

HIRA

HIRA FERRO ALLOYS

HFAL/ENV/2025-26/298

DATE : 06.02.2025

To
The Director
Ministry of Environment, Forest and Climate Change
Government of India, Regional Office
Kendriya Paryavaran Bhawan, North Block, Sector-19
Nava Raipur Atal Nagar, Raipur, Chhattisgarh – 492002 India

Subject: Submission of six-monthly compliance report, Dec-2025 of the environmental/ safeguards conditions stipulated in environment clearance letter for the "Expansion of Ferro Alloys Production Unit (Unit II)" at Urla Industrial Area, Village Accholi, Raipur, Chhattisgarh By M/s HIRA Ferro Alloys Limited

Reference: File. No 1A-J-11011/81/2024-1A-II (IND-I) dated 8th March, 2025.

Respected Sir,

We wish to inform you that we have obtained Environment Clearance from MoEF&CC vide File. No. 1A-J-11011/81/2024-1A-II (IND-I) dated 8th March, 2025 for the Project- "Expansion of Ferro Alloys Production Unit (Unit II)" at Urla Industrial Area, Village Accholi, Raipur, Chhattisgarh By M/s HIRA Ferro Alloys Limited.

Further, Consent to Operate for the said project has been obtained from the Chhattisgarh Pollution Control Board vide Ref. No. **10948/TS/CECB/2026 dated 01.01.2026.**

In compliance with the conditions stipulated in the Environmental Clearance, we are hereby submitting the **Six-Monthly Compliance Report** for the period ending **Dec-2025**, along with the necessary annexures, in accordance with the prescribed guidelines of the Ministry of Environment, Forest and Climate Change.

Yours faithfully,
For, M/s HIRA Ferro Alloys Limited

Authorised Signatory

Name : AJAY DUBEY (DIRECTOR)

Mobile No. : 97555 22009

Email ID : ajay.dubey@hiragroup.com

C/c : (1) Member Secretary, Chhattisgarh Environmental Conservation Board Bhawan, North Block, Sector -19, Nava Raipur Atal Nagar, Raipur (C.G.) 492002
(2) Regional Officer, Chhattisgarh Environmental Conservation Board, New Office Building Ring Road No. -02, Tatibandh , Raipur (C.G.).

Hira Ferro Alloys Limited

An ISO 9001:2015, ISO 14001:2015 and OHSAS 18001:2007 certified company

CIN - U27101CT1984PLC005837

Registered office : Plot No. 567-B

Works : Plot No. 490/1, 490/2, 491, 567-B, 568, 553-B, Urla Industrial Complex, Raipur - 492003, Chhattisgarh, India

P: +91 771 4082450-51, F: +91 771 4082452

Corporate Office : Ground Floor, Hira Arcade, Near Bus Stand, Pandri, Raipur-492004, Chhattisgarh, India

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SIX MONTHLY COMPLIANCE REPORT, DECEMBER-2025

“Expansion of Ferro Alloys Production Unit (Unit II)”



at

Urla Industrial Area, Village Accholi, Raipur, Chhattisgarh

Environment Clearance Letter	F. No. 1A-J-11011/81/2024-1A-II (IND-I) dated 8 th March, 2025
Consent to Operate	Renewal of Consent to Operate issued vide ltr. 10948/TS/CECB/2026 dated 01.01.2026 by MS, CECB New raipur Chhattisgarh validity from 01.01.2026 to 31.12.2026.

Project Proponent



M/s HIRA Ferro Alloys Limited

Plot no. 490/1, 491/2, Urla Industrial Area, Raipur, Chhattisgarh

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CHAPTER 1. DATASHEET

Monitoring the Implementation of Environmental Safeguards

Ministry Of Environment & Forest

Monitoring Report

Part – I

Sr. No.	Particulars	Details
1.	Project type: River-valley/ Mining/Industry/Thermal/ Nuclear/ other (specify)	Industrial Project - I
2.	Name of the project	<p>“Expansion of Existing Ferro Alloy Plant” in phase manner by Hira Ferro Alloys Limited (HFAL) Unit II.</p> <p>In the first phase, the production of Ferro alloys will be enhanced by “Forward integration using high-grade Mn ore and other raw material”.</p> <p>In the second phase, it is proposed to install an additional 11 MVA SAF and modification of existing 5 MVA SAF to 7.5 MVA to further expand the production of Ferro alloys.</p> <p>Additionally, 2000 KW / 3000 Kg Ferro Melt Induction Furnace for 750 Ton monthly capacity (9000 TPA) will be installed for melting of Si-Mn/Fe-Mn fines particles which is received from final product of SAF.</p>
3.	Clearance letter (s) / OM no and date	<p>Clearance Letter (s): Amendment in Environmental Clearance (EC) for expansion of Ferro Alloys Production Unit and Captive Power Plant (No Change in Production Capacity only change in raw material Quantity and Material Balance) has been accorded vide letter no: F. No. 1A-J-11011/81/2024-IA-II(IND-I) dated 8th March, 2025 by MoEF&CC.</p> <p>Clearance Letter / MOM: MoEF&CC Minutes of 17th EAC Meeting Industry – 1 Sector Meeting Project -1 Held on 08.12.2025.</p>
4.	Location (a) District (s) (b) State (s) (c) Latitude/ Longitude	<p>Urla Industrial Area, Village Accholi, Tehsil and District Raipur, Chhattisgarh.</p> <p>Raipur Chhattisgarh 21°19'8.28"N, 81°37'2.15"E</p>
5.	Address for correspondence a) address of Concerned Project Chief Engineer	<p>Mr. Ajay Dubey (Director)</p> <p>Plot no. 490/1, 491/2, Urla Industrial Area, Raipur, Chhattisgarh</p>

