completed	June'19
22	Dust Extraction (DE) System at RMBB#1 (7 Bagfilters)	Completed	June'19
23	Dust Extraction (DE) System at RMBB#2 DE#7	Completed	Mar'20
24	Tyre Wash System – Systems at BF Sludge area and LD#2 area	Completed	July'19
25	Lime Plant DE System – DE#12 Bagfilter	Completed	July'19
26	Tyre Wash System – Systems at LD#2 area	Completed	Aug'19
27	Misc Area DE System – DE#1,2,9,10 &11 Bag filter	Completed	Mar'20
28	Mist Beam at LD Shops LD#2 (10 nos.)	Completed	Mar'20
29	DFDS at LD Services LD#3	Completed	Mar'20
30	DFDS at LD Services LD#2	Completed	Apr'20
31	Dust Extraction (DE) System at RMBB#2 DE#6&8	Completed	Apr'21
32	Mist Beam at LD Shops LD#1 (11 nos.), MRSPP (4 nos.)	Completed	Oct'21
33	Misc Area DE System – DE#12 Bag filter	Completed	Oct'21
34	Fume Extraction System at HMPP (Pit#6)	Completed	Nov'21
35	CFDS at Lime Plant	Completed	Feb'22
36	LD#2 Secondary Emission APC system	Completed	Dec'22
37	Fume Extraction System at LD#1 LF	Under Progress	Dec'23
38	DE system at RMBB#1 for I-BF return fines	Under Progress	June'24
39	Pellet Plant – DE System	Under Progress	March'24
40	A-F BF – DE System for Sinter unloading	Under Progress	June'25

3. Solid Waste Utilization - Progress Status

SL	Facility description in Mar'17 CEC	Status	Completion date
1	Composting Plant & Trash Incinerator	Completed	Aug'12
2	De-oiling Plant for Mill Scale and Sludge	Completed	May'14
3	Infrastructure Development at Galudih Phase – I	Completed	Jun'14
4	Infrastructure for LD slag processing - Galudih Ph – II	Completed	Mar'17
5	Magnetic Drums – MRSPP	Completed	Jan'14
6	Blast furnace Sludge Drying	Completed	Jul'19
7	Infrastructure development at Bhatkunda Site (LD Slag)	Completed	Mar'22
8	Slag road for KSMS	Completed	Dec'21
9	300 TPH Ferrosot Plant at TSJ	Completed	Jan'23
10	BREX (Briquette extruding) Plant	Under Progress	Dec'23
11	Reverts Plant	Under Progress	To be decided

4. Effluent Treatment Projects - Progress Status

SL	Facility description	Status	Completion date
1	a) HSM Catch Pit b) Tuiladungri (Increase in Pumping Capacity)	Completed	May'13
2	Blast Furnace Cyanide Treatment	Completed	
3	Damp Pump House	Completed	Jan'16
4	Garam Nallah and Jugsalai-I Catch Pit	Completed	Dec'14
5	Greenery Development	Completed	Mar'15
6	Rainwater Harvesting	Completed	Feb'14
7	Distribution of recycled water for low end use	Completed	Jan'15
8	Susungharia Catch Pit (Pump No-1)	Completed	Jan'14
9	Wastewater Re-cycling from Ram Mandir Nallah	Completed	Jun'15
10	BF Sludge Drying System	Completed	Jul'19
11	Clarified Water Pipeline from CETP to PH#3	Completed	Dec'20

Annexure-III

Present Status of Environmental Upgradation Project

12	Tuiladungri Catch Pit Revamping	Completed	Dec'20
13	Upgradation of CETP from 4 MGD to 9 MGD	Completed	Dec'22
14	BOT Tertiary Treatment Plant	Under Progress	June'24
15	Water system upgradation at LD#1 & LD#2	Under Progress	Dec'23
16	New Trunk Drain in Catchment area of Susungharia	Under Progress	April'24

Annexure-IV

**CHARTER FOR CORPORATE RESPONSIBILITY FOR ENVIRONMENT
PROTECTION (CREP)
INTEGRATED IRON AND STEEL PLANT, TATA STEEL LIMITED,
JAMSHEDPUR
STATUS OF COMPLIANCE FOR VARIOUS ACTION POINTS
(Apr'23 – Sept'23)**

Action point 1: Coke Oven Plants

- To meet the parameters PLD (% leaking doors), PLL (% leaking lids), PLO (% leaking off take), of the notified standards under EPA within three years (by December 2005)

Compliance Status: Complied

Apr'23 to Sept'23:

No. of Batteries	Parameters											
	PLD (%)			PLO (%)			PLL (%)			Charging Emissions (Sec.)		
	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.
Battery#7	8.00	2.83	4.84	4.08	0.00	1.99	2.00	0.00	0.25	72.00	29.00	47.00
Battery#8	9.23	2.27	5.91	3.08	0.00	0.38	0.00	0.00	0.00	90.00	25.00	48.50
Battery#9	6.06	1.52	3.73	1.59	0.00	0.26	0.76	0.00	0.06	94.00	20.00	36.83
Battery#10	9.15	3.61	6.50	1.22	0.00	0.10	0.81	0.00	0.07	73.00	19.00	33.45
Battery#11	9.04	1.81	5.32	1.20	0.00	0.10	0.40	0.00	0.03	60.00	18.00	35.73

- To rebuild at least 40% of the coke oven batteries in next 10 years (December 2012).

Compliance Status: Complied

Battery No.	Date of Commissioning	
	Initial	After Rebuilding
Battery # 5 (SC)	1988	Converted to Stamp charged-1995*
Battery # 6 (SC)	1988	Converted to Stamp charged-1993*
Battery # 7 (SC)	1988	Converted to Stamp charged-1989*
Battery # 8 (SC)	1998	
Battery # 9 (SC)	2000	
Battery # 10 (SC)	2012	
Battery # 11 (SC)	2014	

SC=Stamp Charged

Several rounds of hot repairs have taken place for rebuilding the damaged oven walls.

