Gmail Jharkhand <jam.env2018@gmail.com>

# Regarding compliance for the period April, 2023 to September, 2023 to the conditions of Environment Clearance for Sponge Iron Plant (4x100 TPD), Induction furnace (2x12T+1x12T), Rolling Mill (90,000 TPA) and 18 MW power plant [6 MW WHRB, 2 MW Coal char based and 10 MW Coal based].

1 message

**Jharkhand** <jam.env2018@gmail.com> Mon, Dec 18, 2023 at 9:52 AM
To: ro.ranchi-mef@gov.in
Cc: rdkolkata.cpcb@gov.in, ranchijspcb@gmail.com, jspcb_hazaribagh@rediffmail.com

JIPL/106/2023-24 05/12/2023

To,
The Additional Principal Chief Conservator of Forests (C),
Government of India,
Ministry of Environment, Forest & Climate Change,
Integrated Regional Office (Eastern Central Zone),
2nd Floor, Headquarter-Jharkhand State Housing Board,
Harmu Chowk, Ranchi, Jharkhand- 834002

Sub:-Regarding compliance for the period April, 2023 to September, 2023 to the conditions of Environment Clearance for Sponge Iron Plant (4x100 TPD), Induction furnace (2x12T+1x12T), Rolling Mill (90,000 TPA) and 18 MW power plant [6 MW WHRB, 2 MW Coal char based and 10 MW Coal based].

Ref: - Environment Clearance Letter No. F. No. J-11011/41/2013-IA-II (I) Dated- 07/09/2022.

Dear Sir,
In reference to the above subject matter & reference letter, the point wise Half Yearly compliance status for the period of April, 2023 to September, 2023 is being submitted for your kind perusal please.

Hope you will find this in order and oblige.

Thanking you.
Yours faithfully
**For Jharkhand Ispat Pvt Ltd**

**JIPL - EC Compliance - Oct 22 to March -2023.pdf**
6963K

# JHARKHAND ISPAT PRIVATE LIMITED


**ADMN. OFFICE** : Near P.N. Bank, Main Road, Ramgarh Cantt.
Dist. - Ramgarh (Jharkhand) - 829 122
**CIN** : U34102UP1991PTC012872
**Telephone** : 06553-226846, 224601, Fax : 226845
E-mail : jiplramgarh@gmail.com

IS : 2830
CM/L - 5406356

**WORKS :**
Vill, & P.O.- Hesla, Argada
Dist.- Ramgarh (Jharkhand)
PIN. - 829 101


O/C

Ref. No..... JIPL/106/2023-24

Date..... 05/12/2023

To,
The Additional Principal Chief Conservator of Forests (C),
Government of India,
Ministry of Environment, Forest & Climate Change,
Integrated Regional Office (Eastern Central Zone),
2nd Floor, Headquarter-Jharkhand State Housing Board,
Harmu Chowk, Ranchi, Jharkhand- 834002

Sub:-Regarding compliance for the period April, 2023 to September, 2023 to the conditions of Environment Clearance for Sponge Iron Plant (4x100 TPD), Induction furnace (2x12T+1x12T), Rolling Mill (90,000 TPA) and 18 MW power plant [6 MW WHRB, 2 MW Coal char based and 10 MW Coal based].

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Hope you will find this in order and oblige.

Thanking you.
Yours faithfully
**For Jharkhand Ispat Pvt Ltd**

**Authorized Signatory**

Enclosures: Compliance status Report.

पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, क्षेत्रीय कार्यालय, रांची
M/o Environment, Forest & Climate Change, Ranchi
सत्यमेव जयते
12/12/23

Cc to:-

1) The Zonal office Incharge, Central Pollution Control Board, Southernd Conclave, Block 502, 5th & 6th Floors, 1582 Rajdanga Main Road, Kolkata - 700 107 (W. B.).
2) The Member Secretary, Jharkhand State Pollution Control Board, T.A. Division Building (Ground Floor), HEC Campus, P.O. Dhurwa, Ranchi - 834004, Jharkhand.
3) Regional Officer, Regional Office, State Pollution Control Board, Hazaribagh, Jharkhand.

Jharkhand State Pollution Control Board

# Online Consent Management & Monitoring System

Ministry of Environment, Forest and Climate Change
Government of India




- Apply For Consent
- Change Password
- Industry Profile
- Compliance Management
- Laboratory Monitoring Report
- Online Payment Verification
- Fee Calculator
- e-Wallet Management
- Delete InProgress Applications
- Delete InProgress LAB Applications
- View Notices 0




Welcome JHARKHAND ISPAT PRIVATE LIMITED

Date : 5-12-2023

Your Compliance details has been Submitted. Your Acknowledgement Number is 17935526. Thank You!.

General

**General Details**

| | |
|---|---|
| **Industry Name:** | **JHARKHAND ISPAT PRIVATE LIMITED** |
| **Industry Address:** | **VILL: HESLA, PO: ARGADA, RAMGARH, JHARKHAND** |
| **Industry Pin:** | **829103** |
| **Industry S.T.D. Code(Phone):** | **06553** |
| **Industry Phone No:** | **226846** |
| **Industry E-Mail Address:** | **jipllegal@gmail.com** |
| **Occupier Name:** | **RAM CHANDRA RUNGTA** |
| **Occupier Designation:** | **DIRECTOR** |
| **Occupier Address:** | **NEAR PNB, MAIN ROAD** |
| **Occupier Pin:** | **829122** |
| **Occupier Mobile No:** | |
| **Occupier Email Address:** | **jipllegal@gmail.com** |
| **Industry Category:** | **RED** |
| **Industry Type:** | **Iron and Steel (Involving processing from ore/scrap/integrated steel plants).** |
| **Last Consent Granted App. No:** | 16016339 |
| **Last Consent Granted Uploaded Certificate:** | View Uploaded Certificate |
| **Last Consent Granted App. Type:** | **CTO** |
| **Authorization to file Compliance:** | View File |

| Proposal No. | State | Proposal Name | Category | User Agency Name | Proposal Recieved on | File No | Date of grant |
|---|---|---|---|---|---|---|---|

| | |
|---|---|
| **General Condition:** | View |
| **Specific Condition:** | View |

**Environment Clearance Compliance Status**
**Period from April-2023 to September -2023**

| | |
|---|---|
| **Name of Project:** | Jharkhand Ispat Pvt. Ltd. |
| **Capacity:** | Sponge Iron Plant (4x100 TPD), Induction furnace (2x12T+1x12T), Rolling Mill (90,000 TPA) and 18 MW power plant [6 MW WHRB, 2 MW Coal char based and 10 MW Coal based]. |
| **Location:** | Village & P.O – Hesla, Dist.- Ramgarh, Jharkhand. |
| **EC letter No.** | F. No. J-11011/41/2013-IA-II(I) Dated- 07/09/2022. |

**A. SPECIFIC CONDITION:**

| Sl. No. | CONDITION | COMPLIANCE |
|---|---|---|
| i. | Damage remediation measures @ cost of Rs. 660.22 lakhs shall be implemented as per the action plan submitted in the EIA report. | Being complying with on regular basis.<br>Rs 6,10,000/- submitted to the DFO Ramgarh for conservation of fauna in Phulsarai Protected Forest.<br>Rs 46,350/- expenses for distribution of seedling (Paddy) & Manure (DAP) to the villagers of Hesla & Maraar.<br>Rs 6,30,000/- submitted to the Executive Engineer, water ways division, Hazaribag (Jharkhand) for conservation of aquatic life in Damodar River.<br>Copy of e-challan & bills are enclosed for the above work respectively as **Annexure – 1.** |
| ii. | Jharkhand State Pollution Control Board vide letter Memo no. B-1767 dated 01.09.2022,has confirmed that M/s Jharkhand Ispat Private Limited has submitted Bank Guarantee amounting Rs. 6,60,22,500/- towards remediation plan and natural and community resources augmentation plan to Jharkhand State Pollution Control Board, Head Office, Ranchi vide BG No. 0962022BG0000159 dated 12.08.2022. Project proponent shall implement the plan and it shall be completed in three years whereas the bank guarantee shall be for five years. The bank guarantee shall be released by the SPCB after successful implementation of Remediation plan, Natural Resource Augmentation Plan and Community Resource Augmentation plan. | |
| iii. | PP shall meet the 2906 KLD water requirement from Damodar River after obtaining requisite permission from the concerned competent authority. Ground water abstraction for industrial purpose is not permitted. | At present 4X100 TPD sponge iron, 3X12 Ton induction furnace and 6 MW WHRB are installed other installation are delayed.<br>Moreover as per clause no 03 (a) page no - 04 of agreement with Damodar Valley Corporation, excess drawl of water is permitted. |
| iv. | Railway siding for the material transportation shall be provided by December, 2022 as committed. | Railway authority introduced new policy Gati Shakti Multi Modal Cargo Terminal; new installation will be completed GCT scheme. Railway issued |

| | | |
|---|---|---|
| | | EOI on 21/06/2023 for the same. It is delay due to change of policy of Railway.<br>Hence only WHRB is installed and other facilities are delay. |
| v. | Green Belt shall be developed in 40 % of total land with tree density of 2500 trees per ha. (or 1000 trees per acre) all along the periphery of the project site. This shall include development of green belt with a width of 10-20 m within the project site towards Argarda village and Mahuwa Tand village. | Being complied on regular basis. |
| vi. | Performance test shall be conducted on all pollution control systems every year and report shall be submitted to Regional Office of the MoEF&CC. | Compiling with. |
| vii. | Effluent treatment plant shall be provided for 225 KLD effluent and treated water shall be reutilized in plant process. | Noted. |
| viii. | Particulate matter emission from stacks shall be less than 30 mg/Nm3. | Complying with.<br>Stack monitoring report is enclosed as **Annexure – 2.** |
| ix. | 100 % solid waste shall be utilized. Dumping is not permitted. | Noted. |
| x. | Project proponent shall operate the violating unit "2x100 TPD DRI Kiln and 2x12 T Induction Furnace" only after obtaining Environmental Clearance and valid consent from state pollution control board as committed in the undertaking submitted to the Ministry. | Agree with and complied.<br>Copy of CTE & CTO are enclosed as **Annexure – 3.** |
| xi. | 80-85 % hot charging for billets shall be done. Balance rolling shall be carried out through reheat furnace operating on LDO/LSHS. | Noted. |
| xii. | All plant roads shall be paved and industrial vacuum cleaners shall be used to clean the roads regularly. | Noted, a dedicated housekeeping team is engaged to clean the factory premises. |
| xiii. | All stock piles shall be constructed over impervious soil and garland drains with catch pits to trap run off material shall be constructed. | Noted. |

**B. GENERAL CONDITION:**

| Sl.No. | CONDITION | COMPLIANCE |
|---|---|---|
| I | **Statutory compliance :** | |
| i | The Environment Clearance (EC) granted to the project/ activity is strictly under the provisions of the EIA Notification, 2006 and its amendments issued from time to time. It does not tantamount/ construe to approvals/ consent/ permissions etc., required to be | Noted. |

| | | |
|---|---|---|
| | obtained or standards/conditions to be followed under any other Acts/Rules/Subordinate legislations, etc., as may be applicable to the project. | |
| **II.** | **Air Quality monitoring and preservation:** | |
| i | The project proponent shall install 24x7 continuous emission monitoring system at process stacks to monitor stack emission as well as Continuous Ambient Air Quality Station (CAAQS) for monitoring AAQ parameters with respect to standards prescribed in Environment (Protection) Rules 1986 as amended from time to time. The CEMS and CAAQMS shall be connected to SPCB and CPCB online servers and calibrate these systems from time to time according to equipment supplier specification through labs recognized under Environment (Protection) Act, 1986 or NABL accredited laboratories. | Being complied.<br>Online monitoring systems are installed for monitoring of PM & SO2 emission of stack and it is connected online with Central Pollution Control Board and Jharkhand State Pollution Control Board URL server.<br>As per direction of Jharkhand State Pollution Control Board vide letter no B-19 issued on 28/02/2019, we have installed Continuous Ambient Air Quality Monitoring Station for PM 10 parameter and it is connected online with Jharkhand State Pollution Control Board URL server.<br>Further Unit has released work order to M/s Vasthi Instrument Pvt Ltd to install AAQMS other parameters like PM2.5, SO2 & NOx. |
| ii | The project proponent shall monitor fugitive emissions in the plant premises at least once in every quarter through laboratories recognized under Environment (Protection) Act, 1986 or NABL accredited laboratories. | Being complied.<br>Fugitive monitoring report is enclosed as **Annexure – 4.** |
| iii | Appropriate Air Pollution Control (APC) system shall be provided for all the dust generating points including fugitive dust from all vulnerable sources, so as to comply prescribed stack emission and fugitive emission standards. | Agree with. |
| iv | The project proponent shall provide leakage detection and mechanized bag cleaning facilities for better maintenance of bags. | Being complied on regular basis.<br>8 nos of bag filters are installed at different transfer point. |
| v | Recycle and reuse iron ore fines, coal and coke fines, lime fines and such other fines collected in the pollution control devices and vacuum cleaning devices in the process after briquetting/ agglomeration. | Noted. |
| vi | The project proponent shall ensure covered transportation and conveying of ore, coal and other raw material to prevent spillage and dust generation. | Being complied with. |

| | | |
|---|---|---|
| vii | The project proponent shall provide primary and secondary fume extraction system at all melting furnaces. | Being complied with. |
| viii | Wind shelter fence and chemical spraying shall be provided on the raw material stock piles. | Noted. |
| ix | Design the ventilation system for adequate air changes as per prevailing norms for all tunnels, motor houses, Oil Cellars. | Being complied with. |
| III | **Water quality monitoring and preservation** | |
| i. | The project proponent shall install 24x7 continuous effluent monitoring system with respect to standards prescribed in Environment (Protection) Rules 1986 (G.S.R 414 (E) dated 30th May 2008; G.S.R 277 (E) dated 31st March 2012 (applicable to IF/EAF); S.O. 3305 (E) dated 7th December 2015 (Thermal Power Plants) as amended from time to time and connected to SPCB and CPCB online servers and calibrate these system from time to time according to equipment supplier specification through labs recognised under Environment (Protection) Act, 1986 or NABL accredited laboratories. | Noted.<br>Unit has installed one number of Web Camera & Flow Meter near pump house. As per CPCB guideline, data is uploaded on CPCB & JSPCB URL sever. |
| ii. | The project proponent shall monitor regularly ground water quality at least twice a year (pre- and post-monsoon) at sufficient numbers of piezometers/sampling wells in the plant and adjacent areas through labs recognised under Environment (Protection) Act, 1986 and NABL accredited laboratories. | Being Complied on regular basis.<br>Ground water quality test monitoring & Piezometer reading is enclosed as **Annexure – 5.** |
| iii. | Adhere to 'Zero Liquid Discharge'. | Agree with. |
| iv. | Sewage Treatment Plant shall be provided for treatment of domestic wastewater to meet the prescribed standards. | For domestic waste, Unit has provided septic tank with soak pit. |
| v. | Garland drains and collection pits shall be provided for each stock pile to arrest the run-off in the event of heavy rains and to check the water pollution due to surface run off. | Noted. |
| **IV.** | **Noise monitoring and prevention:** | |
| i. | Noise quality shall be monitored as per the prescribed Noise Pollution (Regulation And Control) Rules, 2000 and report in this regard shall be submitted to Regional Officer of the Ministry as a part of six-monthly compliance report. | Being complied on regular basis.<br>Noise monitoring report is enclosed as **Annexure – 6.** |
| **V.** | **Energy Conservation measures** | |

| | | |
|---|---|---|
| i. | Energy conservation measures may be adopted such as adoption of solar energy and provision of LED lights etc., to minimize the energy consumption. | Noted.<br>For minimization of energy consumption, Unit has used LED lights. |
| **VI.** | **Waste management:** | |
| i. | Used refractories shall be recycled as far as possible | Noted. |
| ii. | 100% utilization of fly ash shall be ensured. All the fly ash shall be provided to cement and brick manufacturers for further utilization and Memorandum of Understanding in this regard shall be submitted to the Ministry's Regional Office. | Noted.<br>Till date unit has installed only WHRB power plant. |
| iii | Oily scum and metallic sludge recovered from rolling mills ETP shall be mixed, dried, and briquetted and reused in melting Furnaces. | Noted. |
| iv. | Kitchen waste shall be composted or converted to biogas for further use. | Noted. |
| **VII.** | **Green Belt :** | |
| i. | Green belt shall be developed in an area equal to 33% of the plant area with a native tree species in accordance with CPCB guidelines. The greenbelt shall inter alia cover the entire periphery of the plant | Being complied in regular basis. |
| ii. | The project proponent shall prepare GHG emissions inventory for the plant and shall submit the programme for reduction of the same including carbon sequestration including plantation. | GHG emissions inventory report is enclosed as **Annexure – 7.** |
| **VIII** | **Public hearing and Human health issues :** | |
| i. | Emergency preparedness plan based on the Hazard identification and Risk Assessment (HIRA) and Disaster Management Plan shall be implemented. | Being complied with. |
| ii. | The project proponent shall carry out heat stress analysis for the workmen who work in high temperature work zone and provide Personal Protection Equipment (PPE) as per the norms of Factory Act. | Being complied with. |
| iii. | Occupational health surveillance of the workers shall be done on a regular basis and records maintained. | Periodical health check-up are being carried and record are maintained on regular basis. |
| **IX.** | **Corporate Environment Responsibility** | |
| i. | The project proponent shall comply with the provisions contained in this Ministry's OM vide F.No. 22-65/2017-IA.III dated 30/09/2020. | Noted. |

| | | |
|---|---|---|
| ii. | The company shall have a well laid down environmental policy duly approve by the Board of Directors. The environmental policy should prescribe for standard operating procedures to have proper checks and balances and to bring into focus any infringements/deviation/ violation of the environmental /forest / wildlife norms /conditions. The company shall have defined system of reporting infringements / deviation / violation of the environmental / forest / wildlife norms / conditions and/or shareholders/stake holders. The copy of the board resolution in this regard shall be submitted to the MoEF&CC as a part of six-monthly report. | Environmental policy duly approve by the Board of Director is enclosed as **Annexure – 8.** |
| iii. | A separate Environmental Cell both at the project and company head quarter level, with qualified personnel shall be set up under the control of senior Executive, who will directly to the head of the organization. | Being complied. |

**X. MISCELLANEOUS:**

| | | |
|---|---|---|
| i | The project proponent shall make public the environmental clearance granted for their project along with the environmental conditions and safeguards at their cost by prominently advertising it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days and in addition this shall also be displayed in the project proponent's website permanently. | Advertised in two local newspapers of the District, Prabhat Khabar and Danik Bhaskar published on 13/09/2022 and 14/09/2022 respectively.<br>Environmental conditions and safeguards will be complied in due course.<br>EC letter has been put on our web site www.jharkhandispat.in |

| | | |
|---|---|---|
| ii | The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt. | Copy of environment clearance letter has been sent to the following authorities:-<br>1) The Member Secretary, Jharkhand State Pollution Control Board, Ranchi, Jharkhand dated 12/09/2022.<br>2) The Regional officer, Jharkhand State Pollution Control Board, Hazaribagh, Jharkhand dated 12/09/2022.<br>3) The District Industries Centre, District -Ramgarh, Jharkhand dated 12/09/2022.<br>4) The Deputy Commissioner, District- Ramgarh, Jharkhand dated 12/09/2022.<br>5) President, Ramgarh Nagar Parishad, District-Ramgarh, Jharkhand dated 12/09/2022. |
| iii | The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and update the same on half-yearly basis. | Being complied on regular basis. |
| iv | The project proponent shall monitor the criteria pollutants level namely; $PM_{10}$, $SO_2$, NOx (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects and display the same at a convenient location for disclosure to the public and put on the website of the company. | Being complied.<br>Ambient Air Quality monitoring Report Is enclosed as **Annexure-9.**<br>Display board has been displayed on main gate. |
| v | The project proponent shall submit six-monthly reports on the status of the compliance of the stipulated environmental conditions on the website of the ministry of Environment, Forest and Climate Change at environment clearance portal. | Noted, being complied on regular basis. |
| vi | The project proponent shall submit the environmental statement for each financial year in Form-V to the concerned State Pollution | Being complied for existing plant, noted for compliance in expansion project.<br>Environment Statement Report |

| | | |
|---|---|---|
| | Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company. | has been uploaded on the company web site www.jharkhandispat.in Environment Statement Report is enclosed as **Annexure -10.** |
| vii | The project proponent shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities, commencing the land development work and start of production operation by the project. | Noted. |
| viii | The project proponent shall abide by all the commitments and recommendations made in the EIA/EMP report, commitment made during Public Hearing and also that during their presentation to the Expert Appraisal Committee. | Noted. |
| ix | No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forests and Climate Change (MoEF&CC). | Agree with. |
| x | Concealing factual data or submission of false/fabricated data may result in revocation of this environmental clearance and attract action under the provisions of Environment (Protection) Act, 1986. | Noted. |
| xi | The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory. | Agree with. |
| xii | The Ministry reserves the right to stipulate additional conditions if found necessary. The Company in a time bound manner shall implement these conditions. | Agree with. |
| xiii | The Regional Office of this Ministry shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information/monitoring reports. | Agree with. |
| xiv | Any appeal against this EC shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010. | Noted. |

# JHARKHAND ISPAT PRIVATE LIMITED

**ADMN. OFFICE** : Near P.N. Bank, Main Road, Ramgarh Cantt.
Dist. - Ramgarh (Jharkhand) - 829 122
**CIN** : U34102UP1991PTC012872
Telephone : 06553-226846, 224601, Fax : 226845
E-mail : jiplramgarh@gmail.com

IS : 2830
CM/L - 5406356

**WORKS :**
Vill, & P.O.- Hesla, Argada
Dist.- Ramgarh (Jharkhand)
PIN. - 829 101

Ref. No..... O/C

Date.....

**JIPL/169/2022-23**

**31.03.2023**

To,
The Divisional Forest Officer,
Ramgarh Division,
Dist. Ramgarh.
Jharkhand

Annexure - 1

**Sub: Regarding submission of e- Challan copy duly received by SBI, Ramgarh Branch of Rs 6,10,000/- for conservation of fauna in Phulsarai Protected Forest to the District Forest Office under Corporate Environment Responsibility (CER).**

31/3/23

Ref.:- 1) Our letter no JIPL/164/2022-23 dated 21/03/2023.
2) DFO, Ramgarh letter no 602 dated 29/03/2023.

Dear Sir,

With reference to the above, please find enclosed herewith e- Challan copy duly received by SBI, Ramgarh Branch of Rs 6, 10,000/- bearing no J-175799624 dated 31/03/2023.

Please find above in order and oblige.

Thanking you,

Yours faithfully,
For **JHARKHAND ISPAT PVT LTD**

Authorized Signatory

Encl.:- As above.

## e-Challan

**Finance Department, Goverment of Jharkhand**

**Receiving Dept:** Forest, Environment and Climate Change Department

Valid UpTo :-09/04/2023 — Remitter's Copy of Dept

**GRN:-2316468419** — Date:- 31/03/2023 11:51:34

Receiving Office:- HZBFOR001-DIV. FOREST OFFICER-RAMGARH FOREST DIVISION, RAMGARH

District:- Ramgarh — **Deposit Treasury:- Ramgarh**

Year:- 31/03/2023 — to :- 31/03/2023

| **Head(8782)** | **Amount** ₹ |
|---|---|
| Head Details **878200103010101** | |
| **FOREST REMITTANCES** | 610000.00 |

**Net Payable Amount:-** ₹ **610000.00**

**Six Lakh Ten Thousand Rupees And Zero Paisa Only**

**For Treasury Use Only(Ramgarh)**

**Challan No and Date:** **168** **31/03/2023**

Identity Proof(GSTIN No.) - 20AABCR2993R1ZX

PAN No:- NA

**Remitter Name:-** JHARKHAND ISPAT PRIVATE LIMITED

Address :- VILL HESLA PO HESLA ARGADA RAMGARH RAMGARH 829101

Remarks :- Deposit Work

Treasury Officer Signature is not required.

**FOR USE IN TREASURY LINK BANK**

CHEQUE/DD :- 366933/31.03.23

Scroll No and (Date) :-

Bank Name :-SBI,RAMGHAR,STATE BANK OF INDIA, RAMGARH CANTT

Note:- Bank Official are requested to update the receipt Online before Stamping.

Signature & Seal of Bank

Cut from here

Use seprate page


## e-Challan

**Finance Department, Goverment of Jharkhand**

**Receiving Dept:** Forest, Environment and Climate Change Department

Valid UpTo :-09/04/2023 — Remitter's Copy

**GRN:-2316468419** — Date:- 31/03/2023 11:51:34

Receiving Office :- HZBFOR001-DIV. FOREST OFFICER-RAMGARH FOREST DIVISION. RAMGARH

District :- Ramgarh — **Deposit Treasury:- Ramgarh**

Year:-31/03/2023 — to:- 31/03/2023

| **Head(8782)** | **Amount** ₹ |
|---|---|
| Head Details **878200103010101** | |
| **FOREST REMITTANCES** | 610000.00 |

**Net Payable Amount:-** ₹ **610000.00**

**Six Lakh Ten Thousand Rupees And Zero Paisa Only**

**For Treasury Use Only(Ramgarh)**

**Challan No and Date:** **168** **31/03/2023**

Identity Proof(GSTIN No.) - 20AABCR2993R1ZX

PAN No:- NA

**Remitter Name:-** JHARKHAND ISPAT PRIVATE LIMITED

Address :- VILL HESLA PO HESLA ARGADA RAMGARH RAMGARH 829101

Remarks :- Deposit Work

Treasury Officer Signature is not required.

**FOR USE IN TREASURY LINK BANK**

CHEQUE/DD :- 366933/31.03.23

Scroll No and (Date) :-

Bank Name :-SBI,RAMGHAR,STATE BANK OF INDIA, RAMGARH CANTT

Note:- Bank Official are requested to update the receipt Online before Stamping.