Sr. No.	Particulars	Details
	(with pin code & telephone/telex/fax numbers) b) Address of Executive Project Engineer/ Manager (with pincode/ fax numbers)	
6.	Salient features a) of the project b) of the environmental management plans	The salient features of the project along with environment management plans are provided in Executive summary as given below in Chapter 2.
7.	Break up of the project area a) Submergence area : forest & non-forest b) Others	The total land area of the plot is 18.735 Ha. Out of the total land, 0.805 ha. was allotted by CSIDC, 0.891 ha. Land was already under possession of HPSL and remaining 17.039 ha. was privately acquired. There is no additional land was procured for the expansion of the unit. The project does not entail submergence of any area, including forest and non-forest land.
8.	Break up of the project affected population with enumeration of those losing houses / dwelling units only agricultural land only, both dwelling units labourers/ artisan a) SC, ST/Adivasis b) Others (Please indicate whether these figures are based on any scientific and systematic survey carried out or only provisional figures, if a survey is carried out give details and years of survey)	There is no project-affected population, as the proposed expansion is being carried out entirely within the existing land already acquired and owned by the company. No additional land acquisition is involved, and therefore no displacement, rehabilitation, or resettlement of any population is required.
9.	Financial details a) Project cost as originally planned and subsequent revised estimates and the year of price reference.	a) The total project cost includes the existing and proposed cost of the project which is estimated as Rs. 183.27 Cr. (Existing: Rs. 125.77 Crores + Proposed: Rs. 57.5 Crores). b) Cost towards Environment management plan Capital cost is

Sr. No.	Particulars	Details				
	b) Allocation made for environmental management plans with item wise and year wise break-up.	857.83 lakhs and recurring cost is 85.28 lakhs/year. Details are as follows:				
		Sr. No.	Component	Description	Capital cost (In Rs)	Operational and Maintenance/ Recurring cost (In Rs/yr)
		1	Air Pollution Control	Installation of new Bag filter, pollution control ID Fan, FD Fan etc.	802.83	80.28
		2	Water Pollution Control	Treatment / Soak Pit/ STP	10	1
		3	Environmental Monitoring	Air Quality/AAQMS	15	1.5
		4	Green Belt	Plantation	15	1.5
		5	Rainwater Harvesting System	Enhancing the existing Rainwater harvesting system in plant	15	1
		Total			857.83 Lacs	85.28 Lacs/year
	c) Benefit cost ratio/	c) 11.84 %				
		d)Yes				
		e) Presently, no additional plant or production machinery has been installed. Only modifications/upgradation of pollution control systems have been carried out to improve environmental performance and ensure regulatory compliance. The actual				

Sr. No.	Particulars	Details
	<p>Internal rate of Return and the year of assessment.</p> <p>d) Whether (c) includes the cost of environmental management as shown in the above.</p> <p>e) Actual expenditure incurred on the project so far.</p> <p>f) Actual expenditure incurred on the environmental management plans so far</p> <p>g) Actual expenditure incurred on the CER/CSR</p>	<p>expense incurred on the project as on date Rs. 3.72 crore.</p> <p>f) Actual expenditure incurred on environment management plan @ Rs. 3.72 crores.</p> <p>g) Actual expenditure incurred on CER/CSR@Rs. 0.37 cr. approx. from April 2025 to December 2025. CER details are enclosed as Annexure – I</p>
10.	<p>Forest land requirement</p> <p>a) The status of approval for diversion of forest land for non-forestry use</p> <p>b) The status of clearing felling</p> <p>c) the status of compensatory afforestation, if any</p> <p>d) Comments on the viability & sustainability of compensatory Programme in the actual field experience.</p>	<p>None of the forest land was diverted for the project. Hence, not applicable.</p>
11.	<p>The status of clear felling in non-forest</p>	<p>The project site falls completely in the premises of Urla Industrial area. Hence, not applicable.</p>

Sr. No.	Particulars	Details
	areas (such as submergence area of reservoir, approach roads), if any with quantitative information.	
12.	Status of construction a) Date of commencement (Actual and/ or planned). b) Date of completion (Actual and/ or planned).	<p>The scope of the present addendum is confined exclusively to revisions arising from changes in raw material consumption quantities and the corresponding material balance, while maintaining the already approved production capacities. No increase in the overall production capacity is there, and there are no changes in the plant layout, configuration, manufacturing process, or process technology as approved under the existing Environmental Clearance. Presently, only air pollution control system has been modified as per the requirement.</p> <p>The expansion activities shall be implemented entirely within the existing plant premises. No additional land acquisition is involved, and there will be no change in the approved land use pattern. Existing infrastructure, utilities, and environmental management systems shall continue to be utilized, and all operations will remain in compliance with the conditions stipulated in the Environmental Clearance and applicable environmental regulations.</p>
13.	Reasons for the delay if the project is yet to start.	Not applicable
14.	Dates of site visits a) The dates on which the project was monitored by the Regional Office on previous occasions, if any. b) Date of site visit for this monitoring report	The recent site inspection has been carried out by Regional Office on 07.02.2025.
15.	Details of correspondence with project authorities for obtaining action plans/ information on status of compliance to safeguards other than the routine letters for	---

Sr. No.	Particulars	Details
	<p>logistic support for site visits.</p> <p>(The first monitoring report may contain the details of all the letters issued so far, but the later reports may cover only the letters issued subsequently).</p>	