Action point 2: Steel Melting Shop

- Fugitive emissions - To reduce 30% by March 2004 and 100% compliance with norms by March 2008 (including installation of secondary de-dusting facilities)

Compliance Status: Complied

- All the Steel Melting Shops (LD#1, LD#2 and LD#3) have been provided with secondary emission control system.
- Average Fugitive Dust Emission in SMS is well within the standard norms.

Action point 3: Blast Furnace

- Direct inject of reducing agents- by June 2013

Compliance Status: Complied

- Coal/Coal Tar and Oil injection facilities are provided in all the Blast Furnaces.

Action point 4: Solid Waste / Hazardous Waste Management

- Utilization of Steel Melting Shop (SMS)/ Blast Furnace (BF) Slag as per the following schedule:
By 2004- 70%
By 2006- 80%
By 2008- 100%

Compliance Status: Present level

- All the Blast Furnaces which are in regular operation are fitted with On-line Slag Granulation Facility.

Period: Apr'23 to Sept'23

KPI	BF Slag	LD Slag
Percentage utilized (%)	125 %	126 %
Type of utilization	Cement Making	Reuse in Sinter Plant, In-house construction etc.
Actions to be taken for ensuring 100% utilization	-	-

- Charge of tar sludge/ ETP sludge to Coke Oven by June 2003.

Compliance Status: Complied

100% of Tar sludge and ETP sludge from Coke Ovens is being recycled/reused.

- Inventorization of the Hazardous Waste as per Hazardous Waste (M&H) Rules, 1989 as amended from time to time and implementation of the Rules by December 2003.
(tar sludge, acid sludge, waste Lubricating oil and type fuel falls in the category of Hazardous waste).

Compliance Status: Complied

Hazardous Waste	Quantity generated Apr'23 to Sept'23 (Tonnes)	Quantity charged to Coke Oven in Apr'23 to Sept'23 (Tonnes)	Method of transport
Coal Tar Sludge	1309	1309	Transported by trucks and utilized in-house.
BOT Plant Sludge	189	189	Transported by trucks and charged by conveyors; Mixing with Coal and used in coke making in battery
Waste Grease	102.16	-	Sold to authorized recyclers
Waste Oil sludge	188.81	-	Sold to authorized party and incinerated
Used Empty Batteries	84.77	-	Sold to authorized recyclers

Action point 5: Water conservation / Water Pollution

- Reducing specific water consumption to 5 m³/t for long products and 8 m³/t for flat products by December 2005

Compliance Status: Complied

Specific water consumption details for Apr'23 to Sep'23:

Specific water consumption (m³/tcs)	
Long Products (m³/tcs LP)	Flat Products (m³/tcs FP)
1.16	1.99

- To operate CO-BP effluent treatment plant efficiently to achieve the notified effluent discharge standards- By June 2003.

Compliance Status: Complied

Effluent Treatment Plant is meeting the statutory norms.

	Parameter	UoM	Statutory Limit	Apr-23			May-23			Jun-23			Jul-23			Aug-23			Sep-23		
				Max	Min	Avg.	Max	Min	Avg.	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg
BOT TREATED	pH	-	6.0-8.5	8.5	7.3	7.9	8.4	7.0	7.8	8.3	7.2	7.6	8.3	7.1	7.7	8.1	7.0	7.6	8.5	6.6	7.7
	Total Suspended solids	mg/L	100	98.0	20.0	81.3	98.0	56.0	74.9	96.0	52.0	76.6	96.0	40.0	75.0	98.0	36.0	74.6	92.0	42.0	73.9
	Oil & Grease	mg/L	10	4.0	2.4	3.1	3.2	2.0	2.8	3.6	0.8	2.7	3.6	2.0	2.8	3.6	2.4	3.0	4.0	2.0	3.3
	Ammonical Nitrogen (as N)	mg/L	50	22.5	1.1	3.9	45.3	1.0	14.2	48.9	17.1	32.8	48.5	0.4	13.0	49.4	0.6	31.0	45.6	14.8	35.9
	Cyanide (as CN-)	mg/L	0.2	0.2	0.1	0.2	0.2	0.1	0.2	0.2	0.1	0.2	0.2	0.1	0.2	0.2	0.1	0.2	0.2	0.2	0.2
	Biological Oxygen Demand, BOD	mg/L	30	26.6	12.0	17.7	25.0	15.0	17.6	25.0	15.0	21.0	28.0	12.0	20.6	28.0	12.0	19.1	28.0	12.0	20.0
	Chemical Oxygen Demand, COD	mg/L	250	238	186	214	248	161	218	246	188	218	242	185	210	234	184	206	247	138	203
	Phenol	mg/L	1	0.3	0.1	0.2	0.4	0.1	0.2	0.2	0.1	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.1

Action point 6: Installation of Continuous stack monitoring system & its calibration in major stacks and setting up of the online ambient air quality monitoring stations by June 2005.

Compliance Status: Complied

- 4 CAAQMS stations have been commissioned.
- Online stack monitoring system have been installed at major stacks.

Locations/ Area	No. of Stacks connected to CPCB, New Delhi for OCEMS	No. of Stacks to be connected to CPCB, New Delhi for OCEMS	Remarks
Blast Furnace	24	-	-
Coke Oven	7	-	-
LD Shop	21	-	-
Lime Plant	12	-	-
Mills	10	-	-
Power Plant	8	-	-
Sinter Plant	8	-	-
Total	90	-	-

Action Point 7: Operation of Pollution Control Equipment

To operate the existing pollution control equipment efficiently and to have proper record of run hours, failure time and efficiency with immediate effect. Compliance report in this regard to be submitted to CPCB/SPCB every three months/Six months.

Compliance Status: Complied

Status of Air Pollution Control Equipment (Apr'23 - Sept'23)

- We have implemented online system to track the availability of all Bag filters. Overall availability is maintained at >95% inside works including maintenance period.
- Differential pressure of the Bag filters is being monitored regularly to ensure the efficiency.