Signature & Seal of Bank

# Bill of Supply

| | |
|---|---|
| **TRIPURARI STORES -(2021-22-23)**<br>Gola Road Ramgarh Cantt<br>Jharkhand<br>Tripurari.Stores@yahoo.Com<br>MOBILE NO:-9431331805, 9709121294<br>920255066<br>GSTIN/UIN: 20AAIFT5761H1Z7<br>State Name : Jharkhand, Code : 20<br>E-Mail : tripurari.stores@yahoo.com | Invoice No. **583** / Dated **23-Jun-23**<br>Delivery Note / Mode/Terms of Payment<br>Reference No. & Date. **583 dt. 23-Jun-23** / Other References<br>Buyer's Order No. / Dated<br>Dispatch Doc No. / Delivery Note Date<br>Dispatched through / Destination<br>Terms of Delivery |
| Consignee (Ship to)<br>**JHARKHAND ISPAT PVT LTD**<br>ARGADA<br>State Name : Jharkhand, Code : 20 | |
| Buyer (Bill to)<br>**JHARKHAND ISPAT PVT LTD**<br>ARGADA<br>State Name : Jharkhand, Code : 20<br>Place of Supply : Jharkhand | |

| Sl No. | Description of Goods | HSN/SAC | Quantity | Rate | per | Disc. % | Amount |
|---|---|---|---|---|---|---|---|
| 1 | **PADDY 650 1KG 30PC ( SHIRIRAM)** | 10061010 | **96 NO'S** | 300.00 | NO'S | | **28,800.00** |
| | Total | | **96 NO'S** | | | | **₹ 28,800.00** |

Amount Chargeable (in words) E.&O.E

**Indian Rupees Twenty Eight Thousand Eight Hundred Only**

| HSN/SAC | Taxable Value |
|---|---|
| 10061010 | 28,800.00 |
| **Total** | **28,800.00** |

Tax Amount (in words) : **NIL**

Company's PAN : **AAIFT5761H**

Declaration

We declare that this invoice shows the actual price of the goods described and that all particulars are true and correct.

for TRIPURARI STORES -(2021-22-23)

Authorised Signatory

This is a Computer Generated Invoice

A

DUPLICATE

CASH / CREDIT RECEIPT

(SALE TO FARMER)

Retailer Name & Address : Tripurari St oreRamgarh

Retailer ID : 219589

Certificate Registration No : 69/14-17

GSTIN No : 20AAIFT5761H1Z7

Invoice No : 219589173102709

Date/Time : 23/06/2023 10:27

---

Buyer Name : Rajesh Singh

Buyer Address : Vill- Bujurg Jamira Ne ar Shiv Mandir Ps - Patratu Barkakana Ramgarh Jharkhand

AadharNo/VirtualId : ********1489

| Product-Plant | Qty(Unit) | Unit/Price (Rs.) | Amt (Rs.) |
|---|---|---|---|
| Imported DAP IPL | 2.0(50 Kg Bag) | 1350.0 | 2700.00 |

Total Amount (Rs) : 2700

(Inclusive of GST)

---

GST Summary

| | |
|---|---|
| CGST(@2.5%) | Rs. 64.29 |
| SGST(@2.5%) | Rs. 64.29 |

Total Tax Amount(Rs) : 128.58

Payment Mode: Cash

---

Subsidy to be borne by the government on behalf of the farmer (Rs.) : 3264.1

To know the stock position at retailer, se nd SMS RS<space><Retailer ID> to 77382998 99 or visit Farmer's corner at https://ur varak.nic.in

Thank You

23/06/23

---

Customer Copy

CASH / CREDIT RECEIPT

(Sale to Farmer)

Retailer Name & Address : Tripurari St oreRamgarh

Retailer ID : 219589

Certificate Registration No : 69/14-17

GSTIN No : 20AAIFT5761H1Z7

Invoice No : 219589173102438

Date/Time : 23/06/2023 10:25

---

Buyer Name : Manoj Kumar

Buyer Address : Nilam Niwas, Aashria C olony, Street No. 3 Oyna Ranchi Jharkh and

AadharNo/VirtualId : ********1930

| Product-Plant | Qty(Unit) | Unit/Price (Rs.) | Amt (Rs.) |
|---|---|---|---|
| Imported DAP IPL | 11.00(50 Kg Bag) | 1350 | 14850.00 |

Total Amount (Rs) : 14850.00

(Inclusive of GST)

---

GST Summary

| | |
|---|---|
| CGST(@2.5%) | Rs. 353.57 |
| SGST(@2.5%) | Rs. 353.57 |

Total Tax Amount(Rs) : 707.14

Payment Type: CASH

---

Subsidy to be borne by the government on behalf of the farmer (Rs.) : 17952.55

To know the stock position at retailer, se nd SMS RS<space><Retailer ID> to 77382998 99 or visit Farmer's corner at https://ur varak.nic.in

Thank You

दैनिक भास्कर

रामगढ़ 25-06-2023

# किसानों के बीच बीज और खाद का वितरण


रामगढ़ | रामगढ़ में मानसून के प्रवेश के साथ ही झारखंड इस्पात प्राइवेट लिमिटेड रामगढ़ के द्वारा किसानों के बीच उन्नत बीज और खाद देकर सहयोग किया है। शनिवार को मरार और हेसला के किसानों के बीच उन्नत बीज और खाद (डीएपी) बांटा गया। उत्तम बीज 650 एवं खाद पा कर गांव के किसानों में खुशी का माहौल है।

# JHARKHAND ISPAT PRIVATE LIMITED


**ADMN. OFFICE** : Near P.N. Bank, Main Road, Ramgarh Cantt.
Dist. - Ramgarh (Jharkhand) - 829 122
**CIN** : U34102UP1991PTC012872
**Telephone** : 06553-226846, 224601, Fax : 226845
E-mail : jiplramgarh@gmail.com

IS : 2830
CM/L - 5406356

**WORKS :**
Vill, & P.O.- Hesla, Argada
Dist.- Ramgarh (Jharkhand)
PIN. - 829 101


Ref. No **JIPL/055/2023-24** O/C Date **23.08.2023**

To,
The Executive Engineer,
Water ways division,
Hazaribag, Jharkhand.

**Sub: Regarding payment of Rs 6, 30,000/- for conservation of aquatic life in Damodar River in compliance to the EC condition.**

Received Cheque NO 549736 Rs 6,30,000=00
23/08/23

Ref.:
1) Environment Clearance (EC) issued vide letter no. J-11011/41/2013-IA-II(I) dated 07/09/2022 by MoEF&CC, New Delhi.
2) Our letter no. JIPL/026/2023-24 dated 15/06/2023 to the Dy. Commissioner, Ramgarh, Jharkhand regarding compliance of page no–12, point no. – 5 of EC.
3) Our letter no JIPL/039/2023-24 dated 04/07/2023 to the Executive Engineer, Water way division, Hazaribag, Jharkhand regarding compliance of page no – 12, point no. – 5 of EC.
4) Your letter no. – 840 dated 16/08/2023.

Dear Sir,

With reference to the above, please find enclosed herewith Cheque No. 549736 Dated 22/08/2023 of Rs 6, 30,000/- drawn on SBI, SME Branch Ranchi in compliance to the condition detailed at page no – 12, point no. – 5 of EC i.e. "Fund for conservation of aquatic life in Damodar River to the District collector / Water resource Department".

Please find above in order and oblige.

Thanking you,

Yours faithfully,
For **JHARKHAND ISPAT PVT LTD**

Authorized Signatory

Encl.:- Cheque No. 549736 Dated 22/08/2023 of SBI SME Branch Ranchi.

Cc - The Dy. Commissioner, Ramgarh (Jharkhand).

उपायुक्त का कार्यालय प्राप्ति हस्ताक्षर रामगढ़
24/8/2023

भारतीय स्टेट बैंक
State Bank Of India

(09620)-SME BRANCH RANCHI
MACON CAMPUS
DORANDA RANCHI.DIST:RANCHI. 834002
Tel : 651 2482676 Fax : IFS Code : SBIN0009620 SWIFT :

केवल 3 महीने के लिए वैध / VALID FOR 3 MONTHS ONLY
2 2 0 8 2 0 2 3
D D M M Y Y Y Y
EO2jO6

PAY Executive Engineer (Water Ways Division, Hazaribag. को या उनके आदेश पर OR ORDER

रुपये RUPEES Six lakh thirty thousand only. अदा करें ₹ 630000/-

खा. सं. A/c No. 10324842800

VALID UPTO ₹ 50 LACS AT NON-HOME BRANCH FOR NON-CASH TRANSACTION ONLY

00824842301

CASH CREDIT A/C
PREFIX :
1516200003

JHARKHAND ISPAT PRIVATE LIMITED

MULTI-CITY CHEQUE Payable at Par at All Branches of SBI

Please sign above

⑈549736⑈ 834002006⑆ 000152⑈ 30

3152920 / 100 / BLUE ORDER / 1.07/Aug/2023
SESHAASAI (K) / CTS-2010

ENVIRONMENTAL CLEARANCE

PARIVESH

(Pro-Active and Responsive Facilitation by Interactive, and Virtuous Environment Single-Window Hub)

# Government of India
# Ministry of Environment, Forest and Climate Change
# (Impact Assessment Division)

To,

The Director

JHARKHAND ISPAT PVT LTD

Near P.N Bank, Main Road, Ramgarh Cantt, Distt. Ramgarh, Jharkhand,,Ramgarh,Jharkhand-829122

**Subject:** Grant of Environmental Clearance (EC) to the proposed Project Activity under the provision of EIA Notification 2006-regarding

Sir/Madam,

This is in reference to your application for Environmental Clearance (EC) in respect of project submitted to the Ministry vide proposal number IA/JH/IND/236898/2020 dated 15 Nov 2021. The particulars of the environmental clearance granted to the project are as below.

| | | |
|---|---|---|
| **1.** | **EC Identification No.** | **EC22A008JH113341** |
| **2.** | **File No.** | J-11011/41/2013-IA-II(I) |
| **3.** | **Project Type** | New |
| **4.** | **Category** | A |
| **5.** | **Project/Activity including Schedule No.** | 3(a) Metallurgical industries (ferrous & non ferrous) |
| **6.** | **Name of Project** | Expansion of Jharkhand Ispat (P) Ltd. for enhancement of Sponge Iron Production from 60,000 to 120,000 TPA, Billet Production 108,000 TPA, 90,000 TPA Rolling Mill along with 18 MW Captive Power Plant (WHRB–6MW & AFBC–12MW at village - Hesla, P.O. - Argada, Ramgarh District, Jharkhand |
| **7.** | **Name of Company/Organization** | JHARKHAND ISPAT PVT LTD |
| **8.** | **Location of Project** | Jharkhand |
| **9.** | **TOR Date** | N/A |

The project details along with terms and conditions are appended herewith from page no 2 onwards.

**Date: 07/09/2022**

**(e-signed)**
**Dr. R. B. Lal**
**Scientist E**
**IA - (Industrial Projects - 1 sector)**

*Note: A valid environmental clearance shall be one that has EC identification number & E-Sign generated from PARIVESH.Please quote identification number in all future correspondence.*

*This is a computer generated cover page.*

F. No. J-11011/41/2013-IA-II(I)
**Government of India**
**Ministry of Environment, Forest and Climate Change**
(I.A. Division – Industry I sector)
***

Indira Paryavaran Bhawan
Jor Bagh Road, Aliganj,
New Delhi – 110003

**Dated: 7th September, 2022**

To,

**M/s. Jharkhand Ispat Private Limited**
Near P.N Bank, Main Road, Ramgarh Cantt,
Disrict. Ramgarh, Jharkhand – 829122

**Email: jiplmoefcc@gmail.com**

**Project: Sponge Iron Plant (4x100 TPD), Induction furnace (2x12T+1x12T), Rolling Mill (90,000 TPA) and 18 MW power plant [6 MW WHRB, 2 MW Coal char based and 10 MW Coal based] of M/s. Jharkhand Ispat Private Limited located at Hesla, P.O. Argada, District Ramgarh, Jharkhand – Grant of Environmental Clearance as per S.O. 804(E) dated 14/03/2017 – regarding.**

Sir,

This refers to your proposal no. **IA/JH/IND/236898/2020 dated 15/11/2021** and subsequent ADS reply dated 15/01/2022 and 07/02/2022 submitted through Parivesh Portal seeking grant of **Environmental Clearance (EC) under EIA Notification, 2006** for the project mentioned above. Further, Jharkhand State Pollution Control Board vide letter Memo no. B-1767 dated 01.09.2022, has informed that M/s Jharkhand Ispat Private Limited has confirmed Bank Guarantee amounting Rs. 6,60,22,500/- towards remediation plan and natural and community resources augmentation plan to Jharkhand State Pollution Control Board, Head Office, Ranchi vide BG No. 0962022BG0000159 dated 12.08.2022.

2. As per the provisions of the Environment Impact Assessment (EIA) Notification, 2006, the above-mentioned project/activity is listed at schedule no. 3(a) Metallurgical Industries (ferrous & non-ferrous) under Category "A" of the schedule of the EIA Notification, 2006 and attracts provisions of S.O. 804 (E) issued by MoEF&CC dated 14/03/2017 for the projects under Violation.

3. The proposal was considered by the **EAC (Industry-I)** in its **49th meeting held on 16-17th December, 2021**, **52nd meeting held on 27th-28th and 31st January, 2022** and **53rd meeting held on 10-11th February, 2022**. The minutes of the meetings and all the project documents are available on PARIVESH portal which can be accessed at https://parivesh.nic.in/.

4. The details of the proposal are as per the EIA report submitted by the proponent. The salient features of the proposal as presented during the above-mentioned meeting of EAC (Industry 1) are as under :-

| S.No. | Particulars | Details |
|---|---|---|
| a. | Terms of Reference for undertaking EIA study | 09/11/2020 |
| b. | Period of baseline data collection | Baseline data collected during 01/10/2020 to 31/12/2020. |
| c. | Date of Public Consultation | 06/05/2017 (Fresh PH not recommended by the EAC |

<table>
<tr><th>S.No.</th><th>Particulars</th><th>Details</th></tr>
<tr><td></td><td></td><td>– Violation sector)</td></tr>
<tr><td>d.</td><td>Action plan to address the PH issues</td><td>In addition to EMP budget, an amount of Rs. 160.19 Lakhs have been earmarked to address the issues raised during public hearing.<br>PH Action Plan is enclosed as Annexure-I.</td></tr>
<tr><td>e.</td><td>Location of the project</td><td>Hesla, P.O. Argada, District Ramgarh, Jharkhand.</td></tr>
<tr><td>f.</td><td>Latitude and Longitude of the project site</td><td>
<table>
<tr><th>Point</th><th>Latitude</th><th>Longitude</th></tr>
<tr><td>A</td><td>23$^0$39’00.0”N</td><td>85$^0$27’48.8”E</td></tr>
<tr><td>B</td><td>23$^0$38’53.5”N</td><td>85$^0$27’42.8”E</td></tr>
<tr><td>C</td><td>23$^0$38’50.3”N</td><td>85$^0$27’45.0”E</td></tr>
<tr><td>D</td><td>23$^0$38’44.0”N</td><td>85$^0$27’39.4”E</td></tr>
<tr><td>E</td><td>23$^0$39’46.1”N</td><td>85$^0$27’54.3”E</td></tr>
<tr><td>F</td><td>23$^0$38’51.2”N</td><td>85$^0$27’55.5”E</td></tr>
<tr><td>G</td><td>23$^0$38’53.5”N</td><td>85$^0$27’52.9”E</td></tr>
<tr><td>H</td><td>23$^0$38’57.4”N</td><td>85$^0$27’54.9”E</td></tr>
</table>
</td></tr>
<tr><td>g.</td><td>Total land</td><td>14.38 ha [Private:14.38 ha]</td></tr>
<tr><td>h.</td><td>Land acquisition details as per MoEF&CC O.M. dated 7/10/2014</td><td>The existing units is installed in 25.54 Acres (10.34 Ha.) of land which is owned by JIPL. Company has taken adjacent land area of 10 Acres (4.04 Ha.) on 30 years lease. Thus, the total land after expansion will be 14.38 ha and total land is under possession of JIPL.</td></tr>
<tr><td>i.</td><td>Existence of habitation & involvement of R&R, if any</td><td>Nil.</td></tr>
<tr><td>j.</td><td>Elevation of the project site</td><td>335 m above mean sea level</td></tr>
<tr><td>k.</td><td>Involvement of Forest land if any.</td><td>No involvement of Forest land.</td></tr>
<tr><td>l.</td><td>Water body exists within the project site as well as study area</td><td>Project Site: No water bodies within the project site.<br><br>Study area
<table>
<tr><th>Water Body</th><th>Distance</th><th>Direction</th></tr>
<tr><td>River Damodar</td><td>0.3 km</td><td>South</td></tr>
</table>
</td></tr>
<tr><td>m.</td><td>Existence of ESZ / ESA / national park / wildlife Sanctuary / biosphere Reserve / tiger reserve / elephant reserve etc. if any within the study area</td><td>Nil.<br>However, following forests are existing in the study area:<br>PF at 5.0 km (SW),<br>PF at 5.5 km (NNE),<br>PF at 8.4 km (South),<br>PF at 9.2 km (NNW).</td></tr>
<tr><td>n.</td><td>Project cost</td><td>Existing- Rs. 54.12 Crores<br>Proposed - Rs. 186.63 Crores (after proposed expansion total capital cost of the project is Rs 240.75 Crores)</td></tr>
<tr><td>o.</td><td>EMP cost</td><td>The capital cost for environmental protection measures along with the budget of activities to address Public Hearing Issues is proposed as Rs. 5.7011 Crores. The annual recurring cost towards the environmental protection measures is proposed as Rs 0.475 Crores.</td></tr>
<tr><td>p.</td><td>Employment opportunity</td><td>394 Nos.</td></tr>
<tr><td>q.</td><td>Water and Power requirement</td><td>Water: 2906 KLD (Total after Expansion)</td></tr>
</table>

| S.No. | Particulars | Details |
|---|---|---|
| | | Power –18 MW (Total after Expansion) |

**Unit configuration and capacity:**

| Sl. No | Project Details | Existing Installed Units | | | | Proposed Units | | Total (Existing + Proposed) | |
|---|---|---|---|---|---|---|---|---|---|
| | | Non/Violating | | Violating Units | | | | | |
| | | Unit | Prod. (TPA) | Unit | Prod. (TPA) | Unit | Prod. (TPA) | Unit | Prod. (TPA) |
| 1. | Sponge Iron Plant | 2x100 TPD | 60,000 | 2x100 TPD | 60,000 | -- | -- | 4x100 TPD | 120,000 |
| 2. | Induction Furnaces | -- | | 2x12T | | 1x12T | | 3x12T | |
| 3. | Billet Caster | | | 2strands 6/11m | 72,000 | 1strand 6/11m | 36,000 | 3strand 6/11m | 108,000 |
| 4. | Rolling Mill | -- | | -- | | 300 TPD | 90,000 | 300 TPD | 90,000 |
| 5. | Captive Power Plant<br>AFBC Boiler<br>WHRB | -- | | -- | | <br>1<br>4 | <br>12 MW<br>6 MW | <br>1<br>4 | <br>12 MW<br>6 MW |

5. The EAC (Industry-I) in its 53rd meeting held on 10-11th February, 2022 based on information & clarifications provided by the project proponent and after detailed deliberations recommended the instant expansion proposal for grant of Environment Clearance under EIA Notification, 2006 subject to stipulation of specific and general conditions as detailed in the paragraph given below.

6. The matter has been examined in the Ministry and accordingly the Jharkhand State Pollution Control Board vide letter Memo no. B-1767 dated 01.09.2022, has confirmed that M/s Jharkhand Ispat Private Limited has submitted Bank Guarantee amounting Rs. 6,60,22,500/- towards remediation plan and natural and community resources augmentation plan to Jharkhand State Pollution Control Board, Head Office, Ranchi vide BG No. 0962022BG0000159 dated 12.08.2022.

7. The MoEF&CC has examined the proposal in accordance with the Environment Impact Assessment (EIA) Notification, 2006 & further amendments thereto and after accepting the recommendations of the Expert Appraisal Committee (Industry-1) hereby decided to grant Environment Clearance for instant proposal of **M/s. Jharkhand Ispat Private Limited** under the provisions of EIA Notification, 2006 and **as per S.O. 804(E) dated 14/03/2017** subject to the following specific conditions and general conditions.

**A. Specific conditions:**

i. Damage remediation measures @ cost of Rs. 660.22 lakhs shall be implemented as per the action plan submitted in the EIA report.

ii. Jharkhand State Pollution Control Board vide letter Memo no. B-1767 dated 01.09.2022, has confirmed that M/s Jharkhand Ispat Private Limited has submitted Bank Guarantee amounting Rs. 6,60,22,500/- towards remediation plan and natural and community resources augmentation plan to Jharkhand State Pollution Control Board, Head Office, Ranchi vide BG No. 0962022BG0000159 dated 12.08.2022. Project proponent shall

implement the plan and it shall be completed in three years whereas the bank guarantee shall be for five years. The bank guarantee shall be released by the SPCB after successful implementation of Remediation plan, Natural Resource Augmentation Plan and Community Resource Augmentation plan (**Copy of plan is enclosed herewith)**.

iii. PP shall meet the 2906 KLD water requirement from Damodar River after obtaining requisite permission from the concerned competent authority. Ground water abstraction for industrial purpose is not permitted.

iv. Railway siding for the material transportation shall be provided by December, 2022 as committed.

v. Green Belt shall be developed in 40 % of total land with tree density of 2500 trees per ha. (or 1000 trees per acre) all along the periphery of the project site. This shall include development of green belt with a width of 10-20 m within the project site towards Argarda village and Mahuwa Tand village.

vi. Performance test shall be conducted on all pollution control systems every year and report shall be submitted to Regional Office of the MoEF&CC.

vii. Effluent treatment plant shall be provided for 225 KLD effluent and treated water shall be reutilized in plant process.

viii. Particulate matter emission from stacks shall be less than 30 mg/Nm3.

ix. 100 % solid waste shall be utilized. Dumping is not permitted.

x. Project proponent shall operate the violating unit "2x100 TPD DRI Kiln and 2x12 T Induction Furnace" only after obtaining Environmental Clearance and valid consent from state pollution control board as committed in the undertaking submitted to the Ministry.

xi. 80-85 % hot charging for billets shall be done. Balance rolling shall be carried out through reheat furnace operating on LDO/LSHS.

xii. All plant roads shall be paved and industrial vacuum cleaners shall be used to clean the roads regularly.

xiii. All stock piles shall be constructed over impervious soil and garland drains with catch pits to trap run off material shall be constructed.

**B. General conditions**

**I. Statutory compliance:**

i. The Environment Clearance (EC) granted to the project/ activity is strictly under the provisions of the EIA Notification, 2006 and its amendments issued from time to time. It does not tantamount/ construe to approvals/ consent/ permissions etc., required to be obtained or standards/conditions to be followed under any other Acts/Rules/Subordinate legislations, etc., as may be applicable to the project.

**II. Air quality monitoring and preservation**

i. The project proponent shall install 24x7 continuous emission monitoring system at process stacks to monitor stack emission as well as Continuous Ambient Air Quality Station (CAAQS) for monitoring AAQ parameters with respect to standards prescribed in Environment (Protection) Rules 1986 as amended from time to time. The CEMS and CAAQMS shall be connected to SPCB and CPCB online servers and calibrate these systems from time to time according to equipment supplier specification through labs recognised under Environment (Protection) Act, 1986 or NABL accredited laboratories.

ii. The project proponent shall monitor fugitive emissions in the plant premises at least once in every quarter through laboratories recognised under Environment (Protection) Act, 1986 or NABL accredited laboratories.

iii. Appropriate Air Pollution Control (APC) system shall be provided for all the dust generating points including fugitive dust from all vulnerable sources, so as to comply prescribed stack emission and fugitive emission standards.

iv. The project proponent shall provide leakage detection and mechanized bag cleaning facilities for better maintenance of bags.

v. Recycle and reuse iron ore fines, coal and coke fines, lime fines and such other fines collected in the pollution control devices and vacuum cleaning devices in the process after briquetting/ agglomeration.

vi. The project proponent shall ensure covered transportation and conveying of ore, coal and other raw material to prevent spillage and dust generation.

vii. The project proponent shall provide primary and secondary fume extraction system at all melting furnaces.

viii. Wind shelter fence and chemical spraying shall be provided on the raw material stock piles.

ix. Design the ventilation system for adequate air changes as per prevailing norms for all tunnels, motor houses, Oil Cellars.

**III. Water quality monitoring and preservation**

i. The project proponent shall install 24x7 continuous effluent monitoring system with respect to standards prescribed in Environment (Protection) Rules 1986 (G.S.R 414 (E) dated 30th May 2008; G.S.R 277 (E) dated 31st March 2012 (applicable to IF/EAF); S.O. 3305 (E) dated 7th December 2015 (Thermal Power Plants) as amended from time to time and connected to SPCB and CPCB online servers and calibrate these system from time to time according to equipment supplier specification through labs recognised under Environment (Protection) Act, 1986 or NABL accredited laboratories.

ii. The project proponent shall monitor regularly ground water quality at least twice a year (pre- and post-monsoon) at sufficient numbers of piezometers/sampling wells in the plant and adjacent areas through labs recognised under Environment (Protection) Act, 1986 and NABL accredited laboratories.

iii. Adhere to 'Zero Liquid Discharge'.

iv. Sewage Treatment Plant shall be provided for treatment of domestic wastewater to meet the prescribed standards.

v. Garland drains and collection pits shall be provided for each stock pile to arrest the run-off in the event of heavy rains and to check the water pollution due to surface run off.

**IV. Noise monitoring and prevention**

i. Noise quality shall be monitored as per the prescribed Noise Pollution (Regulation And Control) Rules, 2000 and report in this regard shall be submitted to Regional Officer of the Ministry as a part of six-monthly compliance report.

**V. Energy Conservation measures**

i. Energy conservation measures may be adopted such as adoption of solar energy and provision of LED lights etc., to minimize the energy consumption.

**VI. Waste management**

i. Used refractories shall be recycled as far as possible.

ii. 100% utilization of fly ash shall be ensured. All the fly ash shall be provided to cement and brick manufacturers for further utilization and Memorandum of Understanding in this regard shall be submitted to the Ministry's Regional Office.

iii. Oily scum and metallic sludge recovered from rolling mills ETP shall be mixed, dried, and briquetted and reused in melting Furnaces.

iv. Kitchen waste shall be composted or converted to biogas for further use.

**VII. Green Belt**

i. Green belt shall be developed in an area equal to 33% of the plant area with a native tree species in accordance with CPCB guidelines. The greenbelt shall inter alia cover the entire periphery of the plant

ii. The project proponent shall prepare GHG emissions inventory for the plant and shall submit the programme for reduction of the same including carbon sequestration including plantation.

**VIII. Public hearing and Human health issues**

i. Emergency preparedness plan based on the Hazard identification and Risk Assessment (HIRA) and Disaster Management Plan shall be implemented.

ii. The project proponent shall carry out heat stress analysis for the workmen who work in high temperature work zone and provide Personal Protection Equipment (PPE) as per the norms of Factory Act.

iii. Occupational health surveillance of the workers shall be done on a regular basis and records maintained.

**IX. Corporate Environment Responsibility**

i. The project proponent shall comply with the provisions contained in this Ministry's OM vide F.No. 22-65/2017-IA.III dated 30/09/2020.

ii. The company shall have a well laid down environmental policy duly approve by the Board of Directors. The environmental policy should prescribe for standard operating procedures to have proper checks and balances and to bring into focus any infringements/deviation/ violation of the environmental/forest/wildlife norms/conditions. The company shall have defined system of reporting infringements/deviation/violation of the environmental/forest/ wildlife norms/conditions and/or shareholders/stake holders. The copy of the board resolution in this regard shall be submitted to the MoEF&CC as a part of six-monthly report.

iii. A separate Environmental Cell both at the project and company head quarter level, with qualified personnel shall be set up under the control of senior Executive, who will directly to the head of the organization.

**X. Miscellaneous**

i. The project proponent shall make public the environmental clearance granted for their project along with the environmental conditions and safeguards at their cost by prominently advertising it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days and in addition this shall also be displayed in the project proponent's website permanently.

ii. The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt.

iii. The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and update the same on half-yearly basis.

iv. The project proponent shall monitor the criteria pollutants level namely; $PM_{10}$, $SO_2$, NOx (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects and display the same at a convenient location for disclosure to the public and put on the website of the company.

v. The project proponent shall submit six-monthly reports on the status of the compliance of the stipulated environmental conditions on the website of the ministry of Environment, Forest and Climate Change at environment clearance portal.

vi. The project proponent shall submit the environmental statement for each financial year in Form-V to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company.

vii. The project proponent shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities, commencing the land development work and start of production operation by the project.

viii. The project proponent shall abide by all the commitments and recommendations made in the EIA/EMP report, commitment made during Public Hearing and also that during their presentation to the Expert Appraisal Committee.