CHAPTER 2. EXECUTIVE SUMMARY

Attribute	Description																								
Location	The project site is located at Urla Industrial Area, Village Accholi, Tehsil and District Raipur, Chhattisgarh, a well-developed industrial hub under the jurisdiction of Chhattisgarh State Industrial Development Corporation (CSIDC). The project site is very well connected to National Highway-30 located 1.4 km towards west direction. NH-30 is further connected to the Birgaon Main Road which will also be the approach road for the plant area. Other highways and roads from the project are NH-53 located 8.15 km towards SW & NH-130B at 7.1 km towards SE direction. The nearest railway station from the project is Urkura Railway Station located 4.12 km towards SE direction. The nearest airport from the project is Raipur Airport located about 20 km away from site towards SE direction. The nearest town from the plant is Urla at 0.3 km W.																								
Land Area	The total land area of the plot is 46.294 acres (18.735 Ha.). Out of total plot area of 18.735 Ha, 0.805 Ha land is CSIDC land, 0.891 Ha land is under possession of HFAL and the rest i.e., 17.039 Ha land is private purchased land. Land use and land cover of the site is Industrial land. Proposed expansion is planned within the existing premises only. Hence no additional land is required. Approx. 22,500.5 sqm i.e., 12% of the area is developed as a green area within the premises.																								
Size of Project	<p>The details of production capacity and products post expansion of project under phase I & II is provided below.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="background-color: #f4b084;">Particular</th> <th style="background-color: #f4b084;">Capacity (MTPA) (Post expansion under Phase I & II)</th> </tr> </thead> <tbody> <tr> <td colspan="2">Furnace Configuration</td> </tr> <tr> <td rowspan="3">SAF</td> <td>3 x 11 MVA</td> </tr> <tr> <td>1 x 7.5 MVA</td> </tr> <tr> <td>1 x 7.5 MVA</td> </tr> <tr> <td>Ferro Melt Induction Furnace</td> <td>2000 KW/ 3000 Kg</td> </tr> <tr> <td colspan="2">Production Capacity</td> </tr> <tr> <td>Si-Mn</td> <td>91,800 TPA or</td> </tr> <tr> <td>Fe-Mn</td> <td>1,27,000 TPA or</td> </tr> <tr> <td>Fe-Si</td> <td>41,600 TPA or</td> </tr> <tr> <td>Pig Iron</td> <td>1,33,500 TPA</td> </tr> <tr> <td>Ferro Alloys (SiMn/FeMn) by Ferro-Melt Induction Furnace</td> <td>9000 TPA</td> </tr> <tr> <td>Power Plant</td> <td>20 MW</td> </tr> </tbody> </table> <p>Note: Presently, there has been no increase in production capacity. The plant is being operated strictly in accordance with the latest Renewal of Consent to Operate with approved capacities of 50,000 TPA for Ferro Alloys and 70,000 TPA for Pig Iron, along with a Captive Power Plant (CPP) of 20 MW.</p>	Particular	Capacity (MTPA) (Post expansion under Phase I & II)	Furnace Configuration		SAF	3 x 11 MVA	1 x 7.5 MVA	1 x 7.5 MVA	Ferro Melt Induction Furnace	2000 KW/ 3000 Kg	Production Capacity		Si-Mn	91,800 TPA or	Fe-Mn	1,27,000 TPA or	Fe-Si	41,600 TPA or	Pig Iron	1,33,500 TPA	Ferro Alloys (SiMn/FeMn) by Ferro-Melt Induction Furnace	9000 TPA	Power Plant	20 MW
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Attribute	Description
Screening Category	The Ferro Alloys manufacturing facility is categorized under Major Sector 3(a), Primary Metallurgical Industries – Category 'A', while the Captive Power Plant component falls under Sector 1(d), Thermal Power Plants – Category ‘B’ per the Environmental Impact Assessment Notification dated September 14, 2006.
Plant Cost	Rs. 183.27 Crores.
Estimated & Revised Cost for EMP	Cost towards Environment management plan Capital cost is 8.57 crore and recurring cost is 0.85 crore/annum.
Resource Requirement	
Source of Water & Quantity	The total water requirement of the plant is 200 m ³ /day. HFAL has obtained No Objection Certificate (NOC) from the Chhattisgarh State Industrial Development Corporation (CSIDC) for abstraction of 100 m ³ /day of water and from the Central Ground Water Authority (CGWA) for remaining 100 m ³ /day. Further, HFAL has also entered into an agreement with Alok Ferro Alloys Ltd. for the withdrawal of 100 KLD of treated water from the Nimora Sewage Treatment Plant. .The water balance of plant along with copy of NOC/permission letter and agreement is enclosed as Annexure – II .
Fuel	Total fuel (coal) requirement for the plant operation and captive power plant is 3,32,080 MTPA. The primary fuel includes various grades of Coal and Dolochar, with quantities revised in accordance with updated mass balance and energy optimization.
Power	The total power requirement of the plant is 42 MW, which is met through a 20 MW Captive Power Plant (CPP) and a 100 kW solar power plant. The balance power requirement is met through power drawn from CSPDCL (Chhattisgarh State Power Distribution Company Ltd.), which also includes wheeling of solar energy generated from the 40 MW captive solar power plant of HFAL located at District Bemetara, Chhattisgarh. The existing power infrastructure is adequate to meet the power demand for the current base-case operations. The plant holds a valid power sanction from CSPDCL. In case of emergency or power outage, backup power is provided through operational DG sets of 500 kVA and 125 kVA capacity.
Raw Material	The project site is located near the State Highway and National Highway. The raw material and products can easily be transported. All the raw materials are indigenous raw material except Manganese Ore. It is being imported from other countries at Vishakhapatnam Port and then transported to site through road.