Status of Wastewater Pollution Control Equipment (Apr'23 – Sep'23)

Area/Location	Water Pollution Control System	Availability (%)
Coke Plant	BOT Plant	100%
A-F Blast Furnace	Wastewater treatment plant	100%
G Blast Furnace	Wastewater treatment plant	100%
H Blast Furnace	Wastewater treatment plant	100%
I Blast Furnace	Wastewater treatment plant	100%
LD1 and BC	Wastewater treatment plant	100%
LD2 and SC	Wastewater treatment plant	100%
LD3 and TSCR	Wastewater treatment plant	100%
Wire Rod Mill	Wastewater treatment plant	100%
Hot Strip Mill	Wastewater treatment plant	100%
Cold Rolling Mill	Wastewater treatment plant	100%
New Bar Mill	Wastewater treatment plant	100%
Merchant Mill	Wastewater treatment plant	100%
CETP	Wastewater treatment plant	100%

Action point 8: Implementation of LCA study

To implement the recommendations of Life Cycle Assessment (LCA) study sponsored by MoEF&CC by December 2003.

Compliance Status: Complied

- Reduction of Green House Gases by:
 - ❖ Reduction in power consumption - **Yes/ No**
 - ❖ Use of by-products gases for power generation- **Yes/ No**
 - ❖ Promotion of Energy Optimisation technology, including energy audit- **Yes/ No**

To set targets for Resource Conservation such as Raw material, energy, and water consumption to match International Standards

	FY'23	Target for FY'24
Specific Water Consumption (m ³ /TCS)	1.97	1.58
Energy consumption (GCal/ TCS)	5.31	5.29
Steps taken for Resource Conservation	Yes	Yes
Environmental monitoring laboratory provided (Y/N)	Yes	Yes

- Up-gradation in the monitoring analysis facilities for air and water pollutants. Also, to impart elaborate training to the manpower in the environmental monitoring laboratories, so as realistic data can be obtained.
- Monitoring facilities upgraded : **Yes/No**
- Training provided to laboratory personnel : **Yes/No**
- To improve housekeeping : **Being Done**

Action point 9: Clean Technologies

The industry will initiate steps to adopt the following clean technologies / measures to improve the performance of the industry towards production, energy, and environment.

- Energy recovery of top Blast Furnace (BF) gas.
- Use of Tar-free runner linings.
- De-dusting of Cast House at tap holes, runners, skimmers, ladle and charging points
- Suppression of fugitive emissions using nitrogen gas or any other inert gas.
- To study the possibility of slag and fly ash Transportation back to the abandoned mines to fill up the cavities through empty railway wagons when they return to the mines and its implementation.
- Processing of the waste containing flux & ferrous wastes through waste recycling plant.
- To implement rainwater harvesting.

Clean technologies to be implemented	Status, Provided Yes/ No
Energy recovery of top Blast Furnace (BF) gas	TRT has been commissioned in G, H & I Blast Furnace.
Use of Tar-free runner linings.	Tar lining in the runner is not used.
De-dusting of Cast House at tap holes, runners, skimmers, ladle	De-dusting facility in the cast house has been provided in F, G, H & I Blast Furnaces.
Suppression of fugitive emissions using nitrogen gas or any other inert gas	We have studied this system in detail and found the same very unsafe and have decided to not to go for it. Instead, dust extraction facilities have been installed wherever required.
To study the possibility of slag and fly ash transportation back to the abandoned mines, to fill up	None of our mines are abandoned so far. However, all the coal-fired boilers in Steel Works have been converted to gas firing. Coal

Clean technologies to be implemented	Status, Provided Yes/ No
the cavities through empty railway wagons while they return to the mines and its implementation.	will be fired only in emergency in one Boiler from where limited quantity of ash is being disposed in slurry form in captive ash pond.
Processing of the waste containing flux & ferrous wastes through waste recycling plant.	We have a metal recovery and slag processing plant for the same and such material is used in iron and steel making processes.
Implement rainwater harvesting	<p>Rainwater harvesting is in practice inside the Steel Works. Surface run-off is collected in cooling ponds/ catchments and pick up of fresh water from river is reduced during rainy seasons.</p> <p>Rainwater Harvesting has been installed in 38 locations (Steelenium Hall, SHE, MPDS, LD 3, rebar mill ECR, R&D and ITS Building) within Works.</p>



TSJ/EMD/C-23/175/23

28 Sept 2023

The Member Secretary
Jharkhand State Pollution Control Board
T.A. Division Building,
HEC Campus, Dhurwa
Ranchi- 834004

**Sub.: Submission of Environmental Statement (Form 5) for Tata Steel Limited - Main Works,
Jamshedpur for the year 2022-23**

Dear Sir,

With the reference to the captioned subject, we are herewith submitting the Environmental Statement (Form 5) for Tata Steel Limited - Main Works, Jamshedpur for the year 2022-23.

Requesting you to kindly acknowledge the same and put in your records for future reference.

Your faithfully
For Tata Steel Limited

**Head Environment Clearance & Compliance
Tata Steel Limited**

Encl: As above

Copy to: Regional Officer, Jharkhand State Pollution Control Board, Jamshedpur

TATA STEEL LIMITED

Environment Management Jamshedpur 831 001 India

Mob- 8092087043 (M) e-mail utsav.kashyap@tatasteel.com

Registered Office Bombay House 24 Homi Mody Street Fort Mumbai 400 001

Tel 91 22 66658282 Fax 91 22 66657724

Corporate Identity Number L27100MH1907PLC000260 Website www.tatasteel.com

**ENVIRONMENTAL STATEMENT
FOR THE YEAR 2022-2023**

**Main Steel Works
TATA STEEL LIMITED**

**Submitted by:
ENVIRONMENTAL MANAGEMENT DEPARTMENT
TATA STEEL LIMITED
JAMSHEDPUR-831001
JHARKHAND**

Environmental Statement 2022-23

[Form V]