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

x. Concealing factual data or submission of false/fabricated data may result in revocation of this environmental clearance and attract action under the provisions of Environment (Protection) Act, 1986.

xi. The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.

xii. The Ministry reserves the right to stipulate additional conditions if found necessary. The Company in a time bound manner shall implement these conditions.

xiii. The Regional Office of this Ministry shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information/monitoring reports.

xiv. Any appeal against this EC shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.

8. This issues with the approval of the Competent Authority.

**(Dr. R. B. Lal)**
**Scientist 'E'/Additional Director**
Tel: 011-20819346
Email-rb.lal@nic.in

**Encl.; As above**

**Copy to:-**

1. Secretary, Department of Environment, Government of Jharkhand, Secretariat, Ranchi.
2. The Director General of Forest, Ministry of Environment, Forest and Climate Change, New Delhi.

3. The Principal Chief Conservator of Forests & Government of Jharkhand, Van Bhawan, P.O. Hinoo, Doranda, Ranchi-823002
4. The Deputy Director General of Forests (C), Integrated Regional Office, Ministry of Environment, Forest and Climate Change, Bungalow No. A-2, Shyamali Colony, Ranchi – 834002
5. Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-cum-Office Complex, East Arjun Nagar, Delhi-110032.
6. Chairman, Jharkhand State Pollution Control Board, CTI Colony, Sector 4, Birsa Nagar, Ranchi, Jharkhand 834004
7. The Member Secretary, Central Ground Water Authority, Jamnagar House, 18/11, Man Singh Road Area, New Delhi, Delhi 110001
8. District Collector, District Ramgarh, Jharkhand.
9. Guard File/Monitoring File/MoEFCC Website/Record File/Parivesh portal.

**(Dr. R. B. Lal)**
**Scientist 'E'/Additional Director**
Tel: 011-20819346
Email-rb.lal@nic.in

**Annexure-1**

**Table: Details of Action Plan as per MoEF&CC O. M. dated 30/09/2020**

| S No | Activities | Amount in INR | | |
|---|---|---|---|---|
| | | 1st Year | 2nd Year | Total |
| **1** | **Community Development** | | | |
| | Installation of one number of bore/well based on Solar Pump C:\Users\HP\OneDrive\Desktop\49 EAC\l\NOC Borewell.pdf system along with water storage Tank each in Village Hesla and Mahuatand, District: Ramgarh | 3,068,360 [Complete installation of bore/well having pump based on Solar power and water storage tanks] | -- | 30,68,360 |
| | Greenbelt of 15m width, covering an area of 0.45 ha. will be developed along the periphery of the village Argada, District: Ramgarh, Jharkhand | 450,000.00 [Greenbelt Development along the periphery of Argada Village] | -- | 4,50,000 |
| **2** | **Health Development** | | | |
| | Establishment of 16 Bedded Hospital with advance medical facilities with affordable and quality services in village & P.O Marar, District: Ramgarh | 4,278,631 [Civil work for two floor building] | 8,222,479 [Hospital equipment, Lift, Furniture, Electrification, Air Conditioner, etc] | 1,25,01,110 |
| **Grand Total in INR** | | | | **16,019,470.0** |

******

**Annexure –II**

**Table 1: Details of Yearly Budget for implementation of Remediation Plan**

| S. No. | Environment Component | Activity Description | Total Budgetary Provision in Rs. | | | |
|---|---|---|---|---|---|---|
| | | | 1st Year | 2nd Year | 3rd Year | Total |
| 1 | Land Environment | 1.Assistance to farmers by providing seedlings, manure and Bio-fertilizers to villagers of Hesla and Maraar=**Rs.46,000/-**<br>2.Providing one tractor (Make Mahindra) with hydraulic trolley and Rotavator to be provided to each Nagar panchayat of village Hesla and Maraar **=Rs.34,00,000/-**<br>3.Providing Bundmaker, Ridger, plough for agriculture purpose to villagers of Hesla and Maraar=**Rs.4,24,500/-** | **19,35,250** (Providing Tractor, Bundmaker, Ridger, Plough and Seedlings, manure in Nagar panchayat ofHesla) | **19,35,250** (Providing Tractor, Bundmaker, Ridger, Plough and Seedlings, manure in Nagar panchayat of Maraar) | -- | **38,70,500** |
| 2 | Air Environment | 1. Providing four E-Rickshaw (4-seater, Make: Mac Auto) with charger for public transport in each Barkakana, Maraar, Phulsarai and Argada villages =**Rs35,00,000/-**<br>2. Solar stove, solar street light & solar fan in Argada & Hesala village=**Rs.16,54,000/-** | **17,50,000** (Providing 4E-Ricksaweach inBarkakanaand Maraarvillages) | **17,50,000** (Providing 4E-Ricksaweach in Phulsarai and Argada villages) | **16,54,000** (Solar stove, solar street light & solar fan in Argada & Hesala village) | **51,54,000** |
| 3 | Water Environment | 1.Drinking water plant (10nos.) including bore well with solar power with water cooler including RO & UV in Argada & Hesala village- **Rs1,70,00,000/-**<br>2. Sewage treatment plant in village Hesla **Rs 60,82,000/-**<br>3. Rain water harvesting pit (@Rs.4lakhs/location) at Panchayat office of Hesla, Argada, Barkakana, Manuan, Maraar and Phulsarai villages=**Rs.24,00,000/**<br>4. Renovation of Ponds (Includes Cleaning/ desiltation, concrete | **1,94,00,000** (Drinking water plant (10 nos) including borewell with solar power with water cooler including RO & UV in Argada & Hesala village & Rainwater Harvesting pit at Panchayat office of Hesla, Argada, Barkakana, Manuan, Maraar and Phulsarai | **1,16,00,000** (Renovation of Ponds (Includes Cleaning /desiltation, concrete Lining) and construction of wharf and platforms in pond located in each of Argada, Hesla, Manuan, and Maraar villages) | **86,45,000** (Construction of Covered Drainage system along with sewage pit within village Hesla & Sewage treatment plant in village Hesla) | **3,96,45,000** |

| S. No. | Environment Component | Activity Description | Total Budgetary Provision in Rs. | | | |
|---|---|---|---|---|---|---|
| | | | 1st Year | 2nd Year | 3rd Year | Total |
| | | Lining) and construction of wharf and platforms in pond located in each of Argada, Hesla, Manuan, and Maraar villages (Rs.2,800,000x4 +400,000) =**Rs.1,16,00,000/-**<br>5. Construction of Covered Drainage system along with sewage pits within village Hesla =**Rs.25,63,000**/- | villages) | | | |
| 4 | Noise Environment | 1. Providing ENT clinic along with Doctor in Hesla and Argada villages= **Rs 4,86,000/-**<br>2. Distribution of Hearing aids to the needed Sr. Citizens of the Hesla, Maraar and Argada villages @ 1000x500 person =**Rs.5,00,000/-** | **4,86,000**<br>(Providing ENT specialist Clinic along with Doctor in Hesla and Argada villages) | **5,00,000**<br>(Distribution of Hearing Aids to the needed Sr. Citizens of the Hesla, Maraar and Argada villages) | -- | **9,86,000** |
| 5 | Biological Environment | 1.Funds for conservation of fauna in Phulsarai Protected Forest to the District Forest Office=**Rs.6,10,000/.**<br>Funds for conservation of aquatic life in Damodar River to the District collector/ Water resource Department = Rs. **6,30,000/-** | **6,10,000**<br>(Funds for conservation of fauna residing in Naisarai Protected forest) | **6,30,000**<br>**(**Funds for conservation of aquatic life in Damodar River) | -- | **12,40,000** |
| **Total** | | | **2,41,81,250** | **1,64,15,250** | **1,02,99,000** | **50895500** |

**Table 2: Natural Resource Augmentation Plan along with budget**

| Sl. No. | Proposed Activities | Budget (Rs.) | | | |
|---|---|---|---|---|---|
| | | 1st Year | 2nd Year | 3rd Year | Total |
| 1 | Installation of Biodegradable waste converter (Make: Reddonatura, Capacity: 75kg/day) in Argada, Manuan and Hesla village | 10,00,000 (Argada) | 10,00,000 (Manuan) | 10,00,000 (Hesla) | 30,00,000 |
| 2 | Cattle food processing plant with veterinary hospital at Hesla villages | 12,00,000 | 5,00,000 | -- | 17,00,000 |
| 3 | Biogas plant in Manuan, Barkakana and Maraar village | 8,00,000 (Manuan) | 8,00,000 (Barkakana) | 8,00,000 (Maraar) | 24,00,000 |
| **Total** | | **30,00,000** | **23,00,000** | **18,00,000** | **71,00,000** |

**Table 3: Community Resource Augmentation Plan along with budget**

| S. No. | Proposed Activities | Budget (Rs.) | | | |
|---|---|---|---|---|---|
| | | 1st Year | 2nd Year | 3rd Year | Total |
| 1. | Oxygen plant at Hesla village | 40,00,000 | 40,00,000 | 27,000 | 80,27,000 |

**Table 4: Summary of Remediation Plan, Natural Resource Augmentation Plan and Community Resource Augmentation Plan**

| S No | Aspects | Budget (in Rupees) |
|---|---|---|
| 1. | Estimated Cost on remediation plan based on the damage assessment due to violation. | 5,08,95,500 |
| 2. | Natural resource augmentation plan for 3 years | 71,00,000 |
| 3. | Community resource augmentation plan for 3 years | 80,27,000 |
| | **Total** | **~6,60,22,500** |

***

# JHARKHAND ISPAT PRIVATE LIMITED


**ADMN. OFFICE** : Near P.N. Bank, Main Road, Ramgarh Cantt.
Dist. - Ramgarh (Jharkhand) - 829 122
**CIN** : U34102UP1991PTC012872
**Telephone** : 06553-226846, 224601, Fax : 226845
E-mail : jiplramgarh@gmail.com

IS : 2830
CM/L - 5406356

**WORKS :**
Vill, & P.O.- Hesla, Argada
Dist.- Ramgarh (Jharkhand)
PIN. - 829 101


Ref. No **JIPL/026/2023-24** O/C Date **15/06/2023**

To,
The Dy. Commissioner,
Dist. Ramgarh.
Jharkhand.

**Sub: Request for direction of payment of Rs 6, 30,000/- for conservation of aquatic life in Damodar River, to the District Collector/Water Resource Department.**

Ref.:- Environment Clearance letter No. J-11011/41/2013-IA-II(I) Dated 07/09/2022.

Dear Sir,

With reference to the above, this is to inform you that Ministry of Environment Forest & Climate Change (MoEF&CC), New Delhi has been issued Environment Clearance to the Unit vide letter No J-11011/41/2013-IA-II(I) Dated 07/09/2022 (Copy enclosed). Please refer to Page no. – 12, Point no. – 5 of the EC, as per the condition for implementation of Remediation Plan in the 2nd year, we have to submit Rs 6,30,000/- for conservation of aquatic life in Damodar River to the District Collector / Water Resource Department.

Kindly give us proper direction for payment of Rs 6, 30,000/- in compliance of the direction of MoEF&CC.

Your early action on the matter is solicited.

Thanking you,

Yours faithfully,
For **JHARKHAND ISPAT PVT LTD**

Authorized Signatory

Encl.:- As above.

# JHARKHAND ISPAT PRIVATE LIMITED


**ADMN. OFFICE** : Near P.N. Bank, Main Road, Ramgarh Cantt.
Dist. - Ramgarh (Jharkhand) - 829 122
**CIN** : U34102UP1991PTC012872
**Telephone** : 06553-226846, 224601, Fax : 226845
E-mail : jiplramgarh@gmail.com

IS : 2830
CM/L - 5406356

**WORKS :**
Vill, & P.O.- Hesla, Argada
Dist.- Ramgarh (Jharkhand)
PIN. - 829 101


Ref. No .....

Date.....

JIPL/039/2023-24

04.07.2023

To,
The Executive Engineer,
Waterways Division.
Jhillpath, Dist. Hazaribagh,
Jharkhand

**Sub: Request for direction of payment of Rs. 6,30,000/- for conservation of aquatic life in Damodar River.**
**Ref: Environment Clearance letter no. J-11011/41/2013-IA-II(I) dated 07.09.2022.**

Sir,

With reference to the above, this is to inform you that the Ministry of Environment Forest & Climate Change (MoEF&CC), New Delhi has been issued Environment Clearance to the unit vide letter no. J-11011/41/2013-IA-II(I) dated 07.09.2022 (Copy enclosed). Please refer to Page no. – 12, Point no. – 5 of the EC, as per the condition for implementation of Remediation Plan in the 2nd year, we have to submit Rs. 6,30,000/- for conservation of aquatic life in Damodar River to the District Collector / Water Resource Department.

Kindly give us proper direction for payment of Rs. 6,30,000/- in compliance of the direction of MoEF&CC.

Your early action on the matter is solicited.

Thanking you,

Yours faithfully,
For JHARKHAND ISPAT PVT. LTD.

Authorized Signatory

Encl: As above.

**Executive engineer of office**

**Water ways division,hazaribag**

**Lattar no:-** 840 **hazaribag,date:-** 16.08.2023

Form:-

Executive Engineer
Water ways division
Hazaribag.

To,

Jharkhand ispat Private Ltd.Near
P.N.B.Bank,main Road,Ramgarh Cantt.
Dist. Ramgarh,(Jharkhand)

Subject:- Regarding direction of payment of Rs.6,30,000/-

Sir,

With reference to the Subject mention you are directed to deposit the amount of Rs 6,30,000=00(Six Lacs thirty thousand only) in the name of "Executive engineer,water ways Division,hazaribag". The Payment should be in the shape of Cheque/D.D Which Should be in favour of the undersigned as mentioned above,with a proper forwarding mentioning all details about payment.The payment amount so Obtained will be taken in revenue head 4701 this is for your intimation & needful Action. thanking you.

Your's sincerally

16/08/23

Executive Engineer
Water Ways division, Hazaribag.

16.08.2023

# YUGANTAR BHARATI
## ANALYTICAL & ENVIRONMENTAL ENGINEERING LABORATORY

Accredited by: - Jharkhand State Pollution Control Board (JSPCB)
Certified by: - ISO 9001:2015 & ISO 45001:2018

TC-4032

# Test Certificate

| | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ULR (Unique Lab Report) No. | | | T | C | 4 | 0 | 3 | 2 | 2 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 5 | 6 | F | | |
| Discipline | Chemical | Group | Atmospheric Pollution | | | | | Sample Description | | | | | | Stationary Source Emission | | | | | | | | |
| Report Release Date | | 31st March, 2023 | | | | | | Report ID | | | | | | YBAEEL-230324-143439-S1 | | | | | | | | |
| W. Order/ JSPCB App. No. | | 15893987 | | | | | | Work Order Date | | | | | | 24.03.2023 | | | | | | | | |
| Type of Industry (If any) | | Sponge Iron | | | | | | Job code/ Ref. no. | | | | | | YBAEEL/WA/L/A/Mar-23/15 | | | | | | | | |
| Report Issue to | | M/s Jharkhand Private Limited<br>Village - Hesla, PO - Argada,<br>Dist. – Ramgarh, Jharkhand. | | | | | | | | | | | | | | | | | | | | |
| Sampling Period | | 28/03/2023 | | | | | | Mode of sample collection | | | | | | By YBAEEL Team | | | | | | | | |
| Sampling Protocol | | IS: 11255 & CPCB Guideline (Lats/80/2013-14) | | | | | | | | | | | | | | | | | | | | |
| Meteorological Cond. of Field | | W.C.– Clear | | | | | | RH % - 48 | | | | | | Temp.– 32°C | | | | | | | | |
| Sample receipt Date | | 29/03/2023 | Analysis Started on | | | | | 29/03/2023 | | | | | | Analysis completed on | | | | | | 31/03/2023 | | |

General Information

| As observed while sampling | | As reported by customer | |
|---|---|---|---|
| Location | Sampling port hole | Type of fuel Used | Coal |
| Platform | Permanent | Quantity of Fuel Used(During Sampling) | 300 TPD |
| Stack Description (Shape & Material ) | Circular / Metal | Total production Capacity | 200 TPD |
| Sampling port | Available | Height of Stack from ground level | 55.0 m |
| Stack Identification | Single | Inner Diameter of Stack | 1.8 m |
| Height of port hole from Ground level | 25.0 m | Pollution Controlling Device (if any) | ESP |
| Running Oven during sampling (if any) | N/A | Total No. of Oven (if any) | N/A |

******Test Results ******

| Sl | Parameters | Test Method | Units | MU % | Results | Limits |
|---|---|---|---|---|---|---|
| 1. | Stack gas Temperature | IS 11255 (Part 3)2008 | k | -- | 438.0 | - |
| 2. | Stack gas Velocity | IS 11255 (Part 3)2008 | m/s | -- | 16.5 | - |
| 3. | Volumetric Flow Rate | IS 11255 (Part 3)2008 | $Nm^3/hr$ | -- | 102516.0 | - |
| 4. | Particulate Matter (PM) | IS 11255 (Part 1)2009 | $mg/Nm^3$ | 2.12 | 27.1 | 30 |
| 5. | Sulphure Dioxide ($SO_2$) | IS 11255 (Part 2)2009 | $mg/Nm^3$ | 3.06 | 182.0 | - |
| 6. | Oxide of Nitrogen (as $NO_x$) | IS 11255 (Part 7)2005 RA 2012 | $mg/Nm^3$ | 2.70 | 55.2 | - |

Emission Rate

| | | | | | |
|---|---|---|---|---|---|
| 1. | Particulate Matter (PM) | IS 11255 (Part 1)2009 | kg/hr. | 2.8 | -- |
| 2. | Sulphure Dioxide ($SO_2$) | IS 11255 (Part 2)2009 | kg/hr. | 18.7 | -- |
| 3. | Oxide of Nitrogen (as $NO_x$) | IS 11255 (Part 7)2005 RA 2012 | kg/hr. | 5.7 | -- |

******End of Report******

| | |
|---|---|
| Limit is specified as | As per EC issued by MoEF. (F. No. – J-11011/41/2013-IA-II (I). |
| Abbreviation | MDL : Minimum detection limit, BDL : Below detection limit, |
| Env. Condition of Lab | Laboratory is maintaining, Temperature 27 ± 2°C and Relative Humidity 65 ± 5% in all testing areas as per IS 196:1966 (C). |
| Specific contractual notes | All values are expressed in as unit and results listed refer only to the tested sample and applicable parameter in Lab's Permanent Facility |
| | This report, in full or in part, shall not be used for advertising or as evidence in any court of law. |
| | This report cannot be reproduced, except when in full, without the written permission of the CEO. |
| | The samples collected shall be destroyed after 7 days from the date of issue of the certificate unless specified otherwise |
| | The liability of the laboratory is limited to the invoiced amount. |
| | All disputes are subjected to the Ranchi Jurisdiction. |
| Remarks | Sample complies with prescribed limits. |

Sample Drawn By – Angad Munda
Tested By – Akash Khalkho (Lab Analyst)

Only CONCERN for
Jharkhand State Pollution Control Board
Application No. ...15893987
Allotted Date ..... 24-03-23
Submission Date..... 31-03-23

| | |
|---|---|
| 31/03/23 | 31/03/23 |
| Verified by | Issued by |
| Sumit Kant Srivastava | Sanjeev Kumar Singh |
| (Sr. Lab Analyst) | (Technical Manager) |

Authorized Signatory
Atmospheric Pollution
Yugantar Bharati Analytical & Environmental Engineering Laboratory

# YUGANTAR BHARATI
## ANALYTICAL & ENVIRONMENTAL ENGINEERING LABORATORY

Reaching Out for a Brighter Tomorrow

Accredited by: - Jharkhand State Pollution Control Board (JSPCB)

Certified by : - ISO 9001:2015 & ISO 45001:2018

TC-4032

# *Test Certificate*

| | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **ULR** (Unique Lab Report) No. | | | T | C | 4 | 0 | 3 | 2 | 2 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 5 | 7 | F | | |
| **Discipline** | Chemical | **Group** | Atmospheric Pollution | | | | | **Sample Description** | | | | | | Stationary Source Emission | | | | | | | | |
| **Report Release Date** | | 31st March, 2023 | | | | | | **Report ID** | | | | | | YBAEEL-230324-143439-S2 | | | | | | | | |
| **W. Order/ JSPCB App. No.** | | 15893987 | | | | | | **Work Order Date** | | | | | | 24.03.2023 | | | | | | | | |
| **Type of Industry (If any)** | | Sponge Iron | | | | | | **Job code/ Ref. no.** | | | | | | YBAEEL/WA/L/A/Mar-23/15 | | | | | | | | |
| **Report Issue to** | | M/s Jharkhand Private Limited<br>Village - Hesla, PO - Argada,<br>Dist. – Ramgarh, Jharkhand. | | | | | | | | | | | | | | | | | | | | |
| **Sampling Period** | | 29/03/2023 | | | | | | **Mode of sample collection** | | | | | | By YBAEEL Team | | | | | | | | |
| **Sampling Protocol** | | IS: 11255 & CPCB Guideline (Lats/80/2013-14) | | | | | | | | | | | | | | | | | | | | |
| **Meteorological Cond. of Field** | | W.C.– Clear | | | | | | RH % - 47 | | | | | | Temp.– 31°C | | | | | | | | |
| **Sample receipt Date** | | 29/03/2023 | **Analysis Started on** | | | | | 29/03/2023 | | | | | | **Analysis completed on** | | | | | | 31/03/2023 | | |

**General Information**

| As observed while sampling | | As reported by customer | |
|---|---|---|---|
| Location | Sampling port hole | Type of fuel Used | Coal |
| Platform | Permanent | Quantity of Fuel Used(During Sampling) | 300 TPD |
| Stack Description (Shape & Material ) | Circular / Metal | Total production Capacity | 200 TPD |
| Sampling port | Available | Height of Stack from ground level | 55.0 m |
| Stack Identification | Single | Inner Diameter of Stack | 1.8 m |
| Height of port hole from Ground level | 25.0 m | Pollution Controlling Device (if any) | ESP |
| Running Oven during sampling (if any) | N/A | Total No. of Oven (if any) | N/A |

********Test Results ********

| Sl | Parameters | Test Method | Units | MU % | Results | Limits |
|---|---|---|---|---|---|---|
| 1. | Stack gas Temperature | IS 11255 (Part 3)2008 | k | -- | 429.0 | - |
| 2. | Stack gas Velocity | IS 11255 (Part 3)2008 | m/s | -- | 14.7 | - |
| 3. | Volumetric Flow Rate | IS 11255 (Part 3)2008 | $Nm^3/hr$ | -- | 93248.0 | - |
| 4. | Particulate Matter (PM) | IS 11255 (Part 1)2009 | $mg/Nm^3$ | 2.12 | 22.4 | 30 |
| 5. | Sulphure Dioxide ($SO_2$) | IS 11255 (Part 2)2009 | $mg/Nm^3$ | 3.06 | 165.4 | - |
| 6. | Oxide of Nitrogen (as $NO_x$) | IS 11255 (Part 7)2005 RA 2012 | $mg/Nm^3$ | 2.70 | 44.2 | - |

**Emission Rate**

| | | | | | |
|---|---|---|---|---|---|
| 1. | Particulate Matter (PM) | IS 11255 (Part 1)2009 | kg/hr. | 2.1 | -- |
| 2. | Sulphure Dioxide ($SO_2$) | IS 11255 (Part 2)2009 | kg/hr. | 15.4 | -- |
| 3. | Oxide of Nitrogen (as $NO_x$) | IS 11255 (Part 7)2005 RA 2012 | kg/hr. | 4.1 | -- |

********End of Report********

| | |
|---|---|
| **Limit is specified as** | As per EC issued by MoEF. (F. No. – J-11011/41/2013-IA-II (I). |
| **Abbreviation** | MDL : Minimum detection limit, BDL : Below detection limit, |
| **Env. Condition of Lab** | Laboratory is maintaining, Temperature 27 ± 2°C and Relative Humidity 65 ± 5% in all testing areas as per IS 196:1966 (C). |
| **Specific contractual notes** | All values are expressed in as unit and results listed refer only to the tested sample and applicable parameter in Lab's Permanent Facility |
| | This report, in full or in part, shall not be used for advertising or as evidence in any court of law. |
| | This report cannot be reproduced, except when in full, without the written permission of the CEO. |
| | The samples collected shall be destroyed after 7 days from the date of issue of the certificate unless specified otherwise |
| | The liability of the laboratory is limited to the invoiced amount. |
| | All disputes are subjected to the Ranchi Jurisdiction. |
| **Remarks** | **Sample complies with prescribed limits.** |

**Sample Drawn By** – Angad Munda
**Tested By** – Akash Khalkho (Lab Analyst)

Only CONCERN for
Jharkhand State Pollution Control Board
Application No. 15893987
Allotted Date 24-03-23
Submission Date 31-03-23

| | |
|---|---|
| 31/03/23 | 31/03/23 |
| Verified by | Issued by |
| Sumit Kant Srivastava | Sanjeev Kumar Singh |
| (Sr. Lab Analyst) | (Technical Manager) |

Authorized Signatory
Atmospharic Pollution
Yugantar Bharati Analytical &
Environmental Engineering Laboratory

# JHARKHAND STATE POLLUTION CONTROL BOARD

TOWNSHIP ADMINISTRATION BUILDING, HEC COMPLEX, DHURWA, RANCHI 834004
Telephone: 0651-2400850 (Fax)/ 2400851/2400852/2401847/2400979/2400139

Ref No.: JSPCB/HO/RNC/CTE-15218191/2023/136 Dated : 2023-02-25

**Consent to Establish (CTE) under section 25 /26 of the Water (Prevention & Control of Pollution) Act, 1974 and under section 21 of the Air (Prevention & Control of Pollution) Act, 1981**

**1.** Reference: Application (s) No.- 15218191 / dated : 04/01/2023 of JHARKHAND ISPAT PRIVATE LIMITED, RAM CHANDRA RUNGTA for consent under section 25 /26 of the Water (Prevention & Control of Pollution) Act, 1974 and under section 21 of the Air (Prevention & Control of Pollution) Act, 1981

**2. Documents Relied Upon:**

(a) The content of Copy of Environmental Clearance (EC) accorded to the unit by MoEF &CC GOI vide file no. J-11011/41/2013-IAII(I) dtd 07/09/2022.

(b) The content of Consent to Establish (CTE), vide ref. no. JSPCB/HO/RNC/CTE-14198438/2023/1, vide dated 01.01.2023.

(c) The content of previous Consent to Operate (CTO), vide ref. no. Ref. no. JSPCB/ HO/ RNC/CTO - 10527411 /2022/1497, dtd, -23.10.2022 valid upto 30.09.2026.

(d) The content of self certificate regarding procurement of raw material from valid sources.

(e) The content of Inspection Report (IR) of the Regional Officer, Regional Office cum Laboratory, Hazaribagh vide ref. no.1025, dated 09.11.2022.

(f) The content of letter of the unit vide dated 03.01.2023 for request regarding amendment in CTE as per EC.

**3.** The consent is granted under section 25 / 26 of the Water (Prevention & Control of Pollution) Act, 1974 and under section 21 of the Air (Prevention & Control of Pollution) Act, 1981 to establish the project in Mauza- HESLA, P S -HESLA, District-RAMGARH as follows:

| Project | Site-Area | | Investment (Rs)/ Year | Product & Capacity | Period of CTE |
|---|---|---|---|---|---|
| | Plot Nos. | Area | | | |
| In Expansion | 04, 50, 53, 56, 60, 61, 62 Khata No-64, 38,33 | AS Per E.C. | 18663.00 Lakhs | MS Billets- 36000 TPA, TMT Bar- 90000 TPA, Power AFBC Boiler-12 MW Power WHRB- 6 MW | As Per EC |

**(A) Specific Conditions:**

1. That, the occupier shall raise and maintain the height of all stacks attached with air pollution control devices (APCD) up to 30 metre.