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Wastewater Generation	<p>The total wastewater generation from the production unit is 63 KLD of which cooling tower blowdown is 31 KLD and rejected water is 20 KLD. The effluent generation of 51 KLD is collected in two RCC tanks. In Tank-I, suspended solids settle by gravity, and the clarified water is transferred to Tank-II. Lime and bleaching agents are added for pH control, and air is intermittently supplied for COD and BOD reduction. After treatment, the water is pumped and reused within the plant.</p>																																																																																									

Attribute	Description
	<p>The domestic wastewater generation is 12 KLD which is being treated through 100 KL Sewage Treatment Plant within the project premises and reused for gardening and other purposes. This closed-loop system ensures no effluent discharge outside plant premises, complying with Zero Liquid Discharge (ZLD) norms. PTZ Cameras are installed and connected to CECB and CPCB servers.</p>
<p>Environmental Management System</p>	
<p>Existing Effluent Treatment Plant</p>	<p>Presently, no water is used in the production process of ferro alloys. Water is utilized only for cooling purposes in a closed-loop recirculating system. However, the generated effluent is routed to RCC Tank-I for gravity settling of suspended solids. The overflow is transferred to Tank-II, where chemical dosing for pH control and intermittent aeration for COD and BOD reduction are carried out. The clarified water is entirely reused within the plant for dust suppression, ash conditioning, and greenbelt/plant area sprinkling, thereby eliminating wastewater discharge and conserving fresh water resources. There is no requirement of Effluent Treatment Plant currently.</p>
<p>Flue Gas Emission</p>	<p>Flue gases emission generated in the furnace section are discharged into the atmosphere after passing through pollution control equipment comprising a heat exchanger, ID fan, and bag filter to meet the regulatory standard specified. The ID fan and chimney ensure effective dispersion, maintaining a pollution-free working area and surrounding atmosphere. Further, the flue gas from the existing 20 MW CPP, equipped with a 3-field ESP, is discharged through a 73-meter stack.</p>
<p>Process Gas Emission</p>	<p>The primary air pollutants emitted from the HFAL plant operations consist of particulate matter (PM), along with gaseous pollutants such as SO₂ and NO_x, primarily from the Captive Power Plant (CPP), ferroalloy furnaces, and associated material handling systems. To Control emission, high efficiency Pulse Jet Bag Filter by using PTEF laminated membrane bags, water mist and fogging system have been provided. Similarly in Power plant, 3- Field High Efficiency ESP (Electrostatic Precipitator), DE System in CHP area, Fog and Mist water system on Conveying belt, and Stationary Water sprinkler is provided.</p> <p>Further, In the production of High Carbon Ferro Alloys, semi-closed Submerged Electric Arc Furnaces (SEAF) are utilized, which inherently generate significant quantities of carbon monoxide (CO) gas as a by-product of the high-temperature reduction process. However, in the current configuration, a semi-closed hood system is adopted, wherein the CO gas is allowed to combust to carbon dioxide (CO₂) immediately above the charge level upon contact with atmospheric oxygen. This controlled post-combustion process occurs within the hood zone, effectively preventing the accumulation of unburnt CO gas. Installation of Fourth-hole extraction system in SAF units is under progress, as part of the standard design to ensure the future adaptability, ensuring efficient removal of high-temperature process gases.</p>