Environment Statement for the Financial Year ending 31st March 2023

PART-A

(i)	Name & address of the owner/occupier of the industry operation or process:	Mr. T.V. Narendran CEO & MD Tata Steel Limited Jamshedpur-831001 East Singhbhum, Jharkhand
(ii)	Industry Category	Red Category
	Primary STC Code:	3312
	Secondary SIC Code	331200
(iii)	Production Capacity	Production Capacity: 11 MTPA Crude Steel (Major units are: RMM, Blast Furnaces, Coke ovens, Sinter Plants, Pellet Plant, LD Shops, HSM, CRM, WRM, MM, NBM, CAPL*, Captive Power Plant, Captive Railway Sidings and Utilities, JAMIPOL**) <i>*CAPL is being owned and operated by M/s Jamshedpur Continuous Annealing and Processing Company (JCAPCPL), a joint venture formed by Tata Steel and Nippon Steel and Sumitomo Metal Corporation (NSSMC) to manufacture and market high-quality, automotive- grade continuous annealed products inside premises of Jamshedpur steel works.</i> <i>**Lime Grinding Plant and Bentonite Grinding Plant, JAMIPOL a joint venture of Tata Steel</i>
(iv)	Year of Establishment	1907
(v)	Date of last Environment Statement submitted	September 22, 2022, vide letter no. EMD/C-23/168/22

PART-B

WATER & RAW MATERIAL CONSUMPTION

- i) Water Consumption (m³/day)**
Process & Cooling : 57,584
Domestic Consumption: 10,250

Name of the product	Process water consumption/unit of product output (m ³ /tcs)	
	During the Previous Financial Year (2021-22)	During the Current Financial year (2022-23)
Crude Steel	2.18	1.97

Environmental Statement 2022-23

ii) Raw Material Consumption (Works):

Name of raw material	Name of products	Consumption of raw material per unit of output (kg/ton of crude steel)	
		During the Previous Financial Year (2021-22)	During the Current Financial year (2022-23)
Iron Ore	Crude Steel	1678.20	1820.44
Coking Coal		621.29	566.14
Limestone		318.72	179.03
Non-Coking Coal		195.06	192.25
Dolomite & Pyroxenite		129.57	289.33
Purchase Pellet		1.41	26.36
Quartzite and Other materials		15.92	11.75
Zinc & Zinc Alloys		0.74	0.60
Ferro Manganese - High Carbon Lumps		0.71	0.76
Ferro Manganese - Medium Carbon		1.58	0.81

PART-C

Pollution discharged to environment/unit of output.

Pollution	Quantity of pollutants discharged (mass/day)		Concentrations of pollutants in discharges (mass / volume)		% of variation from prescribed standards
	(Tons/day)		(mg/L)		
(a) Water	2021-22	2022-23	2021-22	2022-23	
TSS	0.95	0.96	72	62	-38%
COD	2.07	1.66	128	110	-56%
BOD	0.18	0.20	10	13	-57%
Oil & grease	0.03	0.03	1.5	2.0	-80%
(b) Air	2021-22	2022-23	2021-22	2022-23	
	(Tons/day)		(mg/Nm³)		
PM	7.25	6.65	15.20	10.66	-89%
SO ₂	16.77	16.80	72.60	84.25	-
NO _x	16.35	15.86	84.70	79.62	-

Environmental Statement 2022-23

PART-D

Hazardous Waste

[As Specified under Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016]

Hazardous Waste	Total Quantity (Tonnes)	
	During the Previous Financial Year (2021-22)	During the Current Financial year (2022-23)
(a) From Process		
Kiln Dust	18,862	19465
GCP Sludge*	5,65,567	5,93,687
Mill Sludge	2499	2949
Used Oil	2325	1134
Waste Grease	185.00	139.20
Muck Waste	5846	10852
Tar Sludge	1946	2219
Zinc dust Ash	158	19
Iron Hydroxide Sludge	357	338
Chrome Sludge	73.5	101.0
(b) From Pollution Control Facilities		
APCE Dust	1,63,051	1,89,284
BOD Sludge	396	413
*GCP Sludge includes sludges from LD Shops and Blast Furnaces		

PART-E

Solid Wastes

(a) From Process	Total Quantity (tonnes)	
	During the Previous Financial Year (2021-22)	During the Current Financial year (2022-23)
BF Slag	43,51,309	43,68,945
LD Slag	16,14,344	16,40,534
Lime Fines	2,14,666	2,20,114
Mill Scale	99,412	1,05,523
Fe bearing Muck	13,531	12,654
(b) From Pollution Control Facilities- Nil		
(c) Quantity recycled or re-utilized within the unit		
	During the Previous Financial Year (2021-22)	During the Current Financial year (2022-23)
BF Slag	14,018	10,106
LD Slag	3,39,308	1,90,117
Lime Fines	1,96,088	2,06,357
Mill Scale	1,00,433	1,05,368
Fe bearing Muck	13,390	12,618

Environmental Statement 2022-23

Sold		
	During the Previous Financial Year (2021-22)	During the Current Financial year (2022-23)
BF Slag	43,05,189	44,23,258
LD Slag	15,33,948	16,31,726
Lime Fines	17,772	15,559
Mill Scale	0	0
Fe bearing Muck	0	0
Disposed		
	During the Previous Financial Year (2021-22)	During the Current Financial year (2022-23)
BF Slag	0	0
LD Slag	0	0
Lime Fines	0	0
Mill Scale	0	0
Fe bearing Muck	0	0

PART-F

Chemical Composition of majority of waste as produced in process of Tata Steel's Jamshedpur operation is given below:

Name of Wastes	Chemical Composition (%)	Disposal Method
Coal Tar Sludge	C – 90-95; Moisture – 1.3 S – 0.3-0.7; CV – 8800 KCal/kg Sp. Gr. – 1.2; Ash – 0.04-0.05	Mixed with coal & used in Coke Plant
BOD Sludge	VM – 50; Ash – 26 Moist. – 20; CV – 5800 KCal/kg	Mixed with coal & used in Coke Plant
B F Slag	CaO – 32; MgO – 9 SiO ₂ – 34.5; MnO – 0.25 P ₂ O ₃ – Nil; Al ₂ O ₃ – 1.2 S – 1.4; TiO ₂ – 1.2; FeO – 0.33	<ul style="list-style-type: none"> • Sold to cement plant. • Used in construction
GCP Sludge from Blast Furnace	Fe(T) – 33.65; MnO – 0.14 CaO – 3.45; Al ₂ O ₃ – 3.64 SiO ₂ – 6.40; S – 0.230; P ₂ O ₅ – 0.307 TiO ₂ – 0.30; MgO – 1.40 Alkali – 0.5 to 0.7; C – 21-24	<ul style="list-style-type: none"> • Used in Sinter Plant • Used in Pellet Plant
L D Slag	Fe(T) – 18-25; MgO – 1-2 CaO – 45-55; MnO – 0.5-1.0 SiO ₂ – 10-12; Al ₂ O ₃ – 0.8-1.0 P ₂ O ₅ – 3.5-4.0; S – 0.2 TiO ₂ – 0.8-1; Alkali – 0.18	<ul style="list-style-type: none"> • Used in construction. • Used in Sinter Plant
GCP Sludge from LD Shops	Fe(T) – 55 to 60; MgO - <1.0 CaO – 10-15; MnO - <0.5 SiO ₂ – 1.5-2.0; Al ₂ O ₃ - <0.5 P ₂ O ₅ – 0.29; TiO ₂ - <0.1	<ul style="list-style-type: none"> • Used in Sinter Plant

Environmental Statement 2022-23

Mill Scale	Fe(T) – 72-75; MnO - <0.5 SiO ₂ - <0.5; Al ₂ O ₃ - <0.5 MgO – 0.1; Oil – 10-12	<ul style="list-style-type: none"> Used in Sinter Plant
Mill Sludge	Fe(T) – 42.76; MgO – 0.35 CaO – 0.65; MnO – 0.27 SiO ₂ – 1.12; Al ₂ O ₃ – 0.50 P ₂ O ₅ – 0.089; TiO ₂ – 0.03 Cr ₂ O ₃ – 0.03; Oil – 10-12	<ul style="list-style-type: none"> Used in Sinter Plant
Lime Fines	CaO – 66.5; Al ₂ O ₃ – 0.26 SiO ₂ – 1.53; MgO – 5.68	<ul style="list-style-type: none"> Sold Used in Sinter Plant

PART-G

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

Sl. No.	Pollution abatement Measures taken in 2022-23	Impact on conservation of natural resources & others
1	Upgradation of CETP phase 2 from 4 MGD to 9 MGD is in progress	Will subsequently reduce freshwater consumption
2	Upgradation of water system at LD1 & LD2	Reduction in freshwater consumption
3	Setting up of 17.68 MWDC / 13.1 MWAC Solar Power Plants at various locations inside TSJ Works are in progress	Will subsequently reduce the amount of energy used from the grid.

PART-H

Additional Measures Investment Proposal of Environmental Protection Including Abatement of Pollution

- Upgradation of the existing pollution control equipment to bring down dust level.
- Improvement in water recycling facility for reducing the wastewater discharge.

PART-I

Any other particulars for improving the quality of environment.

- Replacement of 10 years above old & outlived Split/window AC to increase the efficiency and reduction in power consumption is in progress.
- LD Slag after metal recovery is being used internally in the manufacturing process as well as externally in brick and road making works.
- BF Slag is being granulated through online slag granulation facilities available at BFs and made available to the Cement plants for cement making.
- We have planted approx. 1,33,692 nos. saplings during April 2022 to March 2023 inside the works, Township and JMD area.

Environmental Statement 2022-23

Details of Plantation (nos.) done during April 2022 – March 2023

Month	Plantation in Town and JMD	Plantation in Works	Species
Apr-22	659	857	<i>Karanj, conocarpus, Syzygium, fox tail Palm , Arica Palm</i>
May-22	428	1813	<i>Mahagoney, Conocarpus, Juniperious, Kanel, Hibicus, Tecoma, Foxtail Palm</i>
June-22	1900	2140	<i>Conocarpus, Juniperious, Cassia fistula, Techoma, Sita Ashok, Terminalia argintia, Bottel brush, Mahagoney , Arjun, Karanj, Putranjiva, Arica Palm, Szygium , fox tail Palm</i>
July-22	30370	1362	<i>Putranjiva, conocarpus, ashoka, Juniperious, Syzygium Sp., Arica Palm, Exeroa</i>
August-22	33451	897	<i>Arjun, Karanj, conocarpus, Syzygium, fox tail Palm , Arica Palm , Juniperious, Puterenjevia</i>
Sept-22	30826	1324	<i>Plumeria, Conocarpus, Juniperious, Cassia fistula, Techoma , Arjun,, Hemliya Spathodia , Szygium , fox tail Palm Puterenjevia ,</i>
Oct-22	12867	573	<i>Conocarpus, Cassia fistula, Arjun, Karanj, Putranjiva, Arica Palm, Syzygium , fox tail Palm, Juniperious .</i>
Nov-22	3875	535	<i>Juniperious (Thuja), conocarpus, Syzygium, Auricaria, foxtail palm</i>
Dec-22	1391	280	<i>Conocarpus, Putranjiva, Arica Palm, Syzygium , fox tail Palm, Juniperious .</i>
Jan-22	1575	1744	<i>Fox tail Palm, Juniperious, Conocarpus, Putranjiva, Arica Palm, Syzygium .</i>
Feb-22	999	280	<i>Conocarpus, Kamani Arica Palm Arjun, Puternjiva , Foxtail palm,</i>
March-22	3288	258	<i>Concarpus, Fox tail Palm, Techoma</i>
Total	1,21,629	12,063	1,33,692