2. That, the occupier shall comply fugitive emission standards of 2000 µg/m3 at a distance of 10 metre from raw material crusher and product handling areas etc.

3. That, the occupier shall provide separate electricity meter and totaliser for continuous recording of power consumption with all APCD. A logbook shall be maintained for recording of daily meterage of electricity meter connected to all APCDs. The amperage of the ID fan shall also be recorded continuously. Non functioning of APCD shall be recorded in the same logbook along with reasons for non-operation of the Pollution Control Equipment.

4. That, the safety cap/emergency stack of rotary kiln type plant, which is generally installed above the after burner chamber (ABC) of feed end column should not be used for discharging untreated emission, bypassing the air pollution control device.

5. That, the occupier shall provide software controlled interlocking facility keeping in view of on-line emission and effluent monitoring system to ensure stoppage of feed conveyor, so that the feed to the kiln would stop automatically, if emergency/safety cap of the rotary kiln is opened or ESP is non - operational.

6. That, the occupier shall install mechanically operated fitted with water mixing (spiral pug mill) system for timely collection and removal of the flue dust generated in ESP or at any other pollution control devices for control of fugitive emission at the dust collection system.

7. That, the occupier shall maintain logbook for daily record of Char production and its usage. The record shall be made available to officials of JSPCB during inspection of the plant.

8. That, the occupier shall make the approach road and roads within premises of the plant and work areas asphalted or concreted.

9. That, the occupier shall have its conveyor belt for transporting the materials fully covered all along its way and transfer points of conveyor belt should also be covered and suction system should be connected to de-dusting equipment.

10. That, the occupier shall make extensive plantation of three tier all along the roads and boundary wall of the industry.

11. That, the occupier shall make water sprinkling arrangement in areas around crushing and screening units, raw material heaps at unloading points, heavy vehicle movement areas, roads and waste dump sites etc.

12. That, the occupier shall construct the shed for keeping Iron Ore properly and ensure Crushing and screening operation in shaded enclosed area.

13. That, the occupier shall, use the fly ash generated from AFBC boiler as per notification released by MoEF & CC, New Delhi “Fly Ash Notification” dated 14th September, 1999 and as amended on 25th January, 2016.

14. That, the occupier shall make arrangement for operation of the plant in such a way that all pollution control devices shall start before start of conveyor belt/plant operation and similarly all pollution control devices shall be put off only after stopping the operation of the plant.

15. That, the occupier shall install and operate the on-line emission monitoring system uninterruptedly.

16. That, calibration of all APCD's shall be done at regular intervals as per the guidelines prescribed by CPCB and submit its report to the Board regularly.

17. That, the occupier shall operate and maintain the CCTV cameras installed with all APCDs and submit its photographs at the time of application of CTO.

18. That, the occupier shall ensure construction of garland drain, toe wall, settling tank with raw material storage area and solid waste storage area separately.

19. That, the occupier shall in no case dispose of the solid waste including fly ash and bottom ash on any agricultural land and keep it within the plant premises.

20. That, the occupier shall comply all the conditions of EC and CTO on six monthly basis alongwith the analysis reports successively to the Board and other concerned organization.

21. That, the occupier shall provide leakage detection and mechanized bag cleaning facilities for better maintenance of bags.

22. That, the occupier shall recycle and reuse iron ore fines, coal and coke fines, lime fines and such other fines collected in the pollution control devices and vacuum cleaning devices in the process after briquetting/agglomeration.

23. That, this CTE supersedes the CTE granted vide ref. no. JSPCB/HO/RNC/CTE-14198438/2023/1, dated 01.01.2023.

**(B) General Conditions :**

(1) That, the occupier shall construct pucca (i) minimum ten feet high boundary wall and (ii) approach road and internal roads and shall keep the premises neat and clean and tidy.

(2) That, the occupier shall install comprehensive enclosure (s) to cover the places of unloading of raw materials, the equipments of their processing & transferring, the places of loading of products, by products and wastes for prevention of fugitive emission and shall install such automatic inbuilt system(s) that in house dust/ gases collect(s) and undergo (es) cleaning and clean air goes out.

(3) That, the occupier shall install such automatic inbuilt system(s) that process flue gas(es) / process gas(es) and undergo(es) cleaning and clean air go(es) out through the chimney(s), having height(s) as per Central Pollution Control Board norm.

(4) That, the occupier shall have D G Set(s) of the standard as laid in the Environment (protection) Rules, 1986 and shall install it (them) within acoustic enclosure (s) and shall keep the height(s) of exhaust pipe(s) as per Central Pollution Control Board norm .

(5) That, the occupier shall impart treatment as per Central Pollution Control Board text to wastewater and shall keep process effluent in close-circuit and effluent from other sources in conformity with the standard (s).

(6) That, the occupier shall install Central Ground Water Board/ State Ground Water Directorate approved system of rain water harvesting-cum-ground water recharge.

(7) That, the occupier shall create new water body (ies) / remove deposit(s) of existing water body(ies) and nearby stream(s) and pond(s) and shall maintain the wholesomeness of water.

(8) That, the occupier shall grow greenery in the periphery and other available spaces and shall continue enhancing its plant density and biodiversity.

(9) That, this CTE is valid subjected to the validity of mining Lease / Mining Plan / Ecofriendly / Environmental Clearance, if applicable. In case of no renewal of Mining Lease/Mining Plan, this consent shall be treated as revoked automatically.

(10) That, this CTE is issued from the environmental angle only and does not absolve the occupier from other statutory obligations prescribed under any other law or any other instrument in force. The sole and complete responsibility to comply with these conditions laid down in all other laws for the time being in force, rests with the industry/ unit/ occupier.

(11) That, this CTE shall not in any way, adversely affect or jeopardize the legal proceeding , if any, instituted in the past or that could be , instituted against you by the State Board for violation of the provisions of the Act or the Rules made there under.

(12) That, the occupier shall comply with all applicable provisions of the Water (Prevention & Control of Pollution) Act, 1974; the Water (Prevention & Control of Pollution) Cess Act, 1977; the Air (Prevention & Control of Pollution) Act, 1981; and the Environment (Protection) Act, 1986 and Rules there under.

**4. That, this CTE shall not absolve the occupier from making compliance of other statutory prescribed under any law or direction of courts or any other instrument for the time being in force.**

**5. That, this CTE is being issued on the basis of information/ documents/ certificate submitted by the unit. This CTE will be revoked if any of the information/ documents/ certificates/ undertaking given by the occupier is found false/fictitious/forged in future.**

**6. This order shall be valid subject to compliance of all other legal requirements applicable to the unit.**

**7. The State Board reserves the right to revoke, withdraw or make any reasonable variation / change / alteration in condition of this consent.**

**This is issued with the approval of the competent authority**

Yatindra Kumar Das

Digitally signed by Yatindra Kumar Das
Date: 2023.02.25 18:11:59 +05'30'

**[Y. K. Das]**
**Member Secretary**

Memo No. : JSPCB/HO/RNC/CTE-15218191/2023/136

Dated : 2023-02-25

**Copy to :** Jharkhand Ispat Private Limited, Vill- Hesla, PO- Argada, Ramgarh, Jharkhand, Director of Industries, Government of Jharkhand, Ranchi/ Deputy Commissioner, Ramgarh/ Director of Mines, Government of Jharkhand, Ranchi/ Chief Inspector of Factories, Ranchi/ DFO, Ramgarh/ DMO, Ramgarh/ R O,JSPCB, Hazaribagh for information &ensuring compliance of the above.

Yatindra Kumar Das

Digitally signed by Yatindra Kumar Das
Date: 2023.02.25 18:11:44 +05'30'

**[Y. K. Das]**
**Member Secretary**

# JHARKHAND STATE POLLUTION CONTROL BOARD

TOWNSHIP ADMINISTRATION BUILDING, HEC COMPLEX, DHURWA, RANCHI 834004
Telephone: 0651-2400850 (Fax)/ 2400851/2400852/2401847/2400979/2400139

Ref No. JSPCB/HO/RNC/CTO-16016339/2023/1084 Dated : 2023-06-24

**Consent to operate (CTO) under section 25 /26 of the Water (Prevention & Control of Pollution) Act, 1974 and under section 21 of the Air (Prevention & Control of Pollution) Act, 1981**

**1.** Application (s) dated 2023-04-28 of JHARKHAND ISPAT PRIVATE LIMITED, Occupier Name :RAM CHANDRA RUNGTA for consent under section 25 (1)(b)/25 (1) (c)/26 of the Water (Prevention & Control of Pollution) Act, 1974 and under section 21(1) of the Air (Prevention & Control of Pollution) Act,1981..

**2. Documents Relied Upon:**

(a) The content of copy of Environmental Clearance (EC) accorded to the unit by MoEF &CC GOI vide file no. J-11011/41/2013-IAII(I) dtd 07/09/2022.

(c) The content of Consent to establish (CTE), vide ref. no. JSPCB/HO/RNC/CTE-14198438/2023/1, dated 01.01.2023 for the production of MS Billets- 36000 TPA, TMT Bar90000 TPA, Power AFBC Boiler-12 MW Power WHRB- 6 MW.

(c) The content of previous Consent to Operate (CTO), vide ref. no. Ref. no. JSPCB/ HO/ RNC/CTO - 10527411 /2022/1497, dtd 23.10.2022 valid upto 30.09.2026.

(d) The content of self certificate regarding procurement of raw material from valid sources.

(e) The content of Inspection Report (IR) of the Regional Officer, Regional Office cum Laboratory, Hazaribagh vide ref. no. 465, dated 03.05.2023.

**3.** The consent is granted under section 25 / 26 of the Water (Prevention & Control of Pollution) Act, 1974 and under section 21 of the Air (Prevention & Control of Pollution) Act, 1981 to operate the project in Mauza -HESLA , P S -HESLA , District -RAMGARH , as follows:

| Project | Site-Area | | Investment (Rs) | Product & Capacity | Period of CTO |
|---|---|---|---|---|---|
| | Plot Nos. | Area | | | Date of issue To |
| In Expansion | As per EC | As per EC | 4571.17 Lakh [as per application] | MS Billets- 36000 TPA, Power:- WHRB- 6 MW | 31/03/2024 |

**(A) Specific Conditions:**

1. That, the occupier shall raise and maintain the height of all stacks attached with air pollution control devices (APCD) up to 30 metre.

2. That, the occupier shall comply fugitive emission standards of 2000 µg/m3 at a distance of 10 metre from raw material crusher and product handling areas etc.

3. That, the occupier shall provide separate electricity meter and totaliser for continuous recording of power consumption with all APCD. A logbook shall be maintained for recording of daily meterage of electricity meter connected to all APCDs. The amperage of the ID fan shall also be recorded continuously. Non functioning of APCD shall be recorded in the same logbook along with reasons for non-operation of the Pollution Control Equipment.

4. That, the safety cap/emergency stack of rotary kiln type plant, which is generally installed above the after burner chamber (ABC) of feed end column should not be used for discharging untreated emission, bypassing the air pollution control device.

5. That, the occupier shall provide software controlled interlocking facility keeping in view of on-line emission and effluent monitoring system to ensure stoppage of feed conveyor, so that the feed to the kiln would stop automatically, if emergency/safety cap of the rotary kiln is opened or ESP is non - operational.

6. That, the occupier shall install mechanically operated fitted with water mixing (spiral pug mill) system for timely collection and removal of the flue dust generated in ESP or at any other pollution control devices for control of fugitive emission at the dust collection system.

7. That, the occupier shall maintain logbook for daily record of Char production and its usage. The record shall be made available to officials of JSPCB during inspection of the plant.

8. That, the occupier shall make the approach road and roads within premises of the plant and work areas asphalted or concreted.

9. That, the occupier shall have its conveyor belt for transporting the materials fully covered all along its way and transfer points of conveyor belt should also be covered and suction system should be connected to de-dusting equipment.

10. That, the occupier shall make extensive plantation of three tier all along the roads and boundary wall of the industry.

11. That, the occupier shall make water sprinkling arrangement in areas around crushing and screening units, raw material heaps at unloading points, heavy vehicle movement areas, roads and waste dump sites etc.

12. That, the occupier shall construct the shed for keeping Iron Ore properly and ensure Crushing and screening operation in shaded enclosed area.

13. That, the occupier shall, use the fly ash generated from AFBC boiler as per notification released by MoEF & CC, New Delhi “Fly Ash Notification” dated 14th September, 1999 and as amended on 25th January, 2016.

14. That, the occupier shall make arrangement for operation of the plant in such a way that all pollution control devices shall start before start of conveyor belt/plant operation and similarly all pollution control devices shall be put off only after stopping the operation of the plant.

15. That, the occupier shall install and operate the on-line emission monitoring system uninterruptedly.

16. That, calibration of all APCD's shall be done at regular intervals as per the guidelines prescribed by CPCB and submit its report to the Board regularly.

17. That, the occupier shall operate and maintain the CCTV cameras installed with all APCDs and submit its photographs at the time of application of CTO.

18. That, the occupier shall ensure construction of garland drain, toe wall, settling tank with raw material storage area and solid waste storage area separately.

19. That, the occupier shall in no case dispose of the solid waste including fly ash and bottom ash on any agricultural land and keep it within the plant premises.

20. That, the occupier shall comply all the conditions of EC and CTO on six monthly basis alongwith the analysis reports successively to the Board and other concerned organization.

21. That, the occupier shall provide leakage detection and mechanized bag cleaning facilities for better maintenance of bags.

22. That, the occupier shall recycle and reuse iron ore fines, coal and coke fines, lime fines and such other fines collected in the pollution control devices and vacuum cleaning devices in the process after briquetting/agglomeration.

23. That, the occupier shall submit applications for renewal of consent under section 25/26 of the Water (Prevention & Control of Pollution) Act, 1974 and under section 21 of the Air (Prevention & Control of Pollution) Act, 1981 again 120 days prior to the date of expiry of this consent with requisite fee and documents showing compliance of all of the above conditions.

**(B) General Conditions :**

(1) That, the occupier shall maintain the **National Ambient Air Quality Standard** given below:

| S N | Pollutant | Time Weighted Average | Concentration in Ambient Air | |
|---|---|---|---|---|
| | | | Industrial, Residential, Rural and Other Area | Ecologically Sensitive Area (notified by Central Govt.) |
| (1) | (2) | (3) | (4) | (5) |
| 1. | Sulphur Dioxide (SO2), µg/m3 | Annual<br>24 hours | 50<br>80 | 20<br>80 |
| 2. | Nitrogen Dioxide (NO2), µg/m3 | Annual<br>24 hours | 40<br>80 | 30<br>80 |
| 3. | Particulate Matter (size less than 10 µm) or PM10, µg/m3 | Annual<br>24 hours | 60<br>100 | 60<br>100 |
| 4. | Particulate Matter (size less than 2.5 µm) or PM2.5, µg/m3 | Annual<br>24 hours | 40<br>60 | 40<br>60 |
| 5. | Ozone(O3), µg/m3 | 8 hours<br>1 hour | 100<br>180 | 100<br>180 |
| 6. | Lead (Pb) µg/m3 | Annual<br>24 hours | 0.50<br>1.0 | 0.50<br>1.0 |
| 7. | Carbon Monoxide (CO) mg/m3 | 8 hours<br>1 hour | 02<br>04 | 02<br>04 |
| 8. | Ammonia (NH3) µg/m3 | Annual<br>24 hours | 100<br>400 | 100<br>400 |
| 9. | Benzene (C6H6) µg/m3 | Annual | 05 | 05 |
| 10. | Benzo(a) Pyrene(BaP) Particulate Phase only ng/m3 | Annual | 01 | 01 |
| 11. | Arsenic (As) ng/m3 | Annual | 06 | 06 |
| 12. | Nickel (Ni) ng/m3 | Annual | 20 | 20 |

**Note : Serial no. 1 to 4 – Mandatory**
**Serial no. 5 to 12 As applicable for specific type of industry.**

(2) That, the occupier shall maintain the emission quality within the standard and the quantity, as follows:

| S N | Parameter | Standard |
|---|---|---|
| 1 | Particulate Matter | 150 mg/Nm3 |

(3) That, the occupier shall keep process effluent in close-circuit and the quality of effluent from other sources in conformity with the standard (s) and the discharge quantity as below:

| S N | Parameter | Standard |
|---|---|---|
| 1 | Total Suspended Solids | 100 mg/L |
| 2 | BOD | 30 mg/L |
| 3 | COD | 250 mg/L |
| 4 | Oil & Grease | 10 mg/L |

(4) That, the occupier shall dispose of solid wastes as follows:

| S N | Waste Type | Mode of Disposal |
|---|---|---|
| 1 | Hazardous Carbonaceous Wastes | In co-processing in high temperature furnaces or kilns |
| 2 | Hazardous Non-Carbonaceous Wastes | In TSDF |
| 3 | Non-Carbonaceous Non-Hazardous solid wastes/ Mine Over Burden | As a substitute of Soil or Mineral |

(5) That, the occupier shall keep D G Set(s) within acoustic enclosure and shall keep the height(s) of exhaust pipe(s) as per Central Pollution Control Board norm.

(6) That, the occupier shall install and maintain Central Ground Water Board/ State Ground Water Directorate approved system of rain water harvesting-cum-ground water recharge and submit the photographic view of the structures within a month.

(7) That, the occupier shall grow and maintain greenery of the project in the periphery and other available spaces and shall continue enhancing its plant density and biodiversity.

(8) That, the occupier shall submit environmental statement with supporting stoichiometric calculations analyses reports, every year latest by 30th September of the next financial year.

(9) That, the occupier shall submit report(s) duly monitored and issued by an NABL accredited / ISO 9001:2008 and OHSAS 18001:2007 certified laboratory in compliance sub-para (2), (3), (4) and (5) of paragraph 3 of this CTO yearly at required periodicity.

(10) That, this CTO is valid subjected to the validity of mining Lease/Mining Plan/Ecofriendly/Environmental Clearance, if applicable. In case of no renewal of Mining Lease/Mining Plan, this consent shall be treated as revoked automatically.

(11) That, this CTO is issued from the environmental angle only and does not absolve the occupier from other statutory obligations prescribed under any other law or any other instrument in force. The sole and complete responsibility to comply with these conditions laid down in all other laws for the time-being in force, rests with the industry/ unit/ occupier.

(12) That, this CTO shall not in any way, adversely affect or jeopardize the legal proceeding , if any, instituted in the past or that could be , instituted against you by the State Board for violation of the provisions of the Act or the Rules made there under.

(13) That, the occupier shall comply with all applicable provisions of the Water (Prevention & Control of Pollution) Act, 1974; the Water (Prevention & Control of Pollution) Cess Act, 1977; the Air (Prevention & Control of Pollution) Act, 1981; and the Environment (Protection) Act, 1986 and Rules made there under.

**4. That, this CTO shall not absolve the occupier from making compliance of other statutory prescribed under any law or direction of courts or any other instrument for the time being in force.**

**5. That, this CTO is being issued on the basis of information/ documents/ certificate submitted by the unit. This CTO will be revoked if any of the information/documents/certificates/undertaking given by the occupier is found false/fictitious/forged in future.**

**6. The Order shall be valid subject to compliance of all other legal requirements applicable to the unit.**

**7. The State Board reserve the right to revoke, withdraw or make any reasonable variation / change / alteration in conditions of this consent.**

**This is issued with the approval of the Competent authority**

Yatindra Kumar Das
Digitally signed by Yatindra Kumar Das
Date: 2023.06.24 11:54:27 +05'30'

**[Y. K. Das]**
Member Secretary

Memo No. : JSPCB/HO/RNC/CTO-16016339/2023/1084

Dated : 2023-06-24

**Copy to:** M/s Jharkhand Ispat private Limited, vill- Hesla, PO- Argarda, Ramgarh, Jharkhand/ Director of Industries, Government of Jharkhand, Ranchi/ Deputy Commissioner, Hazaribagh/ Director of Mines, Government of Jharkhand, Ranchi/ Chief Inspector of Factories, Ranchi/ DFO, Hazaribagh/ DMO, Hazaribagh/ R O,JSPCB, Hazaribagh for information &ensuring compliance of the above.

**[Y. K. Das]**
Member Secretary

Yatindra Kumar Das
Digitally signed by Yatindra Kumar Das
Date: 2023.06.24 11:54:58 +05'30'

# YUGANTAR BHARATI
## ANALYTICAL & ENVIRONMENTAL ENGINEERING LABORATORY

Accredited by: - Jharkhand State Pollution Control Board (JSPCB)
Certified by : - An ISO 9001:2015 & ISO 45001:2018

JHARKHAND State Pollution Control Board

# Test Report

| | | | | | |
|---|---|---|---|---|---|
| Discipline | Chemical | Group | Atmospheric Pollution | Sample Description | Fugitive Dust Emission |
| Report Release Date | | 20th October, 2023 | | Report ID | YBAEEL- 231011 -142556 - F01 |
| W. Order/ JSPCB App. No. | | JIPL/132/2022-23 | | Work Order Date | 06.01.2023 |
| Type of Industry (If any) | | Sponge Iron Unit | | Job code/ Ref. no. | YBAEEL/WA/L/A/Oct.-23/11 |
| Report Issue to | | M/s Jharkhand Ispat Pvt. Ltd.<br>Near P N B Bank, Main Road Ramgarh Cantt.,<br>Dist.- Ramgarh, Jharkhand - 829122 | | | |
| Sampling Period | | 17/10/2023 | | Mode of sample collection | By YBAEEL Team |
| Sampling Protocol | | IS:5182 | | | |
| Sampling Locations | | A. Product Handling Area | | 23°38'56"N, 85°27'52"E | |
| | | B. Material Handling Area | | 23°38'57"N, 85°27'48"E | |
| Meteorological Cond. of Field | | W.C.– Clear | RH % - 44 | Temp. - 32°C | W.D.– North-South |
| Sample receipt Date | | 18/10/2023 | Analysis Started on 18/10/2023 | Analysis completed on | 20/10/2023 |

******Test Results ******

| Parameters | Test Methods | Units | Sampling Location | | Limits |
|---|---|---|---|---|---|
| | | | Site A | Site B | |
| Particulate matter (RSPM) | Gravimetric Method | µg/m³ | 1718.5 | 1680.9 | 2000 |

******End of Report******

| | |
|---|---|
| Limit is specified as | G.S.R. 414 (E), 30th May, 2008 |
| Abbreviation | MDL : Minimum detection limit, BDL : Below detection limit, |
| Env. Condition of Lab | Laboratory is maintaining, Temperature 27 ± 2°C and Relative Humidity 65 ± 5% in all testing areas as per IS 196:1966 (C) |
| Specific contractual notes | All values are expressed in as unit and results listed refer only to the tested sample and applicable parameter in Lab's Permanent Facility |
| | This report, in full or in part, shall not be used for advertising or as evidence in any court of law. |
| | This report cannot be reproduced, except when in full, without the written permission of the CEO. |
| | The samples collected shall be destroyed after 7 days from the date of issue of the certificate unless specified otherwise |
| | The liability of the laboratory is limited to the invoiced amount. |
| | All disputes are subjected to the Ranchi Jurisdiction. |
| Remarks | Samples comply with prescribed limits. |

Sample Drawn By – Pawan Kumar Singh
Tested By – Akash Khalkho (Lab Analyst)

| | |
|---|---|
| 20/10/23 | 20/10/23 |
| Verified by | Issued by |
| Sumit Kant Srivastava | Sanjeev Kumar Singh |
| (Sr. Lab Analyst) | (Technical Manager) |

Authorized Signatory
Atmospheric Pollution
Yugantar Bharati Analytical & Environmental Engineering Laboratory

# YUGANTAR BHARATI
## ANALYTICAL & ENVIRONMENTAL ENGINEERING LABORATORY

Accredited by: - Jharkhand State Pollution Control Board (JSPCB)
Certified by : - ISO 9001:2015 & ISO 45001:2018

TC-4032


# Test Report

| | | | | | |
|---|---|---|---|---|---|
| **ULR (Unique Lab Report) No.** | T C 4 0 3 2 2 3 0 0 0 0 0 1 4 4 7 F | | | | |
| **Discipline** | Chemical | **Group** | Water | **Sample Description** | Ground Water |
| **Report Release Date** | 26th October, 2023 | | | **Report ID** | YBAEEL-231019-122415-GW01 |
| **W. Order/ JSPCB App. No.** | Via - Telephonic | | | **Work Order Date** | 19.10.2023 |
| **Type of Industry(If any)** | Sponge Iron Unit | | | **Job code/ Ref. no.** | YBAEEL/WA/L/C/Oct.-23/12 |
| **Report Issue to** | **M/s Jharkhand Ispat Private Limited<br>Vill. & PO - Hesla, Argada, Dist. Ramgarh,<br>Jharkhand – 829101.** | | | | |

| | | | | | |
|---|---|---|---|---|---|
| **Sampling Date** | 20/10/2023 | | **Mode of sample collection** | By YBAEEL Team | |
| **Sampling Protocol** | IS : 17614 (Part-1): 2021 | | **Sample Code** | 231021-GW-W01 | |
| **Sampling Location** | Bore Well | | **Sampling Source** | Ground Water | |
| **Sample pkg. Condition** | Sealed Pack in PP Bottle | | **Sample Quantity** | 3000 ml | |
| **Meteorological Cond. of Field** | W.C.– Clear | | RH % - 57 | Temp. – 26°C | |
| **Sample receipt Date** | 21/10/2023 | **Analysis Started on** | 21/10/2023 | **Analysis completed on** | 26/10/2023 |

******Test Results******

| Sl | Parameter | Test Method | Units | Results | Limits |
|---|---|---|---|---|---|
| 1. | pH value | IS 3025 (P-11):2022 (Electrometric Method) | pH | 7.20 | 6.5-8.5 |
| 2. | Colour | IS 3025 (P-04):2021 (Visual Comparison Method) | Hazen | 10 | 5-15 |
| 3. | Conductivity | IS 3025 (P-14):2013, RA 2019 | µs/cm | 1202.0 | -- |
| 4. | Turbidity | IS 3025 (P-10):2023 (Nephelometric Method) | NTU | 2.0 | 1-5 |
| 5. | Total Alkalinity (as $CaCO_3$) | IS 3025 (P-23):1986, RA 2019 (Indicator Method) | mg/l | 144.0 | 200-600 |
| 6. | Total Hardness (as $CaCO_3$) | IS 3025 (P-21):2009, RA 2019 (EDTA Method) | mg/l | 350.0 | 200-600 |
| 7. | Total dissolved solids | IS 3025 (P-16):2023 (Gravimetric Method) | mg/l | 720.0 | 500-2000 |
| 8. | Chlorine Residual | IS 3025 (P-26):2021 (Iodometric Method) | mg/l | BDL (MDL 0.07) | 0.2-1 |
| 9. | Chloride (as Cl) | IS 3025 (P-32):1988, RA 2019 (Argentometric Method) | mg/l | 120.5 | 250-1000 |
| 10. | Fluoride (as $F^-$) | APHA 4500 F-C 24th edition 2023 (Ion Selective Electrode Method) | mg/l | 1.0 | 1.0-1.5 |
| 11. | Nitrate (as $NO_3^-$- N) | APHA 4500 $NO_3$- (B) 24th edition 2023 (UV Screening Method) | mg/l | 2.98 | 45-No relaxation |
| 12. | Sulphate (as $SO_4^{2-}$) | IS 3025 (P-24-Sec 1):2022 (Turbidity Method) | mg/l | 100.2 | 200-400 |
| 13. | Calcium (as Ca) | IS 3025 (P-40): 1991, RA 2019 (EDTA Titrimetric Method) | mg/l | 120.2 | 75-200 |
| 14. | Magnesium (as Mg) | APHA 3500 Mg B 24th edition 2023 | mg/l | 12.03 | 30-100 |

| | |
|---|---|
| **Limit is specified as** | IS 10500:2012, RA 2018. |
| **Abbreviation** | MDL : Minimum detection limit, BDL : Below detection limit. |
| **Env. Condition of Lab** | Laboratory is maintaining, Temperature 27 ± 2°C and Relative Humidity 65 ± 5% in all testing areas as per IS 196:1966 (C). |
| **Specific contractual notes** | All values are expressed in as unit and results listed refer only to the tested sample and applicable parameter in Lab's Permanent Facility |
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| | The samples collected shall be destroyed after 15 days from the date of issue of the certificate unless specified otherwise |
| | The liability of the laboratory is limited to the invoiced amount. |
| | All disputes are subjected to the Ranchi Jurisdiction. |
| **Remarks** | **Sample complies with prescribed limits.** |