Attribute	Description																																								
	<p>Fugitive emissions from raw material handling, crushers, screens, and dolomite/lime conveying systems are controlled through localized bag filters and dust suppression arrangements. Online Continuous Emission Monitoring Systems are installed on all major stacks and connected to CPCB servers, and a Continuous Ambient Air Quality Monitoring Station is linked to the CECB server.</p>																																								
Hazardous Wastes & Disposal Method	<p>During plant operations, various types of solid waste are generated, with slag from ferro alloy and pig iron plant production constituting the majority. Efforts are made to reuse or sell these wastes to recyclers or other industrial users. Moreover, Hazardous waste is also generated, which are resure or sold out to authorized recyclers and to managed in strict compliance with the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2024. Plant has valid Hazardous Waste Authorization issued by CECB.</p> <p>The plant follows a Zero Waste to Landfill approach wherever feasible by promoting recycling, co-processing, and resource recovery. The types and categories of hazardous waste generated during plant operations are identified in accordance with applicable regulations. Details of solid and hazardous waste generation, classification, and disposal methods after amendment are summarized below.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr style="background-color: #f4b084;"> <th>Sr. No</th> <th>Type of waste</th> <th>Cat. & Sch</th> <th>Quantity (MTPA)</th> <th>Disposal Method</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Si-Mn Slag</td> <td>-</td> <td>91,800</td> <td>Used for filling of low-lying area/land filling/ construction purpose/ sell to Cement plant.</td> </tr> <tr> <td>2</td> <td>Fe-Mn Slag</td> <td>-</td> <td>1,01,600</td> <td>Reused as raw material in manufacturing of Silico Manganese/ Sold to Si-Mn Manufacturers.</td> </tr> <tr> <td>3</td> <td>Pig-Iron Slag</td> <td>-</td> <td>1,46,850</td> <td>Used for filling of low-lying area/land filling/ construction purpose/ sell to Cement plant.</td> </tr> <tr> <td>4</td> <td>Fe-Si slag</td> <td>-</td> <td>5,200</td> <td>Used for filling of low-lying area/land filling/ construction purpose/ sell to Cement plant.</td> </tr> <tr> <td>3</td> <td>Bag Filter dust</td> <td>-</td> <td>4,163</td> <td>Sent to Cement plants</td> </tr> <tr> <td>4</td> <td>Used/spent oil</td> <td>5.1 (Sch I)</td> <td>5 KL/A</td> <td>To authorized recycler.</td> </tr> <tr> <td>5</td> <td>Spent oil exchange resin containing toxic metals</td> <td>34.2 (Sch I)</td> <td>0.002 MT/A</td> <td>To be utilized for energy recovery in Boiler for steam or power generation.</td> </tr> </tbody> </table>	Sr. No	Type of waste	Cat. & Sch	Quantity (MTPA)	Disposal Method	1	Si-Mn Slag	-	91,800	Used for filling of low-lying area/land filling/ construction purpose/ sell to Cement plant.	2	Fe-Mn Slag	-	1,01,600	Reused as raw material in manufacturing of Silico Manganese/ Sold to Si-Mn Manufacturers.	3	Pig-Iron Slag	-	1,46,850	Used for filling of low-lying area/land filling/ construction purpose/ sell to Cement plant.	4	Fe-Si slag	-	5,200	Used for filling of low-lying area/land filling/ construction purpose/ sell to Cement plant.	3	Bag Filter dust	-	4,163	Sent to Cement plants	4	Used/spent oil	5.1 (Sch I)	5 KL/A	To authorized recycler.	5	Spent oil exchange resin containing toxic metals	34.2 (Sch I)	0.002 MT/A	To be utilized for energy recovery in Boiler for steam or power generation.
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	6	Empty Barrels/ Containers/liners contaminated with hazardous chemicals/wastes	33.1 (Sch I)	25 Nos.	Sold to Authorized Recyclers															
	7	Fly Ash	-	132986	Sold out to bricks manufactures															
	8	Botton Ash	-	23468	Sold out to bricks manufactures															
Green Belt Development	<p>HFAL has completed 40% greenbelt development (incorporating within and outside the plant premises) of the total project plot area. A total area of approximately 22,500.5 sqm, accounting for about 12% of the total plot area, has been developed as greenbelt within the plant premises. This internal greenbelt is strategically distributed along the plant periphery, internal roads, open spaces, and near major emission-generating units to act as a primary barrier for attenuation of air pollutants, noise reduction, and microclimate moderation. In addition, an area of approximately 52,609 sqm, constituting about 28% of the total plot area, has been developed as greenbelt outside the plant premises. The external greenbelt land has been allotted by Nagar Palika Nigam Birgaon at multiple locations, namely Urla Muktidham, Achholi Muktidham, Rawabhata Muktidham, and other Government land at Urkura. These off-site greenbelt locations supplement the on-site plantation and contribute to regional ecological improvement and pollution mitigation.</p> <p>As part of the plantation programme, approximately 6,310 trees have been planted within the plant premises, while about 13,350 trees have been planted outside the premises, taking the total plantation to nearly 19,660 trees. Planting has been carried out in a multi-tier pattern comprising trees, shrubs, and ground cover to enhance pollutant interception efficiency and ecological stability. The species selected for plantation include native, fast-growing, evergreen, and pollution-tolerant varieties with dense and broad canopies. Emphasis has been placed on species possessing hairy, rough, or waxy leaf surfaces, which are known to be effective in trapping and adsorbing particulate matter (PM10 and PM2.5), thereby reducing its re-suspension and dispersion into the ambient air.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="background-color: #f2f2f2;">S. No.</th> <th style="background-color: #f2f2f2;">Location of Plantation</th> <th style="background-color: #f2f2f2;">Plantation Area (Sqm)</th> <th style="background-color: #f2f2f2;">Percentage (%)</th> <th style="background-color: #f2f2f2;">Trees Planted (Nos)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Inside Premises</td> <td>22,500.5</td> <td>12</td> <td>6310</td> </tr> <tr> <td>2</td> <td>Outside Premises</td> <td>52,609</td> <td>28</td> <td>13350</td> </tr> </tbody> </table>					S. No.	Location of Plantation	Plantation Area (Sqm)	Percentage (%)	Trees Planted (Nos)	1	Inside Premises	22,500.5	12	6310	2	Outside Premises	52,609	28	13350
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2	Outside Premises	52,609	28	13350																

Attribute	Description			
	Total	75109.5	40	19660
Environmental Management Plan				
Water Environment	<p>The plant has an integrated water management system comprising make-up water supply, DM water loop, recirculating cooling towers, dry Coolers, domestic pipelines, and, operating under a Zero Liquid Discharge (ZLD) regime with no discharge outside the plant boundary.</p> <p>Industrial wastewater generated from DM plant regeneration, softener backwash, and cooling-tower blow-down is collected and treated through neutralization using lime and bleaching agents, followed by air scouring and sedimentation for reduction of COD, BOD, and suspended solids.</p> <p>Domestic sewage is treated in a 100 KLD Sewage Treatment Plant (STP) employing preliminary, primary, biological, and tertiary treatment processes, ensuring complete reuse and compliance with ZLD requirements.</p>			
Air Environment	<p>The primary air pollutants emitted from the HFAL plant operations consist of particulate matter (PM), along with gaseous pollutants such as SO₂ and NO_x, primarily from the Captive Power Plant (CPP), ferroalloy furnaces, and associated material handling systems. To Control emission, high efficiency Pulse Jet Bag Filter by using PTEF laminated membrane bags, water mist and fogging system have been provided. Similarly in Power plant, 3- Field High Efficiency ESP (Electrostatic Precipitator), DE System in CHP area, Fog and Mist water system on Conveying belt, and Stationary Water sprinkler is provided.</p> <p>Further, In the production of High Carbon Ferro Alloys, semi-closed Submerged Electric Arc Furnaces (SEAF) are utilized, which inherently generate significant quantities of carbon monoxide (CO) gas as a by-product of the high-temperature reduction process. However, in the current configuration, a semi-closed hood system is adopted, wherein the CO gas is allowed to combust to carbon dioxide (CO₂) immediately above the charge level upon contact with atmospheric oxygen. This controlled post-combustion process occurs within the hood zone, effectively preventing the accumulation of unburnt CO gas. Installation of Fourth-hole extraction system in SAF units is under progress, as part of the standard design to ensure the future adaptability, ensuring efficient removal of high-temperature process gases.</p> <p>Fugitive emissions are controlled through localized bag filters and dust suppression systems, and air quality is monitored through online CEMS connected to CPCB servers and an ambient air quality monitoring station linked to the CECB server.</p>			
Noise	Noise will primarily be generated from process equipment such as Submerged			