**Status of Solid and Other Waste Generation and Utilization
(April 2023 to September 2023)
(All data in tons)**

Sl.	Particulars	Generation	Internal Cons	External Cons. & Sales	Total Utilisation	Utilization
1	Flue Dust	56448.01	57746.01	0	57746.01	102%
2	GCP Sludge	52938.319	53804.985	0	53804.985	102%
3	Lime Fines	114486.877	107283.243	5937.33	113220.573	99%
4	LD Sludge	250583.853	206397.58	0	206397.58	82%
5	Kiln Dust	9818.968	9818.97	0	9818.97	100%
6	Mill Scale	53338.071	54978.425	0	54978.425	103%
7	Mill Sludge	1680.597	1788.065	0	1788.065	106%
8	Iron Oxide	5109.999	145.2	5355.52	5500.72	108%
9	Fe bearing muck	5626	5626	0	5626	100%
10	ESP/DE Dust	30682	30682	0	30682	100%
A	Process Solid Waste	580712.694	528270.478	11292.85	539563.328	93%
1	LD Slag Metallic	810568	46199	107955	154154	126%
2	LD Slag Non Metallic		26100	839581	865681	
B	LD Slag	810568	72299	947536	1019835	126%
1	Granulated BF Slag	1672081	0	2111196	2111196	126%
2	Air Cooled BF Slag	65275	2996	61493	64489	99%
C	Blast Furnace Slag	1737356	2996	2172689	2175685	125%
D	Total	3128636.694	603565.478	3131517.85	3735083.328	119%

LETTER NO.- 615

OFFICE OF THE CHIEF INSPECTOR OF FACTORIES, JHARKHAND**SHRAM BHAWAN, DORANDA, RANCHI-2**

(Tel:- 0651-2480454 E-mail Id- cifoffice123@gmail.com)

From,

**Chief Inspector of Factories, Jharkhand,
Ranchi.**

To,

**The Occupier,
M/s Tata Steel Limited,
Jamshedpur.**

Ranchi Dated: 29-05-2020

**Subject: Recommendation of On Site Emergency Plan & Disaster Control of M/s Tata
Steel Limited, Jamshedpur.**

Sir,

The On Site Emergency Plan & Disaster Control submitted by you has been examined and the same is recommended subject to the following conditions: -

1. Regular Mock- drill shall be carried out in the factory as per the provisions and a detailed report should be made available to the Inspector of Factories and Chief Inspector of Factories.
2. A detailed safety audit report conducted by an experienced outside agency shall be submitted along with details of health & safety policy of your factory.
3. The Emergency Reponses plan will be up-dated and revised if there is any modification in the plant, process or industrial activity.
4. Adequate arrangement of medical/ relief facilities (first aid equipments etc.) should be provided and maintained in the emergency control room.
5. Telephone number of key persons to be noted and displayed in the central control room.

A copy of the recommended plan is enclosed herewith.

Yours faithfully,

**Chief Inspector of Factories, Jharkhand,
Ranchi.**



Certificate No.: IM 570 907 (PAS 99:2012)
Certificate No.: FS 570 487 (ISO 9001:2015)
Certificate No.: EMS 570 497 (ISO 14001:2015)
Certificate No.: OHS 570 500 (OHSAS 18001:2007)



Ramky Enviro Engineers Limited

TSDF Site: Coastal Waste Management Project
Road No.: 20/5, Jawaharlal Nehru Pharmacy,
Parawada, Visakhapatnam - 531 021, A.P., India
T: +91 8924 236014, F: +91 8924 236013
E: cwmp@ramky.com

URL NO :TC680519000000232P

Date: 16.07.19

Tata Steel Ltd,
Jamshedpur,
Jharkhand.

We are here with enclosing the analysis report of solid waste sample named **Chrome Sludge**. The disposal method for the above waste is **Landfill after treatment with 2% Sulphuric Acid, 30% Ferrous Sulphate, 10% Lime, 10% Cement & 50% Fly ash**, before safe disposal into Secured Direct Land fill. We are also enclosing the invoice for analysis. This is for your information.

This disposal method is purely based on the characteristics of the sample sent to us. When the waste will be sent to us it will be analyzed again and if the characteristics change, disposal method & cost may vary accordingly.

Send your suggestions/feedbacks for improving laboratory services by filling customer feedback form attached herewith.

Thanking you for your business. Please stay connected for further service in the future. Our complete Co-Operation and best service assured always.

Yours faithfully

For Coastal Waste Management Project-Laboratory
(A division of Ramky Enviro Engineers Ltd)


Authorized Signatory

Towards sustainable growth



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TEST REPORT

CWMP/GF/LAB/310

URL NO: TC680519000000232F

Page 1 of 3

Name and Address of Customer:

**Tata Steel Ltd,
 Jamshedpur,
 Jharkhand.**

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Sample Description : **Chrome Sludge**
 Sample Registration No : **CWMP/CA/19-20/144**
 Sample drawn by : **Client**
 Date of sampling : **NA**
 Sample Received on : **11.07.19**
 Analysis Starting Date : **11.07.19**
 Analysis Completion : **16.07.19**
 Date of Report : **16.07.19**
 Sample Condition : **Received in Plastic Cover**
 Sampling procedure : **CWMP/SOP/LAB-101**
 Date of report validity : **15.07.21**
 Subcontracting of tests : **Not Applicable**

Particulars	Observation
Physical State	Solid
Color	Greenish Blue
Texture	Powder&Lumps
Is there any violent chemical change (in air) (Normally unstable) (Yes/No)	No
Reacts violent with water (Yes/No)	No
Generating of toxic fumes with water/acid/basic (Yes /No)	No
Forms potentially explosive mixture with water (Yes/No)	No
Explosion when subjected to a strong initiating force (Yes/No)	No
Explosion at normal temperature & pressure (Yes/No)	No

S.No.	Parameter	Unit	Method	Result	Std. for Landfill Disposal
1	Paint Filter Liquid Test	-	USEPA- 9095A(1996)	Pass	Pass
2	Bulk Density	g/cc	ASTM D 5057-10,(2017)	1.30	---
3	pH @35.4°C	-	USEPA;9045C,(1995)	6.84	4 to 12
4	Flash Point	°C	USEPA;1020A(1992)	>65.5	65.5°C



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 Certificate No.: EMS 570 497 (ISO 14001:2015)
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Test Result