Sample Drawn By – Angad Munda
Tested By – Satyam Kumar (Lab Analyst)

| | |
|---|---|
| Verified by | Issued by |
| Shivani Kumari Singh | Sanjeev Kumar Singh |
| (Authorized Signatory) | (Technical Manager) |

Authorized Signatory
Chemical Section
Yugantar Bharati Analytical & Environmental Engineering Laboratory

******End of Report******

## Test Report

| | | | | | |
|---|---|---|---|---|---|
| **Discipline** | Chemical | **Group** | Water | **Sample Description** | Ground Water |
| **Report Release Date** | | 26th October, 2023 | | **Report ID** | YBAEEL-231019-122415-GW01 |
| **W. Order/ JSPCB App. No.** | | Via - Telephonic | | **Work Order Date** | 19.10.2023 |
| **Type of Industry**(If any) | | Sponge Iron Unit | | **Job code/ Ref. no.** | YBAEEL/WA/L/C/Oct.-23/12 |
| **Report Issue to** | | **M/s Jharkhand Ispat Private Limited**<br>**Vill. & PO - Hesla, Argada, Dist. Ramgarh,**<br>**Jharkhand – 829101.** | | | |
| **Sampling Date** | | 20/10/2023 | | **Mode of sample collection** | By YBAEEL Team |
| **Sampling Protocol** | | IS : 17614 (Part-1): 2021 | | **Sample Code** | 231021-GW-W01 |
| **Sampling Location** | | Bore Well | | **Sampling Source** | Ground Water |
| **Sample pkg. Condition** | | Sealed Pack in PP Bottle | | **Sample Quantity** | 3000 ml |
| **Meteorological Cond. of Field** | | **W.C.**– Clear | | **RH %** - 57 | **Temp.** – 26°C |
| **Sample receipt Date** | | 21/10/2023 | **Analysis Started on** | 21/10/2023 | **Analysis completed on** 26/10/2023 |

******Test Results ******

| Sl | Parameter | Test Method | Units | Results | Limits |
|---|---|---|---|---|---|
| 1. | **Odour** | IS 3025 (P-05):2018 | -- | **Agree.** | Agreeable |
| 2. | **Taste** | IS 3025 (P-07 & 08):2017&2023 | -- | **Agree.** | Agreeable |
| 3. | **Phosphate (as $PO_4^{3-}$ )** | IS 3025 (P-31/Sec1):2022 (Stannous Chloride Method) | mg/l | **BDL (MDL 0.003)** | -- |
| 4. | **Cyanide(as $CN^-$)** | IS 3025 (P-27/Sec1):2021 (Titrimetric Method) | mg/l | **BDL (MDL 1.0)** | 0.05-No relaxation |

| | |
|---|---|
| **Limit is specified as** | IS 10500:2012, RA 2018. |
| **Abbreviation** | MDL : Minimum detection limit, BDL : Below detection limit, |
| **Env. Condition of Lab** | Laboratory is maintaining, Temperature 27 ± 2°C and Relative Humidity 65 ± 5% in all testing areas as per IS 196:1966 (C). |
| **Specific contractual notes** | All values are expressed in as unit and results listed refer only to the tested sample and applicable parameter in Lab's Permanent Facility |
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| | The samples collected shall be destroyed after 15 days from the date of issue of the certificate unless specified otherwise |
| | The liability of the laboratory is limited to the invoiced amount. |
| | All disputes are subjected to the Ranchi Jurisdiction. |
| **Remarks** | **Sample complies with prescribed limits.** |

**Sample Drawn By** – **Angad Munda**
**Tested By** – **Satyam Kumar (Lab Analyst)**

| | |
|---|---|
| | 26/10/23 |
| Verified by | Issued by |
| Shivani Kumari Singh | Sanjeev Kumar Singh |
| (Authorized Signatory) | (Technical Manager) |

Authorized Signatory
Chemical Section
Yugantar Bharati Analytical & Environmental Engineering Laboratory

******End of Report******

# YUGANTAR BHARATI
## ANALYTICAL & ENVIRONMENTAL ENGINEERING LABORATORY

Accredited by: - Jharkhand State Pollution Control Board (JSPCB)
Certified by : - ISO 9001:2015 & ISO 45001:2018

TC-4032


## *Test Report*

| | | | | | |
|---|---|---|---|---|---|
| **ULR (Unique Lab Report) No.** | | T C 4 0 3 2 2 3 0 0 0 0 0 1 4 4 8 F | | | |
| **Discipline** | Chemical | **Group** | Residue in Water | **Sample Description** | Ground Water |
| **Report Release Date** | | 26th October, 2023 | | **Report ID** | YBAEEL-231019-122415-GW01 |
| **W. Order/ JSPCB App. No.** | | Via - Telephonic | | **Work Order Date** | 19.10.2023 |
| **Type of Industry(If any)** | | Sponge Iron Unit | | **Job code/ Ref. no.** | YBAEEL/WA/L/R/Oct.-23/10 |
| **Report Issue to** | | **M/s Jharkhand Ispat Private Limited<br>Vill. & PO - Hesla, Argada, Dist. Ramgarh,<br>Jharkhand – 829101.** | | | |
| **Sampling Date** | | 20/10/2023 | | **Mode of sample collection** | By YBAEEL Team |
| **Sampling Protocol** | | IS : 17614 (Part-1): 2021 | | **Sample Code** | 231021-GW-W01 |
| **Sampling Location** | | Bore Well | | **Sampling Source** | Ground Water |
| **Sample pkg. Condition** | | Sealed Pack in PP Bottle | | **Sample Quantity** | 1000 ml |
| **Meteorological Cond. of Field** | | **W.C.**– Clear | | **RH %** - 57 | **Temp.** – 26°C |
| **Sample receipt Date** | | 21/10/2023 | **Analysis Started on** | 21/10/2023 | **Analysis completed on** 26/10/2023 |

******Test Results ******

| Sl | Parameter | Test Method | Units | Results | Limits |
|---|---|---|---|---|---|
| 1. | **Arsenic (as As)** | APHA 3114 C 24th edition 2023 (Continuous Hydride Generation Method) | mg/l | **BDL (MDL 0.003)** | 0.01-No relaxation |
| 2. | **Copper (as Cu)** | APHA 3111 B 24th edition 2023 (Direct Air Acetylene Flame Method) | mg/l | **BDL (MDL 0.01)** | 0.05-1.5 |
| 3. | **Iron (as Fe)** | APHA 3111 B 24th edition 2023 (Direct Air Acetylene Flame Method) | mg/l | **0.20** | 1.0-No relaxation |
| 4. | **Lead (as Pb)** | APHA 3111 B 24th edition 2023 (Direct Air Acetylene Flame Method) | mg/l | **BDL (MDL 0.02)** | 0.01-No relaxation |
| 5. | **Zinc (as Zn)** | APHA 3111 B 24th edition 2023 (Direct Air Acetylene Flame Method) | mg/l | **0.13** | 5-15 |
| 6. | **Cadmium (as Cd)** | APHA 3111 B 24th edition 2023 (Direct Air Acetylene Flame Method) | mg/l | **BDL (MDL 0.02)** | 0.003-No relaxation |
| 7. | **Mercury (as Hg)** | APHA 3112 B 24th edition 2023 (Cold Vapour AAS Method) | mg/l | **BDL (MDL 0.003)** | 0.001-No relaxation |
| 8. | **Chromium (as Cr)** | APHA 3111 B 24th edition 2023 (Direct Air Acetylene Flame Method) | mg/l | **BDL (MDL 0.02)** | 0.05-No relaxation |
| 9. | **Nickel (as Ni)** | APHA 3111 B 24th edition 2023 (Direct Air Acetylene Flame Method) | mg/l | **BDL (MDL 0.02)** | 0.02-No relaxation |

| | |
|---|---|
| **Limit is specified as** | IS 10500:2012, RA 2018. |
| **Abbreviation** | MDL : Minimum detection limit, BDL : Below detection limit, |
| **Env. Condition of Lab** | Laboratory is maintaining, Temperature 27 ± 2°C and Relative Humidity 65 ± 5% in all testing areas as per IS 196:1966 (C). |
| **Specific contractual notes** | All values are expressed in as unit and results listed refer only to the tested sample and applicable parameter in Lab's Permanent Facility |
| | This report, in full or in part, shall not be used for advertising or as evidence in any court of law. |
| | This report cannot be reproduced, except when in full, without the written permission of the CEO.. |
| | The samples collected shall be destroyed after 15 days from the date of issue of the certificate unless specified otherwise |
| | The liability of the laboratory is limited to the invoiced amount. |
| | All disputes are subjected to the Ranchi Jurisdiction. |
| **Remarks** | **Sample complies with prescribed limits.** |

**Sample Drawn By** – **Angad Munda**

| | |
|---|---|
| Tested by | Verified & Issued by |
| Shivani Kumari Singh | Sanjeev Kumar Singh |
| (Lab Analyst) | (Technical Manager) |

26/10/23

******End of Report******

Authorized Signatory
Chemical Section
Yugantar Bharati Analytical & Environmental Engineering Laboratory

## Test Report

| | | | | | |
|---|---|---|---|---|---|
| **Discipline** | Chemical | **Group** | Residue in Water | **Sample Description** | Ground Water |
| **Report Release Date** | | 26th October, 2023 | | **Report ID** | YBAEEL-231019-122415-GW01 |
| **W. Order/ JSPCB App. No.** | | Via - Telephonic | | **Work Order Date** | 19.10.2023 |
| **Type of Industry(If any)** | | Sponge Iron Unit | | **Job code/ Ref. no.** | YBAEEL/WA/L/R/Oct.-23/10 |
| **Report Issue to** | | **M/s Jharkhand Ispat Private Limited<br>Vill. & PO - Hesla, Argada, Dist. Ramgarh,<br>Jharkhand – 829101.** | | | |

| | | | | | |
|---|---|---|---|---|---|
| **Sampling Date** | 20/10/2023 | | **Mode of sample collection** | By YBAEEL Team | |
| **Sampling Protocol** | IS : 17614 (Part-1): 2021 | | **Sample Code** | 231021-GW-W01 | |
| **Sampling Location** | Bore Well | | **Sampling Source** | Ground Water | |
| **Sample pkg. Condition** | Sealed Pack in PP Bottle | | **Sample Quantity** | 1000 ml | |
| **Meteorological Cond. of Field** | W.C.– Clear | | RH % - 57 | Temp. – 26°C | |
| **Sample receipt Date** | 21/10/2023 | **Analysis Started on** | 21/10/2023 | **Analysis completed on** | 26/10/2023 |

******Test Results ******

| Sl | Parameter | Test Method | Units | Results | Limits |
|---|---|---|---|---|---|
| 1. | **Aluminium (as Al)** | IS 3025 (P-55):2003, RA 2019 (Eriochrome Cyanine R Method) | *mg/l* | **BDL (MDL 0.02)** | 0.03-0.2 |

| | |
|---|---|
| **Limit is specified as** | IS 10500:2012, RA 2018. |
| **Abbreviation** | MDL : Minimum detection limit, BDL : Below detection limit. |
| **Env. Condition of Lab** | Laboratory is maintaining, Temperature 27 ± 2°C and Relative Humidity 65 ± 5% in all testing areas as per IS 196:1966 (C). |
| **Specific contractual notes** | All values are expressed in as unit and results listed refer only to the tested sample and applicable parameter in Lab's Permanent Facility |
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| | The liability of the laboratory is limited to the invoiced amount. |
| | All disputes are subjected to the Ranchi Jurisdiction. |
| **Remarks** | **Sample complies with prescribed limits.** |

**Sample Drawn By – Angad Munda**

| | |
|---|---|
| Tested by | Verified & Issued by |
| Shivani Kumari Singh | Sanjeev Kumar Singh |
| (Lab Analyst) | (Technical Manager) |

Authorized Signatory
Chemical Section
Yugantar Bharati Analytical & Environmental Engineering Laboratory

******End of Report******

# Test Report

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ULR (Unique Lab Report) No. | | | | T | C | 4 | 0 | 3 | 2 | 2 | 3 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 4 | 2 | F |

| | | | | | |
|---|---|---|---|---|---|
| Discipline | Biological | Group | Water | Sample Description | Ground Water |
| Report Release Date | | 26th October, 2023 | | Report ID | YBAEEL-231019-122415-GW01 |
| W. Order/ JSPCB App. No. | | Via - Telephonic | | Work Order Date | 19.10.2023 |
| Type of Industry(If any) | | Sponge Iron Unit | | Job code/ Ref. no. | YBAEEL/WA/L/M/Oct.-23/07 |
| Report Issue to | | M/s Jharkhand Ispat Private Limited<br>Vill. & PO - Hesla, Argada, Dist. Ramgarh,<br>Jharkhand – 829101. | | | |

| | | | | | |
|---|---|---|---|---|---|
| Sampling Date | 20/10/2023 | | Mode of sample collection | By YBAEEL Team | |
| Sampling Protocol | IS : 15185 | | Sample Code | 231021-GW-W01 | |
| Sampling Location | Bore Well | | Sampling Source | Ground Water | |
| Sample pkg. Condition | Sealed Pack in PP Bottle | | Sample Quantity | 250 ml | |
| Meteorological Cond. of Field | W.C.– Clear | RH % - 57 | | Temp. – 26°C | |
| Sample receipt Date | 21/10/2023 | Analysis Started on | 23/10/2023 | Analysis completed on | 25/10/2023 |

******Test Results ******

| Sl | Parameter | Test Method | Units | Results | Limits |
|---|---|---|---|---|---|
| 1. | Total coliform | APHA 9221B 24th Edition 2023<br>(Multiple Tube Fermentation Technique) | MPN/100 ml | < 1.1 | Shall not to be Detectable in any 100 ml sample |
| 2. | Fecal coliform | APHA 9221E 24th Edition 2023<br>(Thermotolercut (Fecal) Coliform Procedure) | MPN/100 ml | < 1.1 | |

******End of Report******

| | |
|---|---|
| Limit is specified as | IS 10500: 2012 |
| Abbreviation | MDL : Minimum detection limit, BDL : Below detection limit.<br><1.8 / < 1.1 MPN/100 ml denotes that the presence probability of bacteria is absent in the tested sample. |
| Env. Condition of Lab | Laboratory is maintaining, Temperature 27 ± 2°C and Relative Humidity 65 ± 5% in all testing areas as per IS 196:1966 (C). |
| Specific contractual notes | All values are expressed in as unit and results listed refer only to the tested sample and applicable parameter in Lab's Permanent Facility. |
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| | This report cannot be reproduced, except when in full, without the written permission of the CEO. |
| | The samples collected shall be destroyed after 7 days from the date of issue of the certificate unless specified otherwise |
| | The liability of the laboratory is limited to the invoiced amount. |
| | All disputes are subjected to the Ranchi Jurisdiction. |
| Remarks | Sample complies with prescribed limit. |

Sample Drawn By – Angad Munda

| Madhuri Sinha | Mukesh Kumar |
|---|---|
| Tested by | Verified & Issued by |
| Madhuri Sinha | Mukesh Kumar |
| (Lab Analyst) | (Authorized Signatory) |

Authorized Signatory
Microbiological Section
Yugantar Bharati Analytical &
Environmental Engineering Laboratory

# YUGANTAR BHARATI
## ANALYTICAL & ENVIRONMENTAL ENGINEERING LABORATORY

Accredited by: - Jharkhand State Pollution Control Board (JSPCB)
Certified by : - An ISO 9001:2015 & ISO 45001:2018

State Pollution Control Board

## Test Report

| | | | |
|---|---|---|---|
| **Report Release Date** | 22nd October, 2023 | **Report ID** | YBAEEL-231019-122415-WL01 |
| **W. Order/ JSPCB App. No.** | Via -Telephonic | **Work Order Date** | 19.10.2023 |
| **Type of Industry(If any)** | Sponge Iron Unit | **Job code/ Ref. no.** | YBAEEL/WA/L/C/Oct.-23/13 |
| **Report Issue to** | **M/s Jharkhand Ispat Private Limited<br>Vill. & PO - Hesla, Argada, Dist. Ramgarh,<br>Jharkhand – 829101.** | | |
| **Sampling Date** | 20/10/2023 | **Mode of sample collection** | By YBAEEL Team |
| **Meteorological Cond. of Field** | **W.C.**– Clear | **RH % - 57** | **Temp.**– 26$^0$C |

******Test Results ******

| Sl | Location | Ground Water Level (mbgl) |
|---|---|---|
| 1. | Near Main Gate | 6.1 |

******End of Report******

| | |
|---|---|
| **Abbreviation** | MDL : Minimum detection limit, BDL : Below detection limit, MBGL : Meter below ground level. |
| **Env. Condition of Lab** | Laboratory is maintaining, Temperature 27 ± 2$^0$C and Relative Humidity 65 ± 5% in all testing areas as per IS 196:1966 (C). |
| **Specific contractual notes** | All values are expressed in as unit and results listed refer only to the tested sample and applicable parameter in Lab's Permanent Facility |
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| | The liability of the laboratory is limited to the invoiced amount. |
| | All disputes are subjected to the Ranchi Jurisdiction. |
| **Remarks** | ---------- |

| | |
|---|---|
| Tested by | Issued by |
| Angad Munda | Sanjeev Kumar Singh |
| (Field Analyst) | (Technical Manager) |

Technical Manager
Yugantar Bharati Analytical & Environmental Engineering Laboratory

# YUGANTAR BHARATI
## ANALYTICAL & ENVIRONMENTAL ENGINEERING LABORATORY

Accredited by: - Jharkhand State Pollution Control Board (JSPCB)
Certified by: - ISO 9001:2015 & ISO 45001:2018

TC-4032

# *Test Certificate*

| | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ULR (Unique Lab Report) No. | | | | | T | C | 4 | 0 | 3 | 2 | 2 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 5 | 5 | F | | |

| | | | | | |
|---|---|---|---|---|---|
| Discipline | Chemical | Group | Atmospheric Pollution | Sample Description | Ambient Noise |
| Report Release Date | | 31st March, 2023 | | Report ID | YBAEEL-230324-143439-N01 |
| W. Order/ JSPCB App. No. | | 15893987 | | Work Order Date | 24.03.2023 |
| Type of Industry (If any) | | Sponge Iron | | Job code/ Ref. no. | YBAEEL/WA/L/A/Mar-23/15 |
| Report Issue to | | M/s Jharkhand Private Limited<br>Village - Hesla, PO - Argada,<br>Dist. – Ramgarh, Jharkhand. | | | |
| Sampling Period | | 28/03/2023 – 29/03/2023 | | Mode of sample collection | By YBAEEL Team |
| Sampling Protocol | | IS 9989:1981 (RA 2020) | | | |
| Meteorological Cond. of Field | | W.C.– Clear | | RH % - 42 | Temp. - 32°C |
| Sample receipt Date | | 29/03/2023 | Analysis Started on | 29/03/2023 | Analysis completed on 31/03/2023 |

******Test Results ******

| Sl | Locations | Parameters | Units | MU % | Day Time (6.00 a.m. to 10.00 p.m.) | Night Time (10.00 p.m. to 6.00 a.m.) | Limits |
|---|---|---|---|---|---|---|---|
| 1. | Near Main Gate | Leq | dB (A) | 3.32 | 70.6 | 67.2 | Day – 75<br>Night – 70 |
| 2. | Near ESP Stack | Leq | dB (A) | 3.32 | 66.7 | 64.2 | |
| 3. | Near Online PM-10 Analyser | Leq | dB (A) | 3.32 | 71.2 | 68.4 | |

******End of Report******

- Silence zone is an area comprising not less than 100 meters around hospitals, educational institutions, courts, religious places or any other area which is declared as such by the competent authority.
- Mixed categories of areas may be declared as one of the four above mentioned categories by the competent authority.
- dB(A) Leq denotes the time weighted average of the level of sound in decibels on scale(A) which is relatable to human hearing.

| | Area | Unit | Day Time | Night time |
|---|---|---|---|---|
| A | Industrial Area | dB (A) | 75.0 | 70.0 |
| B | Commercial Area | dB (A) | 65.0 | 55.0 |
| C | Residential Area | dB (A) | 55.0 | 45.0 |
| D | Silence Zone | dB (A) | 50.0 | 40.0 |

| | |
|---|---|
| Limit is specified as | Noise pollution (Regulation & Control) Rules, 2000. |
| Abbreviation | MDL : Minimum detection limit, BDL : Below detection limit, |
| Env. Condition of Lab | Laboratory is maintaining, Temperature 27 ± 2°C and Relative Humidity 65 ± 5% in all testing areas as per IS 196:1966 (C). |
| Specific contractual notes | All values are expressed in as unit and results listed refer only to the tested sample and applicable parameter in Lab's Permanent Facility. |
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| | The samples collected shall be destroyed after 7 days from the date of issue of the certificate unless specified otherwise |
| | The liability of the laboratory is limited to the invoiced amount. |
| | All disputes are subjected to the Ranchi Jurisdiction. |
| Remarks | Samples comply with prescribed limit. |

Sample Drawn By – Angad Munda
Tested By – Akash Khalkho (Lab Analyst)

Only CONCERN for
Jharkhand State Pollution Control Board
Application No. .....15893982
Allotted Date .....24-03-23
Submission Date.....31-03-23

| | |
|---|---|
| 31/03/23 | 31/03/23 |
| Verified by | Issued by |
| Sumit Kant Srivastava | Sanjeev Kumar Singh |
| (Sr. Lab Analyst) | (Technical Manager) |

Authorized Signatory
Atmospheric Pollution
Yugantar Bharati Analytical & Environmental Engineering Laboratory

# Report
# on
# GHG Emissions inventory & Its Reduction Including Carbon Sequestration through Plantation for Sponge Iron Plant

**Jharkhand Ispat PVT. LTD.**

Vill: Hesla, P.O.: Argada, Dist.: Ramgarh, Jharkhand

**Prepared By**

REDUCE • REUSE
RECYCLE • RESPECT

**Institute for Environmental Management**
**Ranchi, Jharkhand, 834002**

**December– 2022**

# Preface

A report on GHG emission Inventory and its reduction including Carbon Sequestration through plantation for steel plant has been prepared of Jharkhand Ispat Pvt. Ltd. (JIPL) operating a Sponge Iron Plant having two (2) Nos .of coal based Rotary Kilns, each of 100 TPD capacity at village: Hesla, District: Argada in the state of Jharkhand since 2003. The report is prepared based on the secondary data provided by JIPL

**Name and address of manufacturing facility:**

**Jharkhand Ispat Pvt. Ltd.**

**At- Hesla, Post- Argada - 829122,**

**Dist. - Ramgarh (Jharkhand)**

**E-mail: jipllegal@gmail.com**

Within the ambit of this study, the following units were considered:

GHG emissions have been estimated considering a system boundary from gate-to-gate which is from raw materials entering a sponge iron plant producing sponge iron or DRI used for manufacturing of steel. The system boundary in this study include the

- Sponge Iron process

The purpose of this study is to highlight the potential areas of GHG emission of sponge iron production for reducing GHG emissions. The main sources of GHG emissions during sponge iron manufacturing are considered and the key groups of measures that can reduce the GHG emissions are identified.

## Table of Contents



## List of Figures



## List of Tables

# Chapter – 1

## Introduction

The production of iron through direct reduction (Direct-Reduced Iron; DRI) involves the use of natural gas or coal to reduce iron ore to iron through carbothermic reactions at a temperature below its melting point, negating the need for a blast furnace as otherwise required. In India, around 25% of iron is produced through direct reduction. However, there is a high reliance on coal (79% of DRI production capacity) causing significant energy use and emissions from production. Also, a large portion of raw materials (especially coal) is imported due to low quality of domestic resources. Weighted average specific energy use and emissions is calculated for seven such clusters (using total cluster capacity), based on regional raw material qualities and transport distances from various mines, ports and beneficiation plants. The results suggest an overall specific (per tonne DRI) energy consumption of 27.24 GJ with an emission of 2.8 $tCO_2eq$, 2.6 kg NOx, 1.8 kg SOx and 1.4kg $PM_{2.5}$. The specific energy and emission values are used to calculate the total annual emissions by multiplying with the 2019 DRI production amount of 27.8 million tonnes. The annual midpoint and endpoint impacts as per ReCiPe 2016 (country-wise factors where applicable) are then calculated. The DRI industry causes 77.31 million $tCO_2eq$/year in global warming potential, 59.02 thousand $tSO_2eq$/year in acidification potential and 287.2 thousand $tPM_{2.5}eq$/year in fine dust formation potential. It is estimated to cause approximately 270,000 years of reduction in overall human life and 230 species years of species loss (mainly in terrestrial ecosystems). Different sensitivities are carried out to understand the impact of some key influencing parameters (effect of ore quality and coal quality, effect of imports of ore and coal). Some development scenarios, such as increasing coal washery capacity, shifting land transport from road to rail, increasing waste-heat recovery penetration, effect of stricter regulations, etc. are discussed, along with pathways for fuel-switching from coal to natural gas, and then from natural gas to hydrogen.

Jharkhand Ispat Pvt. Ltd. (JIPL) is a registered company under the Company's Act. It is operating a steel plant having two (2) Nos of Sponge Iron Plant.of coal based Rotary Kilns, each of 100 TPD capacity at village: Hesla, District: Argada in the state of Jharkhand since 2003. Sponge Iron is presently sold to other steel producers for making finished steel products.