Attribute	Description
Environment	<p>Electric Arc Furnaces (SAF – 5 MVA, 7.5 MVA, 2 x11 MVA), AFBC Boiler (90 TPH), Turbine (20 MW), bag filters / ESP systems, cooling towers, ID/FD fans, air compressors, material-handling conveyors, and intermittent DG sets (for emergency only). Vehicular movement for raw-material delivery and product dispatch will also contribute marginally. Since the facility lies in an established industrial estate, these impacts will remain localized within the premises, and attenuated significantly by the 10 m peripheral greenbelt and masonry boundary wall.</p> <p>Further, Noise control measures include the use of silencers on equipment, provision of earmuffs to workers, regular maintenance of machinery, and development of green buffer zones to minimize noise impact. Only properly certified, tested, and calibrated equipment is be used. DG sets with inbuilt acoustic enclosures were installed and operated only during emergency conditions.</p>

CHAPTER 3. POINT-WISE COMPLIANCE OF THE ENVIRONMENTAL CONDITIONS

The below Compliance of environmental conditions is in respect of the expansion of Ferro Alloys Production Unit.

Table 2.1: Compliance of Environmental Conditions given in Part A- Specific Conditions for Metallurgical Industries (Ferrous and Non-Ferrous)

S.No.	Environmental Conditions	Compliances
1	This Environmental clearance is granted subject to final outcome of Hon'ble supreme court of India, Hon'ble High court, Hon'ble NGT and any other court of Law, if any as may be applicable to this project	The condition is noted and accepted. The Project Proponent undertakes to abide by the final outcome of any proceedings before the Hon'ble Supreme Court of India, Hon'ble High Court, Hon'ble National Green Tribunal (NGT), or any other court of law, as applicable. Complied.
2	The project proponent shall comply with all the environmental protection measures and safeguards proposed in the documents submitted to the Ministry. All the recommendations made in the EIA/EMP in respect of environmental management, and risk mitigation measures relating to the project shall be implemented.	The Project Proponent is being complied with and shall continue to comply with all environmental protection measures and safeguards as proposed in the documents submitted to the Ministry. All recommendations of the approved EIA/EMP relating to environmental management and risk mitigation measures are being implemented. Being Complied.
3	The project proponent shall utilize modern technologies for capturing carbon emission and shall also develop adequate carbon sink/ carbon sequestration resources with an aim to meet the carbon neutrality mission in a time bound manner. The implementation report shall be submitted to the IRO, MoEF&CC in this regard.	The configuration of the Ferro Alloys production unit demonstrates lower environmental impacts compared to the base case due to the implementation of a combination of energy efficiency measures, cleaner energy integration, process optimization, and carbon sequestration initiatives, as established through the Life Cycle Assessment (LCA) results. <ul style="list-style-type: none"> • Improved Energy Mix: About 38% of electricity demand is met through solar power, which is a zero-emission source under LCA. This significantly reduces Scope-2 emissions and overall global warming potential (GWP) by minimizing dependence on coal-based grid power. • Optimized Captive Power Generation: Improved operation of the captive power plant has reduced specific energy consumption (kWh/tonne) compared to the base case, resulting in lower fuel use and reduced Scope-1 CO₂ emissions from coal

		<p>and reject coal combustion.</p> <ul style="list-style-type: none"> • Enhanced Process Efficiency: Upgraded furnace efficiency, optimized raw-material charging, and better heat utilization have lowered fuel requirements and process-related emissions, along with associated upstream emissions. • Reduced Scope-3 Emissions: Optimization of raw-material handling and transportation has reduced fuel consumption in logistics, leading to lower Scope-3 emissions, particularly affecting global warming, acidification, and toxicity impacts. • Plantation-Based Carbon Sequestration: Plantation of approximately 19,660 trees within and outside the premises provides annual carbon sequestration, partially offsetting residual emissions from operations. • Overall Life-Cycle Benefit: On a cradle-to-gate basis, the combined effect of renewable energy use, energy efficiency, logistics optimization, and plantation results in lower life-cycle environmental impacts per tonne of product in the proposed configuration compared to the base case. <p>The copy of LCA is enclosed as Annexure III.</p> <p>Complied</p>
4	<p>In pursuance to MoEF&CC OMs dated 31st October,2019 & 30th December,2019 issued in compliance of the order of Hon 'ble NGT in OA No.1038/2018 dated 19th August,2019, the compliance of all the condition applicable to CEPI areas shall be implemented as per the submitted plan.</p>	<p>The compliance of all conditions applicable to CEPI areas has been implemented in accordance with the plan submitted in the EIA/EMP report. The details of compliance are provided below.</p> <ul style="list-style-type: none"> • There has been no fresh establishment, and no alteration or modification has been undertaken in the main furnace. • The bag filter system is being augmented by adding additional filter bags to enhance particulate matter removal efficiency.. • Ferro Alloys unit has modified pollution control system to achieve emission from 50 mg/ Nm3 to 30 mg / Nm3. • The air-to-cloth ratio in the gas cleaning plant for stack emission control is being