S.No.	Parameter	Unit	Method	Result	Std. for Landfill Disposal
5	Loss on drying at 105°C	%	APHA23rd Edi,2540G(2017)	11.37	---
6	Loss on Ignition at 550°C (Dry Basis)	%	APHA23rd Edi,2540G(2017)	40.0	<20% Non biodegradable <5%: Biodegradable
7	Calorific Value	Cal/gm	IS: 1350 (Part-II),(Reff.2013)	1644	< 2500
8	Extractable Organics	%	USEPA-3540C(1996)	<1.0	<4.0 % w/W
9	Water soluble inorganics	%	APHA 23rd Edi;2540 B&E (2017)	10.99	< 20% w/W
10	Water soluble organics	%	APHA 23rd Edi;2540 B&E (2017)	4.98	< 10%
11	Reactive Cyanide	mg/Kg	USEPA9010B(1996)& APHA23rd Edi; 4500CN-E	<1.0	250
12	Reactive Sulfide	mg/Kg	USEPA 9030 B(1996)& 9034 (1996)	<10.0	500
13	Ammonical Nitrogen as NH ₃ (WLT)	mg/L	APHA 23 rd Edition,2017;4500 NH3 B,C	< 10.0	<1000.0
14	Zinc as Zn (Total)	mg/Kg	USEPA - 3050 B(1996) & 7000B-2007	<5.0	---
15	Zinc as Zn(TCLP)	mg/L	USEPA 1311 (1992),(Extraction) USEPA7000B (2007), AAS	<1.0	<250.0
16	Zinc as Zn (WLT)	mg/L	CPCB TSDF Protocol,(2010- 11)&USEPA-7000B(2007)	<1.0	<10
17	Copper as Cu (Total)	mg/Kg	USEPA - 3050 B(1996) & 7000B-2007	<5.0	---
18	Copper as Cu (TCLP)	mg/L	USEPA 1311 (1992),(Extraction) USEPA7000B (2007), AAS	<0.3	<25.0
19	Copper as Cu (WLT)	mg/L	CPCB TSDF Protocol,(2010- 11)&USEPA-7000B(2007)	<0.3	<10
20	Arsenic as As (Total)	mg/Kg	USEPA - 3050 B(1996) & 7000B-2007	< 10.0	---
21	Arsenic as As (WLT)	mg/L	CPCB TSDF Protocol,(2010- 11)&APHA;3500 As B(2017)	< 0.1	<1.0
22	Cadmium as Cd (Total)	mg/Kg	USEPA - 3050 B(1996) & 7000B-2007	<5.0	---
23	Cadmium as Cd (TCLP)	mg/L	USEPA 1311 (1992)(Extraction) USEPA7000B (2007), AAS	<0.1	<1.0
24	Cadmium as Cd (WLT)	mg/L	CPCB TSDF Protocol,(2010- 11)&USEPA-7000B(2007)	<0.1	<0.2
25	Total Chromium as Cr ³⁺ (Total)	mg/Kg	USEPA - 3050 B(1996) & 7000B-2007	456.3	---
26	Chromium as Cr ³⁺ (TCLP)	mg/L	USEPA 1311 (1992)(Extraction) USEPA7000B (2007), AAS	16.8	< 5.0
27	Chromium as Cr ³⁺ (WLT)	mg/L	CPCB TSDF Protocol; (2010-11)(Extraction) USEPA-7000B, (2007) AAS	12.3	<5.0
28	Hexavalent Chromium as Cr ⁶⁺ (Total)	mg/Kg	USEPA 1998,SW846; 7196 A	101.3	---
29	Hexavalent Chromium as Cr ⁶⁺ (WLT)	mg/L	CPCB TSDF Protocol,(2010- 11)&APHA;3500 Cr (2017)	9.12	<0.5
30	Lead as Pb(Total)	mg/Kg	USEPA - 3050 B(1996) & 7000B-2007	<5.0	---
31	Lead as Pb(TCLP)	mg/L	USEPA 1311 (1992), (Extraction) USEPA7000B (2007), AAS	<0.3	<5.0
32	Lead as Pb(WLT)	mg/L	CPCB TSDF Protocol,(2010- 11)&USEPA-7000B(2007)	<0.3	<2.0



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URL NO: TC680519000000232F

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Test Result

S.No.	Parameter	Unit	Method	Result	Std. for Landfill Disposal
33	Nickel as Ni (Total)	mg/Kg	USEPA - 3050 B(1996) & 7000B-2007	<5.0	---
34	Nickel as Ni (TCLP)	mg/L	USEPA 1311 (1992),(Extraction) USEPA7000B (2007), AAS	<0.5	<20.0
35	Nickel as Ni (WLT)	mg/L	CPCB TSDf Protocol,(2010- 11)&USEPA-7000B(2007)	<0.5	<3.0

SW 846- Test methods for Evaluating Solid waste, Physical/chemical methods, USEPA, **IS**- Indian Standard, **ASTM**- American standard of testing material, **APHA**-Standard methods for the examination of water and waste water, 23rd Edition, 2017, **WLT**- Water Leaching Test
TCLP-Toxicity Characteristics Leaching Procedure

Note:

- Reports pertained only to the submitted sample
- Test reports shall not be reproduced except in full, without written approval of the laboratory
- Any correction invalidates this test report

End of Report

Analyzed by

Authorized Signatory

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 Certificate No.: FS 570 487 (ISO 9001:2015)
 Certificate No.: EMS 570 497 (ISO 14001:2015)
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Ramky Enviro Engineers Limited

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 Road No.: 20/5, Jawaharlal Nehru Pharmacy,
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TEST REPORT

URL NO: TC680519000000232P

Page 1 of 3

Name and Address of Customer:

**Tata Steel Ltd,
 Jamshedpur,
 Jharkhand.**

Sample Description : **Chrome Sludge**
 Sample Registration No : **CWMP/CA/19-20/144**
 Sample drawn by : **Client**
 Date of sampling : **NA**
 Sample Received on : **11.07.19**
 Analysis Starting Date : **11.07.19**
 Analysis Completion : **16.07.19**
 Date of Report : **16.07.19**
 Sample Condition : **Received in Plastic Cover**
 Sampling procedure : **CWMP/SOP/LAB-101**
 Date of report validity : **15.07.21**
 Subcontracting of tests : **Not Applicable**