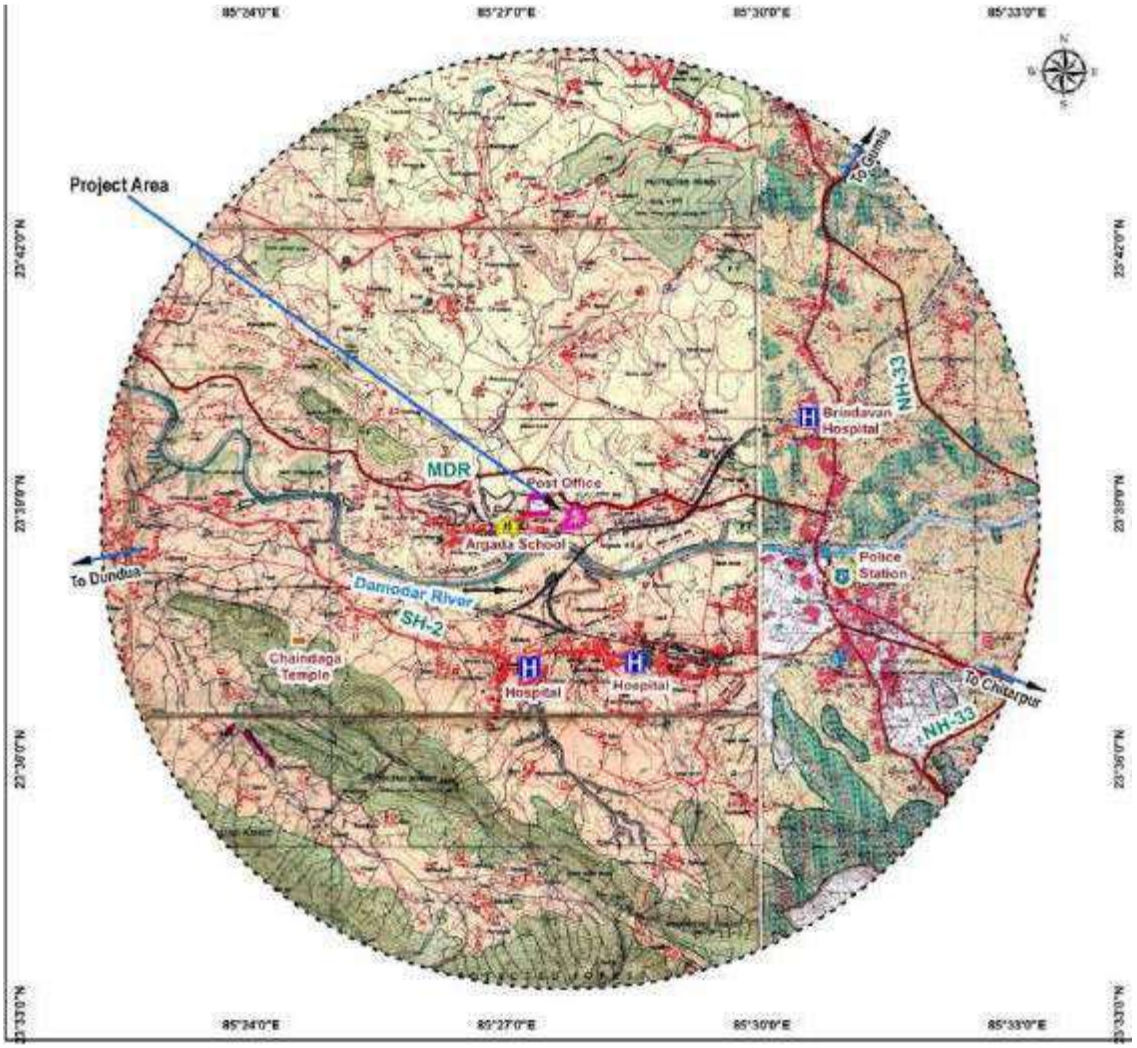
GHG emission inventory is comprised of carbon footprint analysis where it is historically been defined as "the inventory of greenhouse gas (GHG) emissions caused by an organization, event, product or person". In this report the estimation of carbon emission for sponge iron production, carbon budgeting/balancing, carbon sequestration activities and carbon offsetting strategies are discussed. GHG emission calculation has been carried out using IPCC guidelines as overall principal and following standard methodology of GHG protocol for GHG estimation. Estimations for this green field project are majorly for scope 1 where direct use of materials and energy for the plant is considered.

JIPL has installed 2x100TPD (Sponge Iron plants) DRI Units at village: Hesla, District: Argada in the state of Jharkhand since 2003 after getting NOC from Jharkhand Pollution Control Board (JSPCB) and subsequently Consent to Operate from JSPCB.

Now JIPL intends to use the waste heat energy from the DRI units in Waste Heat Recovery Boilers and dolochar produced in plant in AFBC Boiler, supplemented by coal, for production of 18 MW power. 2x100 TPD DRI Kilns for production of 60,000 TPA sponge Iron

And 2x12T Induction furnaces along with Continuous Casting Mill for 72,000 TPA Billet Production were installed after getting NOC from Jharkhand Pollution Control Board (JSPCB) on 6th November, 2006. JIPL submitted application on 11.01.2013 for grant of TOR for obtaining EC for 2x100 TPD Sponge Iron Plant and 240 TPD MS Billet Plant which are under violation and installation of 1x12 Ton Induction Furnace, 90,000 TPA Rolling Mill & 12 MW Power Plant under expansion.

Fig.:1 Digitized Key plan of project site



# Chapter - 2

# Project Description

## Overview of direct reduction process

The basic mechanism behind iron production involves two main pathways,

i. Using a blast furnace (heated using coal or natural gas) for reduction of iron ore (iron oxides) into pig iron by reaction with coke and fluxes (usually limestone) (SAIL, 2012). The molten pig iron is then converted to steel (through the steelmaking process, usually with a basic oxygen furnace) or processed and sold as such. In 2019, 46.7% of India's steel industry utilized the blast furnace-basic oxygen furnace (BF-BOF) method (World Steel Association, 2019b).

ii. Using coal (solid or gas) or reformed natural gas to perform a direct reduction of the iron ore into Direct-Reduced Iron (DRI) or Sponge iron at high heat (but below melting point) (Sarangi and Sarangi, 2011). The sponge iron is then converted to steel (with an electric arc or electric induction furnace) or processed and sold. The share of electric induction/arc furnace processes in India constituted 53.3% in 2019 (World Steel Association, 2019b).

The SL/RN process (developed by **S**teel Company of Canada, **L**urgi Chemie, **R**epublic Steel Company and **N**ational Lead Corporation in 1964) forms the basis of rotary kiln technologies used in India (Sarangi and Sarangi, 2011); the process uses a rotary kiln into which iron ore pellets, non-coking coal (for reduction) and limestone/dolomite (flux) is supplied. From the other end, air and coal (for combustion) are supplied. The resulting high temperatures (900 to 1020 °C) form a reducing atmosphere of CO which reduces the iron ores to sponge iron. The sponge iron is subsequently separated out of the remaining reaction products through magnetic separation. The kiln is inclined at an angle of ~2.5° to facilitate movement of the charge

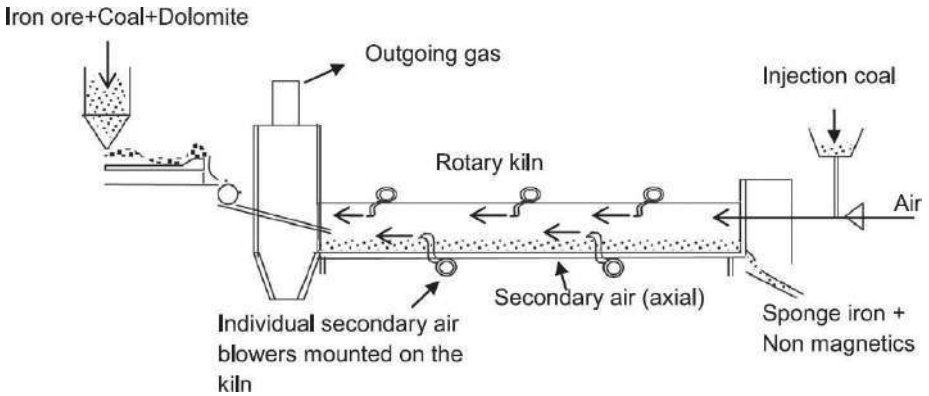



**Figure 2: Rotary kiln** *(SL/RN process) (Source: Dey et al, 2015)*

From the feed end to the exit. The rotary motion encourages even reaction of the charge through mixing with the reducing gases (Dey et al, 2015). The basic process is shown in Figure 2.

Around a third of the kiln length is typically required for preheating the charge consisting of iron ore, coal and dolomite. The dolomite flux is added to control sulphurisation. The coal supplied along with the ore is mainly meant to produce reducing gas by reacting with atmospheric oxygen at high temperature. In this stage, the iron ore (predominantly hematite - Fe2O3) is partially reduced to ferrous oxide. After reaching the ideal reaction temperature of 900-1100 °C, the ore is reduced to metal in the latter portion of the kiln through further reduction. The following are the main reactions taking place within the kiln, at a temperature of 1067 °C (Sarangi and Sarangi, 2011).

$$3Fe2O3 + CO \rightarrow 2Fe3O4 + CO2 - 44.46\ kJ/mol \quad (1)$$

$$Fe3O4 + CO \rightarrow 3FeO + CO2 + 3.07\ kJ/mol \quad (2)$$

$$FeO + CO \rightarrow Fe + CO_2 - 11.12\ kJ/mol \quad (3)$$

The CO required for the above reduction reactions is produced when fixed carbon of the feed-end coal reacts with CO2 produced by the reductions, in a perpetual, reversible reaction called Boudouard reaction.

$$C + CO_2 \leftrightharpoons 2CO + 167.52\ kJ/mol \quad (4)$$

This reaction is crucial to maintaining the reducing atmosphere and kiln temperature. The ratio of CO/ (CO+CO2) depends on the temperature inside the kiln; ideally a CO concentration of ~50-60% is maintained (Dey, Prasad and Singh, 2015) to ensure optimum reduction of ore. Since the forward reaction (4) is highly endothermic, it serves to maintain kiln temperature for a regulated combustion of injectioncoal. By combining the above reactions, we get

$$2Fe2O3 + 3C \rightarrow 4Fe + 3CO2 + 432.52\ kJ/mol \quad (5)$$

Note that only one part of CO produced in (4) is used for the reduction, whereas the other part is combusted into CO2 resulting in a net output of CO2 from the kiln. Various other reactions take place dueto the combustion of injection coal fixed carbon and volatiles, causing the formation of additional CO and CO2 along with H2O and CH4. The sulphur present in coal is removed by dolomite, as the CaCO3 and MgCO3 decompose into CaO and MgO to act as desulphurising agents. The addition of dolomite is crucial to control the sulphur content in the DRI (to prevent embrittlement in steel production), and also to control SOx emissions (Sarangi and Sarangi, 2011).

After the reduction process, the metal (now known as sponge iron or DRI) is separated from the remaining slag (consisting of coal char, unreacted coal, sulphurated dolomite) through magnetic separation. The product CO2 reacts further with incoming/excess coal to produce more CO. Thus, for a low ash coal with high reactivity, the reduction efficiency will be higher as the quantity of coal input would be reduced. Also, the retaining time of the ore within the kiln can be lower, thus improving output (Dey et al, 2015).

**Table 2.1: Salient Features of the Project**

| S. No | Particulars | Details |
|---|---|---|
| 1. | Latitude | $23^0$38' 48.47"N |
| 2. | Longitude | $85^0$27'37.77"E |
| 3. | Altitude | 335 m above MSL |
| 4. | Toposheet | 73 E/6 & 73 E/10 |
| 9. | Nearest village/Habitation | City Ramgarh at 6 kms |
| 10. | Nearest Town | Ramgarh |
| 11. | Nearest Police Station | Ramgarh Police Station, 5.0 Km in SE |
| 12. | Nearest Post office Ghutu Post office | Argada Post office – 600 meter in NE direction |
| 13. | Nearest River | River Damodar at 300 meter in south direction. |
| 15 | Nearest Temple | Bajrangwali Temple at 1 km in North East |
| 16. | Nearest School | Argada Primary school by 1.0 km |
| 17. | Nearest Bus Stop | Digwar High School 2.6 km in NW direction |
| 18. | Nearest Medical | CCL Hospital at a distance of 3 km |
| 19. | Nearest airport | Birsa Munda Airport Ranchi is at 45 kms in SW |
| 20. | Sanctuaries /National Parks/ Biospheres, etc | Not within 10 km radius of the project site |
| 24. | Reserve Forest/ Protected Forest | No Reserve forest present in 10 Km radius of plant area. Few protected forests present in 10 km radius |
| 26 | Total Water Requirement | Existing (Non-violating): 170 KLD<br>Existing (Violating): 406 KLD,<br>Proposed: 2330 KLD<br>Total after Expansion: 2906 KLD<br>Source: Damodar Valley Corporation |
| 27. | Total Power Requirement | Existing – 10.5 MW (Non-Violating – 0.8 MW & 9.7<br>MW for violating Units)<br>Proposed – 7.5 MW (Expansion)<br>Total after expansion: 18.00 MW<br>DG Set<br>Existing: 2x500KVA, 1 x320KVA & 1x750KVA<br>Proposed: 1x500KVA<br>Fuel: HSD: 1000 litres/day (For Emergency and Start up only) |
| 28. | Total Manpower | Non-Violating: 120, Violating: 100<br>Proposed: 174, Total: 394 |

| | | |
|---|---|---|
| 29. | Total capital cost | Existing (Non-violating): Rs. 22.41 Crs.<br>Existing (Units under Violation): Rs. 31.71 Crs.<br>Proposed Units: Rs.186.63 Crs.<br>Total: 240.75 Crs. |

| | | | |
|---|---|---|---|
| Power Plant Waste Heat BoilersAFBC Boiler | Total 18 MW | 18 MW | 18MW (Captive use) |
| Iron Ore Crushing & Beneficiation Plant | 80 – 100 TPH single stream(throughput) | 920 T | 276,000 T |
| Slag Crushing Plant for SMS Slag | Single stream 8 TPH | 55 T | 162,00 T |

**Table 2.2: Summary of the Project (Existing & Proposed)**

| PRODUCTION FACILITY | PLANT SIZE | PRODUCTION(TPD) | PRODUCTION(TPA) |
|---|---|---|---|
| EXISTING | | | |
| Sponge Iron Plant | 4x 100 T /day of DRI | 400 TPD | 120,000T |
| PROPOSED | | | |
| Steel Making Shop, Induction Furnaces and Billet Caster | 3 x 12 T | 360 T | 108,000 T |
| Rolling Mill – TMT Rebar Mill | 15 Stand Mill with Direct Hot Charging | 300 T | 90,000 T |

**SPONGE IRON PLANT (Existing)**

Sponge Iron Plant is having two (2) Nos. Coal Based Rotary Kilns each of 100 TPD Capacity, with an annual capacity of 60,000 Metric Tons. Sponge Iron Plant has its own material storage and handling facilities and other auxiliary plant units.

**Process Description:**

To produced sponge iron, sized lump ore is fed along with coal, and flux in to the Rotary Kiln wherein iron ore gets converted to metallic iron. Flux helps in scavenging Sulphur content from coal. Brief features of the process are as follows:

- Kiln process of DRI production involves tumbling of iron ore with select grade of non- coking coal and dolomite in a rotary kiln.
- The kiln is supported on roller stations and rotated by means of a variable speed AC motor and girth gear mechanism. Refractory lined rotary kiln of suitable size is placed on two or four support stations and is kept inclined at 2.5 % slope.
- The transport rate of materials through the kiln can be controlled by varying its slope and speed of rotation. There are inlet and outlet cones at opposite ends of the kiln that are cooled by individual fans.
- The kiln shell is provided with small sampling ports, large ports for rapid removal of the contents in emergency or for lining repairs. Longitudinal positioning of the kiln on its riding rings is controlled hydraulically.
- The coal and iron ore are metered into the high end of the inclined kiln. A portion of the coal in pulverized form is also injected pneumatically from the discharge end. The burden first passes through a pre-heating zone where coal de-volatilization takes place and iron ore is heated to pre-

heating temperature for reduction.

- Temperature and process control in the kiln are carried out by installing suitable no. of air injection tubes made of heat-resistant steel. These are spaced evenly along the kiln length and countercurrent to the flow of iron ore. Tips of the air tubes are equipped with special internal swirls to improve uniformity of combustion.
- A central burner located at the kiln discharge end is used with LDO for heating the cold kiln. After initial heating, the fuel supply is turned off and the burner is used to inject air for coal combustion.
- The kiln temperatures are measured with fixed thermocouples and Quick Response Thermocouples (QRT). Fixed thermocouples are located along the length of the kiln to monitor temperature profile of kiln. Fixed thermocouples, at times, may give erratic readings due to coating with ash, ore or accretion. In such a case QRT are used to monitor the kiln temperatures.
- The product (DRI) is discharged from the kiln at about 1000°C. An enclosed chute at the kiln discharge end is used to transfer the hot DRI to a rotary cooler. The cooler is a horizontal revolving cylinder of appropriate size, wherein DRI is cooled indirectly by water spray on the cooler upper surface. The cooling water collected in troughs below is pumped to the cooling tower for recycling along with make-up water.
- DRI is cooled to about 100°C without exposure to atmospheric air. A grizzly in the chute removes accretions that are large enough to plug up or damage the cooler discharge mechanisms.
- The product is screened to remove the plus 30 mm DRI. The undersize – a mix of DRI, dolochar and coal ash are screened into +/- 3mm fractions. Each fraction passes through a magnetic separator. The non-magnetic portion of the plus 3 mm fraction is mostly char and can be used in AFBC Boiler for power generation.
- The nonmagnetic portion of -3mm fraction, mostly spent lime, ash and fine char is discarded.
- Magnetic portion of each fraction is DRI. Of this the +3mm fraction can be used directly for steel making and the finer fraction is either briquetted or collected in bags.
- The kiln waste gases leave at about 850-900°C. These are passed through dust settling chamber where heavier particles settle down due to sudden decrease in velocity of gases. The flue gases are then passed through an After Burning Chamber (ABC) where un-burnt combustibles are burnt by blowing excess air. The temperature of the

after burner chamber, at times, is controlled by water sprays.

- Burnt gases are passed through a down duct into an evaporation cooler where its temperature is brought down and balance dust particles are separated through a pollution control equipment namely ESP / Bag filter/ scrubber. The gas is let off into the atmosphere through stack via ID fan.
- The thermal energy in outgoing flue gases is recovered through Waste Heat Recovery Boiler (WHRB) where sensible heat of the gases is extracted and then let off into the atmosphere after passing through pollution control equipment like ESP, ID fan and stack.

Table2.3: Raw Material Requirement for Existing Sponge Iron Plant

| **Unit** | **Installed Capacity** | **Working Days** | **Annual Production** |
|---|---|---|---|
| Sponge Iron Plant | 4x100 TPD | 300 | 65,598 MT of Sponge Iron |
| Water Requirement | Make Up Water | 300 | 170.84 $m^3$/day |
| Power Requirement | | 300 | 950 KVA |
| Raw Material Requirement | **Raw Material** | **Size (mm)** | **Quantity (MT/Annum)** |
| | Coal | 20 & below | 98397 |
| | Iron ore Pellets | 5-18 | 126669.7 |
| | Dolomite | 2-4 | 2427 |
| | MS Scrap | | 1491.24 |
| | Pig Iron | | 343.42 |
| | Sponge Iron | | 39640.48 |

Process flow diagram of sponge iron plant is given below in **Figure 2.4**. **Raw Material Handling System**

Main Raw materials Iron Ore, Coal & Dolomite are fed to the ground hoppers with the help of Pay Loaders and Tippers and carried by belt conveyors to the Crusher House having Crusher for crushing and Vibrating Screen. Screened and Crushed Material carried out by belt Conveyers to the stock house having 2 days bins for Iron Ore, Feed coal, Dolomite, and Injection coal (Lumps and Fines). Injection Coal is screened in –5 mm. and –18mm sizes and stored in separate bins. The main raw material handling consists of iron ore crusher, vibrating screen and conveyor belts for preparation of raw material as mentioned above.

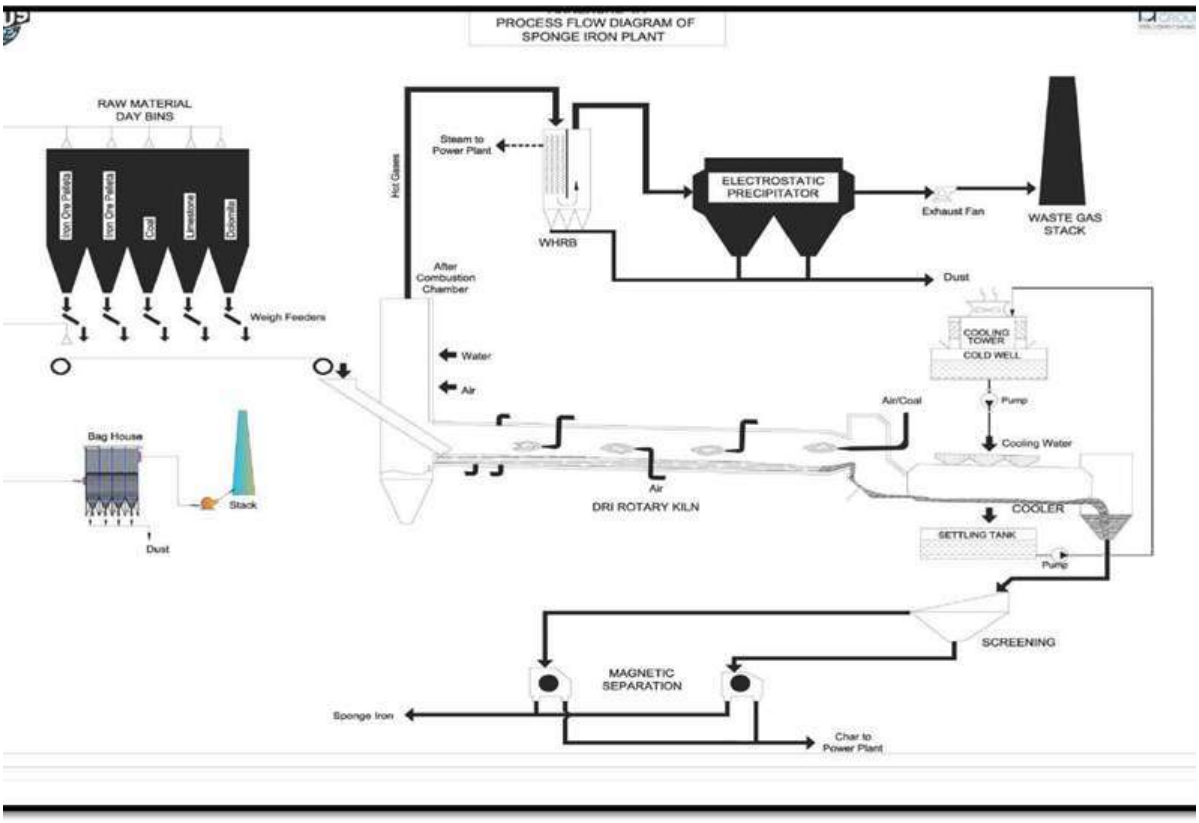



**Figure3: Process flow diagram of Sponge Iron Plant**

**Brief outline for resource utilization**

Resource utilization by optimization has been envisaged from design stage itself for plant related activities. The various resources likely to be used are detailed below.

i) Iron ore
ii) Coal
iii) Dolomite
iv) Water &
v) Power

These resources are effectively used in the plant. Rainwater harvesting is being envisaged on large scale to utilize the rain water and reduce the water requirement from external sources. The effluent generated from various units will be treated and recycled back into system to ensure zero discharge.

### 3.0. Greenhouse Gas Emission

In this section emission of Green House Gases (GHG) has been calculated for the existing Sponge iron plant. GHG emissions have been estimated for the units involves in sponge iron production. GHG emission calculation has been done understanding the IPCC guidelines and following standard methodology of GHG protocol for GHG estimation. Calculations are done majorly for scope 1 where direct use of materials and energy for the proposed plant is considered.

**Figure 4: Material flow for sponge iron plant**

| Section | Technology | Process flow |
|---|---|---|
| **Sponge Ironplant** | Coal Based RotaryKiln Process | Feeding of RM to the Rotary Kiln through feed tube  Cooling in the rotary cooler  Screening  magnetic separation of the product  spongeiron<br>Other outputs - Char |

Table 3.1: Raw Material Requirement

## LAND USE

The total project area is about 25.54 Acres (10.34 Ha.).The area will be used for construction and development of Production lines, Warehouses & Stores, Utilities, R&D, QC, Administrative Blocks and Common facilities etc., apart from the above, internal road sand green belt will be development as per the norms.

This greenbelt will serve as a buffer between the peripheries and the industry, thereby controlling the air emissions and noise levels. The probable land use is given below in Table:

**Table 3.2: Land Use of Plant Layout**

| SL No | TYPE OF USE | Area | |
|---|---|---|---|
| | | Acres | Hectares |
| 1 | Existing Units (4 nos. Kiln of Sponge Iron) | 7.01 | 2.84 |
| 2 | Power Plant with WHRB | 1.62 | 0.66 |
| 3 | Steel Melting Shop | 2.73 | 1.11 |
| 4 | Rolling Mill | 2.5 | 1.01 |
| 5 | Iron Ore Beneficiation Plant | 1.0 | 0.40 |
| 6 | Slag Crushing Plant | 0.8 | 0.32 |
| 7 | Area Tailing Pond | 0.69 | 0.28 |
| 8 | Green Belt | 10.78 | 4.36 |
| 9 | Area for Parking | 0.5 | 0.20 |
| 10 | Vacant land | 3.062 | 1.24 |
| | **Total Land Area** | **30.692** | **12.42** |

**Table3.3: Emission factors of GHG gases from different energy fuel sources**

| Energy sources | kg $CO_2$/kg fuel | kg $CH_4$/kg fuel | kg $N_2O$/kg fuel |
|---|---|---|---|
| **Coal** | 2.42 | 2.82E-04 | 4.00E-05 |
| **Electricity** | 0.43 kg CO2/kwh | 0.0223 kg CH4/kwh | 0.00342kg N2O/kwh |
| **Natural gas** | 2.69 | 2.40E-04 | 5.00E-06 |

**Methodology for Estimationg GHG Emissions**

In this report, the system boundary is gate-to-gate which is from raw materials entering a coke oven to the steel leaving the continuous casting machine (Figure 4). The system boundary in this study includes the Coke oven, sintering, pelletizing, beneficiation, blast furnace, basic oxygen furnace, continuous casting, lime and dolo plant and captive power plant. The major GHG emissions i.e. $CO_2$, $CH_4$, and $N_2O$ have been calculated and reported in the form of $CO_2$-equvalent. Within the defined system boundary, mass and energy inputs for the processes within the boundary are included.

**$CO_2$ Emission:**

The GHG emissions has been estimated based on the mass and energy used in the individual process of steel manufacturing. The mass and energy data used in this study are specified for the major steel manufacturing processes including Coke oven, sintering, pelletizing, beneficiation, blast furnace, basic oxygen furnace, continuous casting, lime and dolo plant and captive power plant. $CO_2$ emissions have been calculated using carbon content data that are expressed on a mass or volume basis. (Equation no_)

Mass basis: $E = A_{f,m} \cdot F_{c,m} \cdot E_f \cdot \frac{44}{12}$ ---- 1

Volume basis: $E = A_{f,v} \cdot F_{c,m} \cdot E_f \cdot \frac{44}{12}$ ---- 2

Equation No. 1 &2: Calculating $CO_2$ emissions using carbon content data that are expressed on a mass or volume basis

Where:

$E$ = Amount of $CO_2$ emitted (metric tons)

$A_{f,v}$ = Volume of fuel consumed (e.g., liters, gallons, $m^3$, etc.)

$A_{f,m}$ = Mass of fuel consumed (e.g., kg, short ton, etc.)

$F_{c,v}$ = Carbon content of fuel on a volume basis (e.g., short tons carbon / gallon)

$F_{c,m}$ = Carbon content of fuel on a mass basis (e.g., short tons carbon / short ton)

$F_{OX}$ = Fraction oxidation factor

*44/12* = The ratio of the molecular weight of carbon to that of $CO_2$

$$E = A \cdot HV_f \cdot F_{c,h} \cdot F_{OX} \cdot \frac{44}{12} \quad \text{---- 3}$$

Equation No. 3: Calculating $CO_2$ emissions from stationary combustion sources using carbon content data expressed on an energy basis

Where:

E = Amount of $CO_2$ emitted (metric tonnes)

A = Mass of fuel consumed (e.g., metric tonnes)

$HV_f$ = Heating value of fuel (e.g., MJ/Kg or thousand Btu/lb)

$F_{c,h}$ = Carbon content of fuel on a heating value basis (e.g., short tons C/million Btu or metric tonnes C/GJ)

$F_{OX}$ = Fraction oxidation factor

44/12 = The ratio of the molecular weight of carbon to that of $CO_2$.