		<p>maintained within the range of 1.2 to 1.1.</p> <ul style="list-style-type: none"> • All existing filter bags are being replaced with PTEF Membrane Laminated Fabrics (best upgraded) to improve dust capture and operational performance. The detailed are provided in Annexure XI. • Adequate number of water sprinklers has been provided into the raw material handling system, including the ground hopper and conveyor systems. The photographs of water sprinklers is enclosed as Annexure XXI. • Transportation of raw materials and finished products is presently carried out exclusively through road transport, as other modes of transportation are not feasible presently. • The total water requirement on the full potential of plant is 200 KLD. The cooling tower blow down from unit will be recycled for dust suppression and water sprinkling. Additionally, Dry Cooler has been installed in recirculation manner in Ferro Alloys Unit. • Approximately 5 KL per annum of waste/used oil is generated from ladle heating and machinery lubrication activities. The waste oil is collected and stored in covered HDPE drums placed in a designated, impervious storage area and will be given to approved vendors/authorized recyclers and also waste oil is reused in co-processing. <p>Being Complied</p>
5	<p>Urla village is at 0.3 km towards West, Birgaon at 0.7 km in East and Rawabhata at 1.5 km in East of the project site along with other sensitive areas within the study area of the project site. Proponent shall take appropriate environmental safeguard measures to minimise the impact on the habitation of the local. The project proponent needs to strengthen green belt all around in plant area to reduce the dust pollution. The PP shall also include some of these locations in its environment monitoring programme.</p>	<p>The nearest village i.e., Urla Village is located at 0.3 km, W. Village is located in upwind direction. These habitations will experience transient exposure to fugitive dust or low-level stack emissions during calm meteorological periods or under low wind dispersion.</p> <p>However, considering the sensitivity of the area, all environmental protection measures are already adopted in the plant like Electrostatic Precipitators (ESP), multiple bag filters, water fogging systems, and mist cannons. The captive power plant is also equipped with a 3-field Electrostatic Precipitators (ESP) for treatment of flue gas generated which further discharged through the installed stack.</p>

		<p>Plantation and heightened Boundary wall have been developed within and across the plant boundary to eliminate/reduce impact on the sensitivity area near the plant location. Further, the nearby sensitive locations is also considered for environmental monitoring for the project unit.</p> <p>Being Complied</p>
6	<p>There are water bodies reported within the study area of the project site. A robust and foolproof Drainage Conservation scheme to protect the natural drainage and its flow parameters; along with Soil conservation scheme and multiple Erosion control measures shall be implemented.</p>	<p>The project site is not located in the vicinity of any water body. The nearest water body is the Kharun River, situated at a distance of approximately 3.1 km from the project site.</p> <p>Not Applicable</p>
7	<p>The total freshwater requirement for the complete project will be 200 KLD. Water is proposed to be sourced through Ground Water and CSIDC supply. PP shall obtain necessary water permission from the Competent Authority in this regard as applicable.</p>	<p>The total water requirement of the plant is 200 m³/day. HFAL has obtained No Objection Certificate (NOC) from the Chhattisgarh State Industrial Development Corporation (CSIDC) for abstraction of 100 m³/day of water and from the Central Ground Water Authority (CGWA) for remaining 100 m³/day. Further, HFAL has also entered into an agreement with Alok Ferro Alloys Ltd. for the withdrawal of 100 KLD of treated water from the Nimora Sewage Treatment Plant.</p> <p>The CSIDC water availability certificate and CGWA NOC & Agreement is enclosed as Annexure II.</p> <p>Complied.</p>
8	<p>PP shall implement a project specific AQMP (Air Quality Management Plan) and undertake stringent measures to minimize the levels of PM 10 and PM 2.5. PP shall also commission adequate number of mobile trucks mounted Fog/Mist type of water sprinklers in the surrounding villages/school also on a periodic basis.</p>	<p>The Project Proponent has undertaken and implemented a project-specific Ambient Air Quality (AAQ) Management Plan to effectively minimize the levels of PM10 and PM2.5. This includes installation and proper operation of air pollution control devices such as electrostatic precipitators (ESP), bag filters, regular water sprinkling on roads and material handling areas, control of fugitive emissions through closed operations and enclosures, paving of internal roads, and development of green belt/plantation within and along the project boundary. Further, below are the mitigation measures implemented to minimize the levels of PM 10 and PM 2.5.</p> <ul style="list-style-type: none"> All SEAFs stack is fitted with Pulse jet Bag filter and CPP stacks is fitted with - 3 -field ESPs achieving ≥ 99.9 % dust

		<p>removal.</p> <ul style="list-style-type: none"> • Fogging, DFDS (Dry Fog Dust Suppression System), and mist cannons are deployed in all ,material conveying system, loading and storage areas, mechanized road sweeping minimizes dust resuspension. • Quarterly foliage washing of greenbelt trees with treated STP water restores photosynthetic efficiency. • Enclosed conveyors, paved yards, and covered stockpiles reduce off-site dust drift. <p>Also, vehicle movement is regulated through enforcement of speed limits and permitting only PUC-certified vehicles. Further, regular ambient air quality monitoring is carried out by the unit, and a Continuous Ambient Air Quality Monitoring Station (CAAQMS) has been installed to ensure continuous tracking and compliance with prescribed standards. Furthermore, the species selected for plantation include native, fast-growing, and evergreen varieties with high foliage density and strong pollution attenuation potential. Emphasis is given to hairy-leaf species which are effective in capturing particulate matter (PM), thus reducing its propagation in the ambient air.</p> <p>Further, the unit has deployed a dedicated water tanker for regular and periodic water sprinkling on the nearest approach roads and in surrounding villages. This measure is undertaken to suppress dust, minimize fugitive dust emissions arising from vehicular movement, and improve ambient air quality in the nearby habitations.</p> <p>Being Complied.</p>
9	<p>Three tier Green Belt shall be developed and maintained in atleast 40% of the project area, of adequate width and tree density shall not be less than 2500 per ha. Survival rate of green belt developed shall be monitored on periodic basis to ensure that damaged plants are</p>	<p>The project has developed 40 % of greenbelt w.r.t to total project Area. Out of total greenbelt area, approx. 22,500.5 sqm i.e., 12% of the area is developed within the project premises and 52,609 sqm i.e., 28% of the total plot area</p>