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Particulars	Observation
Physical State	Solid
Color	Greenish Blue
Texture	Powder&Lumps
Is there any violent chemical change (in air) (Normally unstable) (Yes/No)	No
Reacts violent with water (Yes/No)	No
Generating of toxic fumes with water/acid/basic (Yes /No)	No
Forms potentially explosive mixture with water (Yes/No)	No
Explosion when subjected to a strong initiating force (Yes/No)	No
Explosion at normal temperature & pressure (Yes/No)	No

URL NO:TC680519000000232P

S.NO	Parameter	Unit	Method	Result	Std. for Landfill Disposal
36	Total Phenols (WLT)	mg/L	APHA 23 rd Edition, 2017; 5530B&D	<0.01	<100.0
37	Cyanide (WLT)	mg/L	APHA 23 rd Edition, 2017; 4500CN- K	Absent	<2.0
38	Fluoride as F- (WLT)	mg/L	APHA 23 rd Edition, 2017; 4500 F- D	11.04	<50.0
39	Nitrate Nitrogen as N (WLT)	mg/L	APHA 23 rd Edition, 2017; 4500 NO ₃ B	20.3	<30.0
40	Mercury as Hg (Total)	mg/Kg	USEPA 1998, SW846; 7471A	<1.0	---
41	Mercury as Hg (TCLP)	mg/L	USEPA 1998, SW846; 7470A	<0.1	<0.2
42	Mercury as Hg (WLT)	mg/L	USEPA 1998, SW846; 7470A	<0.1	<0.1
43	Chloroform	mg/L	USEPA 1998, SW846; 8260B	ND	6.0
44	Carbon tetra chloride	mg/L	USEPA 1998, SW846; 8260B	ND	0.5
45	Benzene	mg/L	USEPA 1998, SW846; 8260B	ND	0.5
46	Chloro Benzene	mg/L	USEPA 1998, SW846; 8260B	ND	100
47	Cresols	mg/L	USEPA 1998, SW846; 3650B	ND	213
48	1,4 - Dichloro Benzene	mg/L	USEPA 1998, SW846; 8260B	ND	7.5
49	1,2 - Dichloro Ethane	mg/L	USEPA 1998, SW846; 8260B	ND	0.5
50	Pyridine	mg/L	USEPA 1998, SW846; 8270 C	ND	5.0
51	Ethyl Methyl Ketone	mg/L	USEPA 1998, SW846; 8260B	ND	213
52	Nitro Benzene	mg/L	USEPA 1998, SW846; 8270 C	ND	2.0
53	Tetra chloro Ethylene	mg/L	USEPA 1998, SW846; 8260B	ND	0.7
54	Tri chloro Ethylene	mg/L	USEPA 1998, SW846; 8260B	ND	0.5
55	1,1 - Dichloroethylene	mg/L	USEPA 1998, SW846; 8260B	ND	0.7
56	2,4 - Dinitrotoluene	mg/L	USEPA 1998, SW846; 8260B	ND	0.1
57	Endrin	mg/L	USEPA 1998, SW846; 8270 C	ND	0.02
58	Heptachlor (and its epoxide)	mg/L	USEPA 1998, SW846; 8270 C	ND	0.008
59	Hexachlorobenzene	mg/L	USEPA 1998, SW846; 8260B	ND	0.13
60	Hexachlorobutadiene	mg/L	USEPA 1998, SW846; 8270 B	ND	0.5
61	Hexachloroethane	mg/L	USEPA 1998, SW846; 8260B	ND	3.0
62	Lindane	mg/L	USEPA 1998, SW846; 8270 C	ND	0.4
63	Methoxychlor	mg/L	USEPA 1998, SW846; 8270 C	ND	10.0

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S.No.	Parameter	Unit	Method	Result	Std. for Landfill Disposal
64	Pentachlorophenol	mg/L	USEPA 1998,SW846; 8270 C	ND	100.0
65	Toxaphene	mg/L	USEPA 1998,SW846; 8270 C	ND	0.5
66	2,4,5 – Tri Chlorophenol	mg/L	USEPA 1998,SW846; 8241	ND	400.0
67	2,4,6 – Trichlorophenol	mg/L	USEPA 1998,SW846; 8241	ND	2.0
68	2,4,5 – TP (Silvex)	mg/L	USEPA 1998,SW846; 8321A	ND	1.0
69	Vinyl Chloride	mg/L	USEPA 1998,SW846; 8260B	ND	0.2
70	2,4 - D	mg/L	USEPA 1998,SW846; 8270 C	ND	10.0
71	Chlordane	mg/L	USEPA 1998,SW846; 8270 C	ND	0.03
72	Total Chlorine as Cl	%	ASTM D2361-91	<0.3	---
73	Total Nitrogen as N	%	ASTM D5373	NA	---
74	Total Carbon as C	%	ASTM D5373	NA	---
75	Total Hydrogen as H	%	ASTM D5373	NA	---
76	Total Sulfur as S	%	ASTM D3177-89	<0.3	---

Towards sustainable growth

ND- Not Detected
SW 846- Test methods for Evaluating Solid waste, Physical/chemical methods, USEPA
IS- Indian Standard
ASTM- American standard of testing material
APHA- Standard methods for the examination of water and waste water, 23rd Edition
WLT- Water Leaching Test
TCLP- Toxicity Characteristics Leaching Procedure
NA- Not Applicable
Note:

- Parameters from 1 to 35(Part-I) only covered in NABL Scope.
- Parameters from 36 to 76 (Part-II) are not covered in NABL Scope.
- Reports pertained only to the submitted sample
- Test reports shall not be reproduced except in full, without written approval of the laboratory
- Any correction invalidates this test report

End of Report

Analyzed by 


 Authorized Signatory