**$CH_4$ and $N_2O$ emissions:**

The $N_2O$ and $CH_4$ emissions from Electricity Generation and Reheating Furnaces can be calculated using Equation 4.

$$E = {}_f \cdot HHV_f \cdot EF \cdot GWP \quad \text{---------- 4}$$

$$E = {}_f \cdot HHV_f \cdot ESEF \cdot GWP \quad \text{---------- 5}$$

Equation :: Calculating $N_2O$ and $CH_4$ emissions

Where:

E = Amount of either $N_2O$ or $CH_4$ emitted (metric tonnes $CO_2$-equivalent)

$A_f$ = Amount of fuel combusted on a mass or volume basis

EF = fuel-specific emission factor

ESEF = Equipment-specific emission factor

GWP = 21 for $CH_4$ or 310 for $N_2O$

**Table 3.4: Carbon contents for materials consumed in process sources**

| **Process Materials** | **Carbon Content*** (kg C/kg) |
|---|---|
| Blast Furnace Gas | 0.17 |
| Charcoal[a] | 0.91 |
| Coal | 0.67[1] |
| Coal tar | 0.62 |
| Coke | 0.83 |
| Coke Oven gas | 0.47 |
| Coking Coal | 0.73 |
| Direct reduced Iron (DRI) | 0.02 |
| Dolomite | 0.13 |
| EAF Carbon Electrodes | 0.82[2] |
| EAF Charge Carbon | 0.83[3] |
| Fuel Oil | 0.86[4] |

| | |
|---|---|
| Gas Coke | 0.83 |
| Hot Briquetted iron | 0.02 |
| Limestone | 0.12 |
| Natural Gas | 0.73 |
| Oxygen Steel Furnace Gas | 0.35 |
| Petroleum Coke | 0.87 |
| Purchased pig Iron | 0.04 |
| Scrap Iron | 0.04 |
| Steel | 0.01 |

**Table 3.5: Typical Values for $CH_4$ & $N_2O$ contents for materials consumed in process sources**

| Fuel | | Lower Heating Value(LHV)/Net Calorific Value (NCV) Basis | | | | Higher Heating Value(HHV)/Gross Calorific Value (GCV) Basis | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | kg GHG / TJ fuel | | kg GHG / ton fuel | | kg GHG / TJ fuel | | kg GHG / ton fuel | |
| | | $CH_4$ | $N_2O$ | $CH_4$ | $N_2O$ | $CH_4$ | $N_2O$ | $CH_4$ | $N_2O$ |
| **Crude oil and** | Crude oil | 3.000 | 0.600 | 0.134 | 0.027 | 2.850 | 0.570 | 0.127 | 0.025 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **derived substances** | Orimulsion | 3.000 | 0.600 | 0.087 | 0.017 | 2.850 | 0.570 | 0.083 | 0.017 |
| | Natural Gas Liquids | 3.000 | 0.600 | 0.140 | 0.028 | 2.850 | 0.570 | 0.133 | 0.027 |
| | Motor Gasoline | 3.000 | 0.600 | 0.140 | 0.028 | 2.850 | 0.570 | 0.133 | 0.027 |
| | Aviation Gasoline | 3.000 | 0.600 | 0.140 | 0.028 | 2.850 | 0.570 | 0.133 | 0.027 |
| | Jet Gasoline | 3.000 | 0.600 | 0.140 | 0.028 | 2.850 | 0.570 | 0.133 | 0.027 |
| | Jet Kerosene | 3.000 | 0.600 | 0.139 | 0.028 | 2.850 | 0.570 | 0.132 | 0.026 |
| | Other Kerosene | 3.000 | 0.600 | 0.138 | 0.028 | 2.850 | 0.570 | 0.131 | 0.026 |
| | Shale oil | 3.000 | 0.600 | 0.120 | 0.024 | 2.850 | 0.570 | 0.114 | 0.023 |
| | Gas/.Diesel oil | 3.000 | 0.600 | 0.136 | 0.027 | 2.850 | 0.570 | 0.129 | 0.026 |
| | Residual Fuel oil | 3.000 | 0.600 | 0.128 | 0.026 | 2.850 | 0.570 | 0.121 | 0.024 |
| | Liquified Petroleum Gases | 1.000 | 0.100 | 0.053 | 0.005 | 0.900 | 0.090 | 0.047 | 0.005 |
| | Ethane | 1.000 | 0.100 | 0.052 | 0.005 | 0.900 | 0.090 | 0.046 | 0.005 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Naphtha | 3.000 | 0.600 | 0.141 | 0.028 | 2.850 | 0.570 | 0.134 | 0.027 |
| | Bitumen | 3.000 | 0.600 | 0.127 | 0.025 | 2.850 | 0.570 | 0.121 | 0.024 |
| | Lubricants | 3.000 | 0.600 | 0.127 | 0.025 | 2.850 | 0.570 | 0.121 | 0.024 |
| | Petroleum coke | 3.000 | 0.600 | 0.103 | 0.021 | 2.850 | 0.570 | 0.098 | 0.020 |
| | Refinery feedstocks | 3.000 | 0.600 | 0.136 | 0.027 | 2.850 | 0.570 | 0.129 | 0.026 |
| | Refinery Gas | 1.000 | 0.100 | 0.055 | 0.006 | 0.900 | 0.090 | 0.050 | 0.005 |
| | Paraffin waxes | 3.000 | 0.600 | 0.127 | 0.025 | 2.850 | 0.570 | 0.121 | 0.024 |
| | White Spirit & SBP | 3.000 | 0.600 | 0.127 | 0.025 | 2.850 | 0.570 | 0.121 | 0.024 |
| | Other petroleum products | 3.000 | 0.600 | 0.127 | 0.025 | 2.850 | 0.570 | 0.121 | 0.024 |
| **Coal and derived products** | Anthracite | 1.000 | 1.500 | 0.028 | 0.042 | 0.950 | 1.425 | 0.027 | 0.040 |
| | Coking coal | 10.000 | 1.500 | 0.297 | 0.045 | 9.500 | 1.425 | 0.282 | 0.042 |
| | Other bituminous coal | 10.000 | 1.500 | 0.272 | 0.041 | 9.500 | 1.425 | 0.258 | 0.039 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Sub-bituminous coal | 10.000 | 1.500 | 0.199 | 0.030 | 9.500 | 1.425 | 0.189 | 0.028 |
| Lignite | 10.000 | 1.500 | 0.125 | 0.019 | 9.500 | 1.425 | 0.119 | 0.018 |
| Oil shale and tar sands | 10.000 | 1.500 | 0.094 | 0.014 | 9.500 | 1.425 | 0.089 | 0.013 |
| Brown coal briquettes | 10.000 | 1.500 | 0.218 | 0.033 | 9.500 | 1.425 | 0.207 | 0.031 |
| Patent fuel | 10.000 | 1.500 | 0.218 | 0.033 | 9.500 | 1.425 | 0.207 | 0.031 |
| Coke oven coke & lignite coke | 10.000 | 1.500 | 0.297 | 0.045 | 9.500 | 1.425 | 0.282 | 0.042 |
| Gas coke | 1.000 | 0.100 | 0.030 | 0.003 | 0.950 | 0.095 | 0.028 | 0.003 |
| Coal tar | 10.000 | 1.500 | 0.295 | 0.044 | 9.500 | 1.425 | 0.280 | 0.042 |
| Gas works gas | 1.000 | 0.100 | 0.043 | 0.004 | 0.900 | 0.090 | 0.039 | 0.004 |
| Coke oven gas | 1.000 | 0.100 | 0.043 | 0.004 | 0.900 | 0.090 | 0.039 | 0.004 |
| Blast furnace gas | 1.000 | 0.100 | 0.003 | 0.000 | 0.900 | 0.090 | 0.002 | 0.000 |
| Oxygen steel furnace gas | 1.000 | 0.100 | 0.008 | 0.001 | 0.900 | 0.090 | 0.007 | 0.001 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Natural Gas** | Natural Gas | 1.000 | 0.100 | 0.053 | 0.005 | 0.900 | 0.090 | 0.051 | 0.005 |
| **Non-biomass waste** | Municipal wastes (non-biomass fraction) | 30.000 | 4.000 | 0.316 | 0.042 | 28.500 | 3.800 | 0.300 | 0.040 |
| | Industrial wastes | 30.000 | 4.000 | N/A | N/A | 28.500 | 3.800 | N/A | N/A |
| | Waste oils | 30.000 | 4.000 | 1.269 | 0.169 | 28.500 | 3.800 | 1.206 | 0.161 |
| **Peat** | Peat | 2.000 | 1.500 | 0.021 | 0.015 | 1.900 | 1.425 | 0.020 | 0.015 |
| **Biomass waste** | Wood/Wood waste | 30.000 | 4.000 | 0.493 | 0.066 | 28.500 | 3.800 | 0.468 | 0.062 |
| | Sulphite lyes (Black liqour) | 3.000 | 2.000 | 0.037 | 0.025 | 2.850 | 1.900 | 0.035 | 0.024 |
| | Other primary solid biomass fuels | 30.000 | 4.000 | 0.366 | 0.049 | 28.500 | 3.800 | 0.348 | 0.046 |
| | Charcoal | 200.000 | 4.000 | 6.211 | 0.124 | 190.000 | 3.800 | 5.900 | 0.118 |
| | Biogasoline | 3.000 | 0.600 | 0.085 | 0.017 | 2.850 | 0.570 | 0.081 | 0.016 |
| | Biodiesels | 3.000 | 0.600 | 0.085 | 0.017 | 2.850 | 0.570 | 0.081 | 0.016 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Other liquid biofuels | 3.000 | 0.600 | 0.087 | 0.017 | 2.850 | 0.570 | 0.082 | 0.016 |
| | Landfill gas | 1.000 | 0.100 | 0.056 | 0.006 | 0.900 | 0.090 | 0.050 | 0.005 |
| | Sludge gas | 1.000 | 0.100 | 0.056 | 0.006 | 0.900 | 0.090 | 0.050 | 0.005 |
| | Other biogas | 1.000 | 0.100 | 0.056 | 0.006 | 0.900 | 0.090 | 0.050 | 0.005 |
| | Municipal wastes (biomass fraction) | 30.000 | 4.000 | 0.366 | 0.049 | 28.500 | 3.800 | 0.348 | 0.046 |

# Chapter-4

## Action plan for Carbon off-setting

### Re-use of Steel Scrap in Basic Oxygen Furnace

Scrap is a term used to describe steel that has generated during the manufacture of steel products. While the term 'scrap' may lead one to believe this is a waste product, it is actually a valuable raw material used in every steelmaking process. In blast furnace (BF) steelmaking, each charge of the basic oxygen furnace, in which carbon carbon-rich pig iron is refined into crude steel, typically contains 8%-10% scrap. Scrap acts as a cooling agent, absorbing excess heat from the exothermic decarbonisation process, and also as a source of iron units. Reuse of scrap in BOF helps reducing greenhouse gas emissions.

**Table4.1: Heating and cooling reactions of BOF**

| Heating Reactions | Cooling Reactions |
|---|---|
| $c + \frac{1}{2} o_2 \rightarrow co$ | $Fe_2O_3 + 3C \rightarrow 2Fe + 3CO$ |
| $co + \frac{1}{2} o_2 \rightarrow co_2$ | |
| $Si + o_2 \rightarrow SiO_2$ | $Fe_2O_3 + 3CO \rightarrow 2Fe + 3CO_2$ |
| $Fe + \frac{1}{2} o_2 \rightarrow FeO$ | |
| $2Mn + o_2 \rightarrow 2MnO$ | |
| $4P + 5o_2 \rightarrow 2P_2O_5$ | |

**Reuse of internal heat for power generation**

The proposed plant is designed for optimum use of the recovered energy of hot off gases from major units such as Blast furnace, Basic oxygen furnace and coke oven plant. A plant is designed to integrate 74 % of the heat generated from coke oven gas to sinter plant, pellet plant & continuous casting machine. Approx. 52 % of the total heat generated from blast furnace will be reused in blast furnace & 20 % of the generated heat will be integrated to sinter plant, pellet plant & continuous casting machine. The surplus gases available in these units will be re-used for power generation. Out of 600 MW, 293 MW power will be generated from internal process heat.

**$CO_2$ capture**

The uses of coal for generation of 600 MW electricity produce approximately 5 MT of $CO_2$ annually. CPP's are one of the major contributors of $CO_2$ emissions in any steel plant. In view to limit the release of $CO_2$ in atmosphere it is necessary to capture $CO_2$. There are several approaches for $CO_2$ capture out of which amine based $CO_2$ absorption systems are the most suitable for combustion based power plants. The amine based $CO_2$ absorption is easy to use and can be retrofitted to existing power plants. Absorption processes are based on thermally regenerable solvents, which have a strong affinity for $CO_2$. They are regenerated at elevated temperature. In view to limit the $CO_2$ release, It is suggested to install amine based $CO_2$ absorption unit at 600 MW CPP.

The equilibrium reactions describing the solution chemistry of $CO_2$ absorption with MEA

$$MEA + H_3O^+ : \mathrm{MEA} + H_2\mathrm{O} \quad \text{(amine protonation)}$$

$$CO_2 + 2H_2O^+ : + H_3O^+ + HCO^{3-} \quad \text{(bicarbonate formation)}$$

$HCO_3^- + H_2O : + H_3O^+ + CO^{2-}_3$ (carbonate formation)

$MEA + HCO_3^- : + \mathrm{MEACO}O^- + H_2O$ (carbamate formation)

$2H_2O : + H_3O^+ + OH^-$ (water hydrolysis)

## Chapter - 5

### Terrestrial Sequestration

Terrestrial sequestration involves the capture and storage of carbon dioxide by plants and the storage of carbon in soil. During photosynthesis, carbon from atmospheric carbon dioxide is transformed into components necessary for plants to live and grow. As part of this process, the carbon present in the atmosphere as carbon dioxide becomes part of the plant: a leaf, stem, root, etc. Long-lived plants like trees might keep the carbon sequestered for a long period of time.

The existing greenbelt sure sequesters some amount of the carbon emitted through then industrial process. The greenbelt is spread over an area of 9.95 acres with total plantation of 6030 consisting of trees and shrubs. As the industry falls under the heavily polluted area, greenbelt needs to be enhanced and more trees are to be planted. Hence more carbon can be sequestered. New trees are suggested for plantation to cover approx. 40% of the total Plant Area.

**Table 5.1: shows the existing greenbelt and its required expansion during the expansion phase:**

| | | |
|---|---|---|
| 1. | Total Area | 35.54 acres |
| 2. | Existing Greenbelt | 9.95 Acres |
| 3. | Existing no.of plants | 6030 |
| 4. | Greenbelt Enhancement | 4.26 Acres |
| 5. | No. of trees to be planted | 2,580 |

## Formula used for determination of Carbon sequestered by Trees

**Step 1: Determine the total green weight of the tree:**

The green weight is the weight of the tree when it is alive. First, you have to calculate the green weight of the above-ground weight as follows:

$W_{above\text{-}ground} = 0.25\ D^2\ H$ (for trees with D<11)
$W_{above\text{-}ground} = 0.15\ D^2\ H$ (for trees with D>11)
$W_{above\text{-}ground}$ = Above-ground weight in pounds
D = Diameter of the trunk in inches
H = Height of the tree in feet

The root system weight is about 20% of the above-ground weight. Therefore, to determine the total green weight of the tree, multiply the above-ground weight by 1.2:

$W_{total\ green\ weight} = 1.2 * W_{above\text{-}ground}$

**Step 2: Determine the dry weight of the tree**
The average tree is 72.5% dry matter and 27.5% moisture. Therefore, to determine the dry weight of the tree, multiply the total green weight of the tree by 72.5%.

$W_{dry\ weight} = 0.725 * W_{total\ green\ weigh}$

**Step 3: Determine the weight of carbon in the tree**
The average carbon content is generally 50% of the tree's dry weight total volume. Therefore, in determining the weight of carbon in the tree, multiply the dry weight of the tree by 50%.

$W_{carbon} = 0.5 * W_{dry\ weight}$

**Step 4: Determine the weight of carbon dioxide sequestered in the tree**
CO2 has one molecule of Carbon and 2 molecules of Oxygen. The atomic weight of Carbon is 12 (u) and the atomic weight of Oxygen is 16 (u). The weight of CO2 in trees is determined by the ratio of CO2 to C is 44/12 = 3.67. Therefore, to determine the weight of carbon dioxide sequestered in the tree, multiply the weight of carbon in the tree by 3.67.

$W_{carbon\text{-}dioxide} = 3.67 * W_{carbon}$

**Selection of the trees is based on**:

1. Tolerance towards pollution.
2. Fast Growth
3. High sequestration potential.
4. Indigenously growing species.
5. No exotic species has been suggested.
6. Average Growth period to be three years.
7. No vulnerable or endangered species has been chosen.

As per the study conducted the total carbon emissions mounts to 75,603 ton for the year 2021-2022. In this respect the sequestered carbon is calculated to be 0.02% approximately. List of existing plant is attached as for >10 years, 5-10 years, < 5 years respectively. Therefore a suitable plan has been suggested for plantation attempting to take this sequestration to the rise of 0.1% approximately in an average period of 3 Years. Plantation plan is attached as Annexure 1. When it comes to sequestration through afforestation, it is the best possibleway to sequester carbon and reap other benefits as well. However sequestration has its limits, plantation within the plant limits the area of plantation and therefore sequestrationis limited. However developing thicker greenbelt outside the plant boundaries around
10-20 m allows more sequestration. Keeping in mind the existing plantation also adds significantly to the sequestration. Maintenance of the Greenbelt is another important aspect that can significantly impact the health of the plants, leading to maximum healthy growth. During construction phase due to excessive dust, a decline in survival rate was observed. It is hence suggested to go for expansion post construction.

# Chapter - 6

## Conclusions

The $CO_2$ emission intensity in Jharkhand Ispat Pvt. Ltd. has been calculated using ISO 14404 which is proposed by world steel Association. The $CO_2$ emission intensity in in Jharkhand Ispat Pvt. Ltd. is in optimum range and not harmful for environment. Still the plant has made a proposed plan to further reduce the $CO_2$ emission intensity. The Indian DRI industry consumes 8.8% of national annual industrial energy use and emits 11% of national annual CO2 emissions. This represents a significant portion of the national contribution in terms of emissions and energy use. it is crucial to carefully examine the DRI industry for energy use and emissions abatement measures. The growing iron and steel industry in India is one of the key sectors to reform in order to meet the country's NDCs to the Paris Agreement, and the anticipated doubling of DRI capacity from 50 MTPA in 2018-19 to 114 MTPA by 2030-31 is further indication of the importance of this sector.

The iron making process is of key focus for reducing energy use, GHG, SOx and PM2.5 emissions. There is a large contribution of NOx emissions from transport at present.

The DRI process metrics suggest that in terms of efficiency, there is a potential for 20-30% improvement on average when considering the best technologies available. This can be brought about by improving the raw material quality, proper selection of materials and process parameters and waste-heat recovery, among others. To improve raw material quality, it is suggested to explore the expansion of domestic beneficiation capacity (particularly for coal) and reduce the import share to bring a gross benefit of up to 5% in GHG emissions and 6% in energy use. Newer and more efficient beneficiation technologies could be adopted to ensure sustainable growth. Land transport using trucks can be reduced in favor of railways to improve transport efficiency and reduce overall emissions by 1-2%. Improving regulations by revising the 12-year old emissions norms and bettering the monitoring framework by inducting CEMS can go a long way in preventing plants from flouting norms without detection and reprehension. Extending the PAT scheme with stricter targets and encouragement of adopting higher productivity, WHR systems and also for fuel switching could be greatly beneficial in accelerating development. Over the next decade, however, considering the broad limitations of raw material quality/availability, technoeconomic uncertainties, etc., the development of a robust and

affordable natural gas network may be of significant potential for reduction in GHG emission from the DRI industry. In addition, capacity building must be taken up early on for accelerated hydrogen steel adoption. By enhancing research and development and deploying pilot production facilities, the overall infrastructure for a hydrogen economy can be stably built for ensured introduction of hydrogen-based steel in the coming decades. The hydrogen economy can revolutionize the industry by reducing GHG emissions by up to 94%.

In conclusion, short-term measures can be taken to increase coal-DRI performance to BAT standards. Over the medium term, natural gas adoption can be explored, whilst a suitable long-term goal is to introduce hydrogen and negate 300 million tonnes of GHG emissions, to enable truly sustainable development. A robust policy must be developed, and relevant stakeholders must be engaged in a timely manner to accelerate the GHG emission of this important industry and thus sustaining the economy over the long term.

# $CO_2$ emissions data submission form for worldsteel sectoral approach

*Please do not change downloaded form

| |
|---|
| Mandatory to fill-in |
| Stainless steel only |
| Fill-in if available |
| Protected calculation |
| Fixed value |

| | |
|---|---|
| Site: | JIPL022 |
| Organization: | JIPL |
| Year(Report period): | 2022 |

## Site structure (the number of operated units)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Coke battery | | BF > 1000 $m^3$ | | Open hearth | | Cold rolling | | A&P lines | |
| Sinter plant | | 100<BF<1000 | | Hot rolling | | HDG lines | | Bright A lines | |
| Pellet plant | | BF < 100 $m^3$ | | Lime kilns | | EG lines | | Batch Annealing | |
| Gas DRI | | BOF shops | | Oxygen plant | | Tining lines | | Argon/Oxy Decarb | |
| Coal DRI | | EAF units | | Power plant | | Smelting Reduction | | Vacuum Oxy Decarb | |

## BASIC information

| | |
|---|---|
| Total coke production (dry t) | |
| Sinter production (t) | |
| Pellet production (t) | |
| Hot metal production (t) | |
| DRI production (t) | 65,598 |
| BOF crude steel production (t) | |
| Open Hearth crude steel production (t) | 0 |
| EAF crude steel production (t) | 0 |
| Carbon crude steel production (t) | 0 |
| Hot rolled steel production (t) | |
| Austenitic stainless steel production (t) | |
| Ferritic stainless steel production (t) | |
| Martensitic stainless steel production (t) | |
| Other stainless steel production (t) | |
| Stainless steel production (t) | 0 |
| **Total Steel Production (t)** | **49,060** |
| Total Ironmaking slag production (t) | |
| Total steelmaking slag production (t) | |
| Granulated Ironmaking slag production (t) | |
| Granulated Steelmaking slag production (t) | |
| Total Granulated slag production (t) | 93,039 |
| Hot rolled stainless steel production (t) | |
| Cold rolled stainless steel production (t) | |
| Iron supply from upstream (t) | |
| Purchased carbon steel scraps (t) | |
| Purchased stainless steel scraps (t) | |
| Home carbon steel scraps (t) | |
| Home stainless steel scraps (t) | |
| Cr-Ni type scraps (%) | |
| Cr type scraps (%) | |
| Burnt lime production (t) | |
| Power generation (MWh) | 18 |
| Data verified by external body | No |

## Electricity grid Information

| Source of information | Energy Equivalent GJ/MWh | Upstream $CO_2$ value t $CO_2$/MWh |
|---|---|---|
| Global average grid mix | 9.800 | 0.504 |
| IEA yearly update global grid mix | 9.800 | 0.476 |
| National or regional regulator mix | | |
| Site power supply contract mix | | |

| | | | Site data | | | | Conversion factors | | Calculation results | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Materals /Energies | Unit | Purchased Procured | Sold Delivered | C content Site measurement t C/unit | Energy Equivalent GJ/unit | Emission Factor t $CO_2$/unit | Upstream $CO_2$ value t $CO_2$/unit | Scope 1 Direct emissions t $CO_2$ | Scope 1.1 emissions t $CO_2$ | Scope 2 emissions t $CO_2$ | Scope 3 emissions t $CO_2$ | Total Energy TJ |
| | Iron ore | dry t | 94,735 | | 0.010 | | 0.037 | | 3,505 | | | - | - |
| | Coking coal | dry t | | | 0.835 | 32.200 | 3.060 | | - | | | - | - |
| | BF injection coal | dry t | | | 0.806 | 31.100 | 2.953 | | - | | | - | - |
| | Sinter/BOF coal | dry t | | | 0.760 | 29.300 | 2.785 | | - | | | - | - |
| | Steam coal | dry t | 74,571 | | 0.672 | 25.900 | 2.462 | | 1,83,594 | | | - | 1,931 |
| | EAF coal | dry t | | | 0.889 | 30.100 | 3.257 | | - | | | - | - |
| | SR/DRI coal | dry t | | | 0.806 | 31.100 | 2.953 | | - | | | - | - |
| | Coke | dry t | | | 0.889 | 30.100 | 3.257 | 0.224 | - | | | - | - |
| | Charcoal | dry t | | 8,330 | | 18.800 | | | - | | | - | - 157 |
| New | Petroleum coke | t | | | 0.850 | 31.935 | 3.115 | | - | | | - | - |
| New | Used plastic | t | | | | 46.000 | 2.416 | | - | | | - | - |
| New | Used tires | t | | | | 35.000 | 2.199 | | - | | | - | - |
| | Heavy oil | $m^3$ | | | | 37.700 | 2.907 | 0.276 | - | | | - | - |
| | Light oil | $m^3$ | | | | 35.100 | 2.601 | 0.247 | - | | | - | - |
| | Kerosene | $m^3$ | | | | 34.700 | 2.481 | 0.247 | - | | | - | - |
| | LPG | t | | | | 47.300 | 2.985 | | - | | | - | - |
| | LNG | k.$m^3$N | | | 0.550 | 35.900 | 2.015 | 0.665 | - | | | - | - |
| | Natural gas | k.$m^3$N | | | 0.550 | 35.900 | 2.015 | 0.000 | - | | | - | - |
| New | Green hydrogen | t | | | | 120.000 | | 0.000 | - | | | - | - |
| New | Blue hydrogen | t | | | | 120.000 | | 1.800 | - | | | - | - |
| New | Grey hydrogen | t | | | | 120.000 | | 19.800 | - | | | - | - |
| New | Fossil free biogas | t | | | 0.751 | 50.400 | | 0.000 | - | | | - | - |
| | Limestone | dry t | | | 0.120 | | 0.440 | | - | | | - | - |
| | Burnt lime | t | | | | 4.500 | | 0.950 | - | | | - | - |
| | Crude dolomite | dry t | 1,815 | | 0.130 | | 0.476 | | 864 | | | - | - |
| | Burnt dolomite | t | | | | 4.500 | | 1.100 | - | | | - | - |
| | Sinter | t | | | | 2.450 | | 0.262 | - | | | - | - |
| | Pellets | t | | | | 2.100 | | 0.137 | - | | | - | - |
| | EAF electrodes | t | | | | | 3.663 | 0.650 | - | | | - | - |
| New | Low carbon iron units | t | | | 0.047 | 20.900 | 0.172 | 1.855 | - | | | - | - |
| | Pig Iron | t | 15,258 | | 0.047 | 20.900 | 0.172 | 1.855 | 2,624 | | | 28,304 | 319 |
| | Cold Iron | t | | | 0.047 | 20.900 | 0.172 | 1.855 | - | | | - | - |
| | Ni pig iron | t | | | 0.005 | | 0.018 | 5.200 | - | | | - | - |
| New | Charcoal based pig iron | t | | | 0.047 | 20.900 | 0.172 | 1.855 | - | | | - | - |
| New | Biomass | t | | | 0.476 | 15.600 | | 0.000 | - | | | - | - |
| | Gas based DRI | t | | | 0.020 | 14.100 | 0.073 | 0.780 | - | | | - | - |
| | Coal based DRI | t | 39,640 | 65,598 | 0.020 | 17.900 | 0.073 | 1.210 | - 1,895 | | | - 31,409 | - 465 |
| New | Low carbon DRI | t | | | 0.020 | 14.100 | 0.073 | 0.780 | - | | | - | - |
| | Ferro-Nickel | t | | | 0.010 | | 0.037 | 8.676 | - | | | - | - |
| | Nickel oxides | t | | | 0.001 | | 0.004 | 20.279 | - | | | - | - |
| | Nickel metal | t | | | 0.001 | | 0.004 | 13.579 | - | | | - | - |
| | Ferro-Chromium | t | | | 0.075 | | 0.275 | 5.987 | - | | | - | - |
| | Molybdenum oxides | t | | | 0.001 | | 0.004 | 6.500 | - | | | - | - |
| | Ferro-Molybdenum | t | | | 0.005 | | 0.018 | 8.500 | - | | | - | - |
| | Ferro-Manganese | t | | | 0.050 | | 0.183 | 2.789 | - | | | - | - |
| New | Ferro-Silicon | t | | | 0.001 | | 0.004 | 4.000 | - | | | - | - |
| New | Silico-Manganese | t | | | 0.005 | | 0.018 | 1.400 | - | | | - | - |
| New | Silicon (Metal) | t | | | 0.001 | | 0.004 | 5.000 | - | | | - | - |
| | Electricity | MWh | 74,066 | | | 9.800 | | 0.504 | - | | 37,329 | | 726 |
| | Steam | t | | | | 3.800 | | 0.195 | - | | - | | - |
| | Oxygen | k.$m^3$N | | | | 6.900 | | 0.355 | - | | | - | - |
| | Nitrogen | k.$m^3$N | | | | 2.000 | | 0.103 | - | | | - | - |
| | Argon | k.$m^3$N | | | | 2.000 | | 0.103 | - | | | - | - |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Coke oven gas | $k.m^3N$ | | | 0.228 | 19.000 | 0.835 | 0.977 | - | - | - | | - |
| | Blast furnace gas | $k.m^3N$ | | | 0.243 | 3.300 | 0.890 | 0.170 | - | - | - | | - |
| | BOF gas | $k.m^3N$ | | | 0.413 | 8.400 | 1.513 | 0.432 | - | - | - | | - |
| New | Waste heat | GJ | | | | 1.000 | | 0.051 | - | | - | | - |
| New | Ethanol | $m^3$ | | | 0.410 | 23.575 | | 1.494 | - | | | - | - |
| New | Methanol | $m^3$ | | | 0.293 | 15.662 | | 1.369 | - | | | - | - |
| New | Ammonia | t | | | | 37.500 | | 1.600 | - | | | - | - |
| | BF slag | t | | 93,039 | | | | 0.550 | - | | | - 51,171 | - |
| | BOF slag | t | | | | | | 0.300 | - | | | - | - |
| New | EAF slag | t | | | | | | 0.300 | - | | | - | - |
| | CO2 to external use | t | | | | | 1.000 | | - | | | - | - |
| New | Permanently sequestered CO | t | | | | | 1.000 | | - | | | - | - |
| | Coal tar | t | | | | 37.000 | 3.389 | | - | | | - | - |
| | Benzole | t | | | | 40.570 | 3.382 | | - | | | - | - |
| | w/o undecided credits | CO2 Intensity | **4.54** | tCO2/tCrudeSteel | Grand Total | **2,22,916** | tCO2 | Sub Total | **1,88,692** | **-** | **37,329** | **- 3,105** | |
| | w/ undecided credits | CO2 Intensity | 3.50 | tCO2/tCrudeSteel | Grand Total | 1,71,745.00 | tCO2 | Sub Total | 1,88,692 | - | 37,329 | - 54,276 | 2,354 |
| | | CI by Slags | - 1.04 | tCO2/tCrudeSteel | Slags | - 51,171.00 | tCO2 | Slags | - | - | - | - 51,171 | |
| | | CI External CO2 | - | tCO2/tCrudeSteel | External CO2 | - | tCO2 | External CO2 | - | - | - | - | |
| | | Sequestered CI | - | tCO2/tCrudeSteel | Sequestered CO2 | - | tCO2 | Sequestered CO2 | - | - | - | - | |
| | | CCU Products | - | tCO2/tCrudeSteel | CCU Products | - | tCO2 | CCU Products | - | - | - | - | |
| | Energy Intensity | | 47.98 | GJ/tCrudeSteel | | | | | | | | | |

***Useful unit conversions***

| | | | | |
|---|---|---|---|---|
| Volume | 1 | scf | 0.026862 | m3N |
| Volume | 1 | gal | 0.003785 | m3 |
| Weight | 1 | lb | 0.453592 | kg |
| Weight | 1 | nt | 0.907184 | mt |
| Energy | 1 | mmBTU | 1.054349 | GJ |
| Energy | 1 | mBTU/scf | 39.251136 | MJ/m3N |
| Energy | 1 | mBTU/nt | 1.162222 | MJ/mt |
| Energy | 1 | BTU/gal | 0.278530 | MJ/m3 |

## GREEN BELT PLANTATION PLAN FOR JIPL AND ITS SEQUESTRATION POTENTIAL

| Common Name | Plant Spieces | Family | Number | Average Height above the ground (feet) | Average Diameter of the trunk (inches) | Weight of the tree above ground (pounds) | Total Weight of the tree (pounds) | Dry weight of the tree (pounds) | Weight of the carbon present (pounds) | Weight of carbon dioxide sequestered (pounds) | Weight of the carbon sequestered (tonne) | Weight of the carbon sequestered (tonne/annum) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **TREES** | | | | | | | | | | | | |
| P | Monoon Longifolium | Annonaceae | 300 | 49 | 20 | 1470000 | 1764000 | 1278900 | 639450 | 2346781.5 | 1066.718864 | 355.5729545 |
| Akashmoni | Acacia auriculiformis | Fabaceae | 150 | 78 | 25 | 1828125 | 2193750 | 1590468.8 | 795234.375 | 2918510.2 | 1326.595526 | 442.1985085 |
| Mimosa | Acacia farnesiana | Fabaceae | 65 | 82 | 18 | 431730 | 518076 | 375605.1 | 187802.55 | 689235.36 | 313.2887993 | 104.4295998 |
| Chiku | Achrassapota | Sapotaceae | 50 | 75 | 20 | 375000 | 450000 | 326250 | 163125 | 598668.75 | 272.1221591 | 90.70738636 |
| | Ailanthus excels | Simaroubaceae | 45 | 65 | 26.3 | 505798.31 | 606957.975 | 440044.53 | 220022.266 | 807481.72 | 367.0371436 | 122.3457145 |
| Siris | Albizia amara | Fabaceae | 50 | 64 | 45 | 1620000 | 1944000 | 1409400 | 704700 | 2586249 | 1175.567727 | 391.8559091 |
| Frywood | Albizia lebbeck | Fabaceae | 45 | 70 | 27 | 574087.5 | 688905 | 499456.13 | 249728.063 | 916501.99 | 416.5918134 | 138.8639378 |
| Karoi | Albizia procera | Fabaceae | 35 | 42 | 54 | 1071630 | 1285956 | 932318.1 | 466159.05 | 1710803.7 | 777.6380516 | 259.2126839 |
| Milkwood | Alstonascholaris | Apocynaceae | 45 | 36 | 12 | 58320 | 69984 | 50738.4 | 25369.2 | 93104.964 | 42.32043818 | 14.10681273 |
| Neem | Azadirachtaindica | Meliaceae | 250 | 55 | 19 | 1240937.5 | 1489125 | 1079615.6 | 539807.813 | 1981094.7 | 900.4975781 | 300.1658594 |
| Bidi leaf | Bauhinia recemosa | Fabaceae | 75 | 16 | 10 | 30000 | 36000 | 26100 | 13050 | 47893.5 | 21.76977273 | 7.256590909 |
| White Orchid | Bauhinia acuminata | Fabaceae | 55 | 7 | 12 | 13860 | 16632 | 12058.2 | 6029.1 | 22126.797 | 10.057635 | 3.352545 |
| Butterfly Tree | Bauhinia purpurea | Fabaceae | 65 | 15 | 6 | 8775 | 10530 | 7634.25 | 3817.125 | 14008.849 | 6.367658523 | 2.122552841 |
| Shisham | Dalbergia sisoo | Fabaceae | 75 | 76 | 70 | 6982500 | 8379000 | 6074775 | 3037387.5 | 11147212 | 5066.914602 | 1688.971534 |
| Mango | Mangifera indica | Anacardiaceae | 200 | 60 | 25 | 1875000 | 2250000 | 1631250 | 815625 | 2993343.8 | 1360.610795 | 453.5369318 |
| Chinaberry | Melia azadirachta | Meliaceae | 50 | 50 | 24 | 360000 | 432000 | 313200 | 156600 | 574722 | 261.2372727 | 87.07909091 |
| Yellow Flame | Peltophorumptero carpum | Fabaceae | 75 | 60 | 35 | 1378125 | 1653750 | 1198968.8 | 599484.375 | 2200107.7 | 1000.048935 | 333.3496449 |
| Manila Tamarind | Pithecellobium ducle | Fabaceae | 65 | 45 | 20 | 292500 | 351000 | 254475 | 127237.5 | 466961.63 | 212.2552841 | 70.75176136 |
| Java Plum | Syzygium cumini | Myrtaceae | 35 | 47 | 25 | 257031.25 | 308437.5 | 223617.19 | 111808.594 | 410337.54 | 186.5170632 | 62.1723544 |
| Tulip Tree | Thespesia populnea | Malvaceae | 45 | 62 | 32 | 714240 | 857088 | 621388.8 | 310694.4 | 1140248.4 | 518.2947491 | 172.7649164 |
| Teak | Gmelina arborea | Lamiaceae | 350 | 100 | 14 | 1715000 | 2058000 | 1492050 | 746025 | 2737911.8 | 1244.505341 | 414.8351136 |
| Indian Bael | Aegle marmelos | Rutaceae | 30 | 26 | 8 | 12480 | 14976 | 10857.6 | 5428.8 | 19923.696 | 9.056225455 | 3.018741818 |
| Banyan | Ficus benghalensis | Moraceae | 35 | 87 | 112 | 9549120 | 11458944 | 8307734.4 | 4153867.2 | 15244693 | 6929.405738 | 2309.801913 |
| | | | 2190 | | | | | | | | 23485.41917 | 7828.473057 |
| Flowering trees | | | | | | | | | | | | |
| Golden Shower | Cassia Fistula | Fabaceae | 75 | 40 | 36 | 972000 | 1166400 | 845640 | 422820 | 1551749.4 | 703.7412245 | 234.5804082 |
| Champak | Michelia champaca | Magnoliaceae | 50 | 85 | 62 | 4084250 | 4901100 | 3553297.5 | 1776648.75 | 6520300.9 | 2957.052568 | 985.6841893 |
| Coral Tree | Erythrina Blakei | Fabaceae | 45 | 65 | 45 | 1480781.3 | 1776937.5 | 1288279.7 | 644139.844 | 2363993.2 | 1072.105772 | 357.3685906 |
| Mango-pine | Barringtonia Acutangula | Lecythidaceae | 50 | 82 | 26 | 692900 | 831480 | 602823 | 301411.5 | 1106180.2 | 501.6690272 | 167.2230091 |
| Yellow elder | Tecoma stans | Bignoniaceae | 40 | 10 | 16 | 25600 | 30720 | 22272 | 11136 | 40869.12 | 18.5347483 | 6.178249433 |
| Bottlebrush | Melaleuca citrina | Myrtaceae | 60 | 25 | 24 | 216000 | 259200 | 187920 | 93960 | 344833.2 | 156.3869388 | 52.12897959 |
| | | | 320 | | | | | | | | 5409.490278 | 1803.163426 |
| | | | | | | | | | | | | 9631.636484 |

# JHARKHAND ISPAT PRIVATE LIMITED

**ADMN. OFFICE** : Near P.N. Bank, Main Road,Ramgarh Cantt.
Dist Ramgarh (Jharkhand) -829 122
**CIN** : U34102UP1991PTC012872
**Telephone** : 06553-226846, Fax:226845
E-mail: jiplramgarh@gmail.com

IS :2830
CM/L - 5406356

**WORKS :**
Vill, & P.O.- Hesla, Argada
Ramgarh Cantt.-829 122
Dist.-Ramgarh (Jharkhand)

Ref. No.....  Date.....

## ENVIRONMENT POLICY

JHARKHAND ISPAT PRIVATE LIMITED (JIPL) is engaged in production of Steel & Steel product is committed towards clean and sustainable environment. The mission of JIPL is to produce Steel & Steel product in an environment friendly manner and is strive to;

- Integrate sound environmental management practices in all the activities.
- Conduct the operations in environmentally responsible manner to minimize pollution and its' impact on environment.
- Comply with applicable legal and other requirements related to environmental aspects of the operations and strive to go beyond. The environmental management cell will be headed by EHS Manager, a well qualified and experienced environment engineer.
- JIPL shall ensure that deviations from this policy and cases of violations/non-compliances of Environment or Forest Laws, if any, shall be reported to the Board of Directors through EHS Manager and shall identify designate responsible person for ensuring compliance with the Environmental Laws and Regulations.
- Conserve energy, and other natural resources, minimize waste generation and promote recovery, recycle and reuse.
- Increase greenery in and around the plant.
- Ensure continual improvement in environmental performance by setting & reviewing objectives & targets.

For and on behalf of
JHARKHAND ISPAT PVT. LTD.

Rajeev Kumar Agarwal

**RAJEEV KUMAR AGARWAL**
**(Director)**
**DIN: 00185959**

# YUGANTAR BHARATI
## ANALYTICAL & ENVIRONMENTAL ENGINEERING LABORATORY

Reaching Out for a Brighter Tomorrow

Accredited by: - Jharkhand State Pollution Control Board (JSPCB)
Certified by : - ISO 9001:2015 & ISO 45001:2018

TC-4032

## Test Certificate

| | | | | | |
|---|---|---|---|---|---|
| ULR (Unique Lab Report) No. | T C 4 0 3 2 2 3 0 0 0 0 0 0 3 5 4 F | | | | |
| Discipline: Chemical | Group: Atmospheric Pollution | | Sample Description: Ambient Air Quality | | |
| Report Release Date | 31st March, 2023 | | Report ID | YBAEEL-230324-143439-A01 | |
| W. Order/ JSPCB App. No. | 15893987 | | Work Order Date | 24.03.2023 | |
| Type of Industry (If any) | Sponge Iron | | Job code/ Ref. no. | YBAEEL/WA/L/A/Mar-23/15 | |
| Report Issue to | M/s Jharkhand Private Limited<br>Village - Hesla, PO - Argada,<br>Dist. – Ramgarh, Jharkhand. | | | | |
| Sampling Period | 28/03/2023 – 29/03/2023 | Mode of sample collection | By YBAEEL Team | | |
| Sampling Protocol | IS:5182 and CPCB Air Manual Volume-1(NAAQM/36/2012-13) | | | | |
| Sampling Locations | A. Near Main Gate | 23°38'57.87"N, 85°27'53.22"E | | | |
| | B. Near ESP Stack | 23°38'55.39"N, 85°27'45.97"E | | | |
| | C. Near Online PM-10 Analyser | 23°38'56.58"N, 85°27'51.72"E | | | |
| Meteorological Cond. of Field | W.C.– Clear | RH % - 42 | Temp. - 32°C | W.D.– NW-SE | |
| Sample receipt Date | 29/03/2023 | Analysis Started on | 29/03/2023 | Analysis completed on | 31/03/2023 |

******Test Results ******

| Parameters | Test Methods | Units | MU % | Sampling Location | | | Limits |
|---|---|---|---|---|---|---|---|
| | | | | Site A | Site B | Site C | |
| Particulate matter ($PM_{10}$) | IS:5182 (P-23) 2006, RA 2017 | µg/m³ | 2.68 | 94.7 | 87.8 | 92.3 | 100 |
| Particulate matter ($PM_{2.5}$) | IS:5182 (P-24) 2019 | µg/m³ | 2.60 | 39.5 | 38.6 | 34.7 | 60 |
| Sulphure Dioxide ($SO_2$) | IS:5182 (P-2) 2001 RA 2017 | µg/m³ | 7.84 | 17.1 | 12.9 | 10.8 | 80 |
| Nitrogen Dioxide ($NO_2$) | IS:5182 (P-6) 2006 RA 2017 | µg/m³ | 4.17 | 34.6 | 28.2 | 26.1 | 80 |

******End of Report******

| | |
|---|---|
| Limit is specified as | Environmental (Protection) Rule – 1986. |
| Abbreviation | MDL : Minimum detection limit, BDL : Below detection limit. |
| Env. Condition of Lab | Laboratory is maintaining, Temperature 27 ± 2°C and Relative Humidity 65 ± 5% in all testing areas as per IS 196:1966 (C). |
| Specific contractual notes | All values are expressed in as unit and results listed refer only to the tested sample and applicable parameter in Lab's Permanent Facility. |
| | This report, in full or in part, shall not be used for advertising or as evidence in any court of law. |
| | This report cannot be reproduced, except when in full, without the written permission of the CEO. |
| | The samples collected shall be destroyed after 7 days from the date of issue of the certificate unless specified otherwise |
| | The liability of the laboratory is limited to the invoiced amount. |
| | All disputes are subjected to the Ranchi Jurisdiction. |
| Remarks | Samples comply with prescribed limit. |

Sample Drawn By – Angad Munda
Tested By – Akash Khalkho (Lab Analyst)

Only CONCERN for
Jharkhand State Pollution Control Board
Application No. 15893987
Allotted Date 24-03-23
Submission Date 31-03-23

| | |
|---|---|
| 31/03/23 | 31/03/23 |
| Verified by | Issued by |
| Sumit Kant Srivastava | Sanjeev Kumar Singh |
| (Sr. Lab Analyst) | (Technical Manager) |

Authorized Signatory
Atmospheric Pollution
Yugantar Bharati Analytical &
Environmental Engineering Laboratory

Annexure - 10

O/C

# JHARKHAND ISPAT PRIVATE LIMITED


**ADMN. OFFICE** : Near P.N. Bank, Main Road, Ramgarh Cantt.
Dist. - Ramgarh (Jharkhand) - 829 122
**CIN** : U34102UP1991PTC012872
**Telephone** : 06553-226846, 224601, Fax : 226845
E-mail : jiplramgarh@gmail.com

IS : 2830
CM/L - 5406356

**WORKS :**
Vill, & P.O.- Hesla, Argada
Dist.- Ramgarh (Jharkhand)
PIN. - 829 101


Ref. No .....

Date.....

**JIPL/072/2023-24**

**14/09/2023**

To,
The Member Secretary,
Jharkhand State Pollution Control Board,
HEC Campus, TA Division Building,
Durwa, Ranchi - 834 004.
Jharkhand

**Sub: Submission of Environmental Statement Report from the period of April 2022 to March 2023 for our Coal based Sponge Iron & M.S. Billet Plant.**

Dear Sir,

With reference to the above subject, we are enclosing herewith the Environmental Statement Report for the period from April 2022 to March 2023 of our Sponge Iron & M.S. Billet plant.

Please find above in order and do the needful.

Thanking you,

Yours faithfully,
For JHARKHANFD ISPAT PVT.LTD.

Manoj Kumar
Manager (Environment)

Encl: As above.

JHARKHAND STATE POLLUTION CONTROL BOARD RANCHI
18/09/2023

CC to: - The Regional Officer, Regional Office, State Pollution Control Board, Hazaribagh (Jharkhand)

**ENVIRONMENTAL STATEMENT**
**Jharkhand Ispat Pvt. Ltd.**
**Period from: April 2022 to March 2023**
**FORM – V**
**PART – A**

| | | |
|---|---|---|
| 1. | Name and address of the Owner / Occupier of the Industry operation or process | Jharkhand Ispat Pvt. Ltd.<br>Occupier name – Sri Ram Chandra Rungta<br>Village & PO – Hesla, Via - Argada<br>Dist. – Ramgarh,<br>Jharkhand – 829101 |
| 2. | Industry Category<br>Primary (S.T.C. Code)<br>Secondary (S.T.C. Code) | Red Category |
| 3. | Production Capacity | Sponge Iron – 4 X 100 TPD<br>M.S. Billet – 240 TPD |
| 4. | Year of Establishment | 2003/2006 |
| 5. | Date of the last Environmental Statement Submitted | 27/06/2022 |

**PART – B**

**WATER AND RAW MATERIAL CONSUMPTION**

**(I) Water consumption in m3/day:**

Process & Cooling : 187.68 m3/day (Sponge Iron)
98.54 m3/day (M.S. Billet)

Domestic : 5.80 m3/day (Sponge Iron)
3.05 m3/day (M.S. Billet)

| Name of Product | Process Water Consumption per Unit of Product Output | |
|---|---|---|
| | During Previous Financial Year (2021-22) | During Current Financial Year (2022-23) |
| Sponge Iron | 0.951 | 0.921 |
| MS Billet | 0.951 | 0.921 |

## (II) RAW MATERIAL CONSUMPTION:

| Name of Raw Material | Name of Product | Consumption of Raw Material Per Unit of Output | |
|---|---|---|---|
| | | During Current Financial Year (2021-22) | During Current Financial Year (2022-23) |
| Coal | Sponge Iron | 1.520 | 1.296 |
| Dolomite | | 0.037 | 0.027 |
| Iron Ore/Iron Ore Pellets | | 1.931 | 1.903 |
| MS scrap | MS Billet | 0.304 | 0.346 |
| Pig Iron | | 0.007 | 0.039 |
| Sponge Iron (I/F) | | 0.808 | 0.786 |

## (III) POWER CONSUPTION (KWH/MT):

| During Previous Financial Year (2021-22) | During Current Financial Year (2022-23) |
|---|---|
| 41.737 KWH/MT of Sponge Iron | 19.657 KWH/MT of Sponge Iron |
| 1453.905 KWH/MT of MS Billet | 1453.533 KWH/MT of MS Billet |

## (IV) TOTAL PRODUCTION (MT):

| Product Name | During Previous Financial Year (2021-22) | During Current Financial Year (2022-23) |
|---|---|---|
| Sponge Iron | 65,598.00 | 74,340.66 |
| MS Billet | 49,060.00 | 39,031.30 |

## PART – C

## DISCHARGED TO ENVIRONMENTAL / UNIT OF OUTPUT

| Pollutants | Quantity of Pollutants Discharged (Mass/Day) | Concentration of Pollutants in Discharge (Mass/Volume) | Percentage of variation from prescribed standard with reasons |
|---|---|---|---|
| (a) Water | • No industrial effluent is generated. In compliance to Zero Liquid Discharge (ZLD), the web camera and flow meter are installed with online monitoring facilities.<br>• The waste water generated from the office toilet and messes are discharged via septic tank and soaks pits. | | |
| (b) Air | • Online continuous emission monitoring system of PM & SO2 are installed with web connectivity with CPCB & SPCB.<br>• Unit has installed Dust handling system with 100 m3 capacity silo to control of fugitive emission from bag filter & ESP discharge points.<br>• Continuous Ambient Air Quality Monitoring System (CAAQMS) PM 10 parameter is installed. | | |

## PART – D

## HAZARDOUS WASTE

(As specified under Hazardous and Other Wastes (Management & Trans boundary Movement) Rules, 2016)

| Hazardous Waste | Total Quantity (Ltrs.) | |
|---|---|---|
| | During Current Financial Year (2021-22) | During Current Financial Year (2022-23) |
| a)From Process | Used gear oil and lubricant are stored in drum and used in different Chain Drive within plant campus.<br><br>Hazardous waste authorization issued vide letter no JSPCB/ HO/RNC/HWM – 1692859 /2019/17, dated 29/06/2019, valid upto 30.09.2022. | Used gear oil and lubricant are stored in drum and used in different Chain Drive within plant campus.<br><br>Hazardous waste authorization issued vide letter no JSPCB/ HO/ RNC/HWM–13308699/2023/22, dated 09/04/2023, valid upto 30.09.2027. |
| (b) From Pollution Control Facilities | Not applicable | Not applicable |

## PART – E

## SOLID WASTE

| | | Total Quantity (MT) | |
|---|---|---|---|
| | | During Previous Financial Year (2021-22) | During Current Financial Year (2022-23) |
| (a) | From Process | | |
| | 1) Dolachar (Coal Chai) | 8330.00 | 88805.00 |
| | 2) Other waste | 93039.23 | 171490.29 |
| (b) | From Pollution Control Facility | Nil | Nil |
| (c) | Quantity recycled or re- utilized within the unit | | |
| | 1) Sold (Coal Chai) | 6337.780 | 64516.780 |
| | 2) Dispose | 93039.23 | 170031.930 |

## PART – F

**Please specify the characterization (in terms of composition and quantum) of hazardous as well as solid wastes and indicate disposal practice adopted for both the categories of wastes.**

- Used gear oil and lubricant are stored in drum and used in different Chain Drive within plant campus.
- Coal Char (Chhai) and other wastes, the solid waste generated in process are being sold at present, the earlier stock of coal char are also being sold as per demand.

## PART – G

**Impact Of The Pollution Control Measures On Conservation Of Natural Resources And Consequently On The Cost Of Production**

- Unit has 4X100 TPD Sponge iron kilns, installed four numbers of ESP attached to each Rotary kiln stack to control stack emission.
- Unit has installed eight numbers of bag filters at various material transfer points of Sponge Iron plant to control fugitive emissions. One fume extraction system (Ventury Scrubber) is installed with Induction Furnace plant.
- Unit has installed Dust/Ash handling system with 100 m3 capacity silo to control of fugitive emission from bag filter & ESP discharge points.
- Unit has installed eighty numbers of water sprinklers at various places within plant premises to control dust emission / fugitive emission from haul roads.
- All conveyor belts are covered with M.S.Plate.
- All raw materials are kept in covered shed.

## PART – H

**Additional Measures/Investments Proposal For Environment Protection Including Abatement Of Pollution**

- Plantation are made at plant site besides the boundary. We are also doing support for plantation in nearby villages during rainy season every year. New plantations are also made every year in the plant during rainy season.
- EC issued vide letter no F.No.J-11011/41/2013-IA.II(I) dated – 07/09/2022.
- The CTE issued vide letter no. JSPCB/HO/RNC/CTE-14198438/2023/1 DT-01/01/2023
- 6 MW Waste Heat Recovery Boiler is installed and operative.

## PART – I

**Any other particulates for improving the quality of environment**

- Unit has installed two numbers of online Continuous Emission Monitoring System (CEMS) for measurement of particulate matter (PM) & $SO_2$.
- The web camera & flow meter has installed with online monitoring facilities.
- Continuous Ambient Air Quality Monitoring System (CAAQMS) PM 10 parameter is installed with online monitoring facilities.
- PM 2.5, SO2 & NOx- CAAQMS Parameter will be installed shortly.
- Unit has installed Telemetry System at One no. of Bore well and piezometer.
- Data of CEMS, Camera & flow meter are continuously updated on CPCB & SPCB server.
- Unit has installed Dust/Ash handling system with 100 m3 capacity silo to control of fugitive emission from bag filter & ESP discharge points.