	replaced with new plants in the subsequent years. PP shall also develop greenbelt in the form of shelter belt comprising of total of 6 rows of 2x2m plantation with tall trees & broad leaves with thick canopy along with windshield inside the plant premises to act as green barrier for air pollution & noise levels towards sensitive areas nearby project site. PP shall maximize greenbelt development within the plant premises to the extent possible. An action plan detailing the proposed greenbelt plan, including timelines and specific commitments shall prepared and implemented. Compliance status in this regard, shall be submitted concerned Regional office of the MOEF&CC.	is developed outside the project premises. The outside land for the plantation has been allotted by Nagar Palika Nigam Birgoan at different locations i.e., Urla Muktidham, Achholi Muktidham, Rawabhata Muktidham and Other Govt. Land Urkura. Approx. 6310 nos. of trees have been planted inside the plant premises and approx. 13350 Nos. of trees have been planted outside the premises.
10	The PP shall undertake plantation, in compliance to MoEFCC OM dated 24.07.2024, in the earmarked 33% or 40% greenbelt area, as the case may be, as a part of tree plantation campaign ‘Ek Ped Mee Ke Neem’ campaign and the details of the same shall be uploaded on MeriLiFE portal at (https:// merilife.nic.in)	<p>More than 80 % survival rate maintained through annual replantation and compost enrichment. Green belt of approximate width ranges from 40 m to 160 m has been developed all along the boundary of the premises, which acts as a buffer for dust, noise, and air pollutants. The plantation includes a diverse mix of flora, comprising majority of different species i.e., Azadirachta indica (Neem), Terminalia arjuna (Arjun), Syzygium cumini (Jamun), Saraca asoca (Ashok), Delonix regia (Gulmohar), Bougainvillea glabra. of trees and plants, carefully selected and developed within the premises and along the boundary to enhance ecological balance and improve the overall environmental quality.</p> <p>The physical verification monitoring and evaluation of plantation report is enclosed as Annexure IV.</p> <p>Complied</p>
11	All the commitments made towards socio-economic development of the nearby villages shall be satisfactorily implemented. The action plan based on the social impact assessment study of the project as per the EMP in accordance to the Ministry ‘s OM dated 30.9.2020 amounting to Rs. 1.15 Crores and Recurring of Rs 0.015 Crores shall be strictly implemented and progress shall be submitted regularly to the Regional Office of MoEF&CC.	It is proposed to spend INR 1.15 Crores on CER activities in the time span of 3 years from the issuance of Environmental Clearance. HFAL is committed to implement facilities for improvement of infrastructural facilities for the local people in the field of Environmental and Medical. HFAL has implemented the following activities as part of their CER initiatives for the community development.
12	The project proponent shall undertake village adoption programme, as committed, and prepare and implement the action plan to develop them into a model village, in consultation with the State Administration.	<ul style="list-style-type: none"> ▪ Green belt development and boundary wall white washing & painting work at Achholi Muktidham ▪ Greenbelt development at Urla Muktidham sitting arrangement under CSR

		<ul style="list-style-type: none"> ▪ Greenbelt development and white washing & painting work at Rawabhata Muktidham ▪ Greenbelt development at Urkura site on allotted govt. Land. ▪ Greenbelt development at Birgaov Muktidham ▪ Achholi Sheetla Talab_Pacharikaran and Gaharikaran ▪ Shulabh Shouchalay by HIRA group ▪ Aakanksha lions school for mentally handicapped under HIRA CSR foundation. ▪ Cancer screening van BALCO hospital under HIRA CSR foundation ▪ English education project for primary and middle school-step up for India under HIRA CSR foundation ▪ F-95 advance physiotherapy & research centre (a unit of HIRA CSR foundation) ▪ Old age home gomchi (Maa Godawari Anand Vridhashram) under HIRA CSR foundation <p>The details and photographs along with details of expense made is provided in Annexure I.</p> <p>Being Complied</p>
13	PP shall install CO sensors with alarm at strategic locations in the plant.	<p>The unit has initiated the procurement of Carbon Monoxide (CO) sensors with audible and visual alarm systems at strategic locations across the plant for continuous monitoring and safety. The same shall be installed in due course. The work order copy is enclosed as Annexure XXVIII.</p> <p>Being Complied</p>
14	The PP shall ensure compliance of OM dated 14-01-2025 regarding streamlining the implementation of GST 702 and GSR dated 12-11-24 through which project requiring prior EC were exempted from requirement of CTE.	<p>The Project Proponent has ensured compliance with the OM dated 14.01.2025, under which the said project with prior Environmental Clearance is exempted from the requirement of Consent to Establish (CTE).</p> <p>Complied.</p>

Table 2.2: Compliance of Environmental Conditions given in Part B- Standard Conditions for Metallurgical Industries (ferrous and non-ferrous)

S.No	Environmental Condition	Compliances
1. Statutory Compliances		
1.1	The Environment	The Project Proponent acknowledges that the EC is granted under

	<p>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.</p>	<p>the EIA Notification, 2006 and its amendments and does not substitute any other statutory approvals. All applicable permissions, consents, and compliances under relevant Acts and Rules has been obtained separately.</p> <p>Being Complied.</p>
1.2	<p>This Environmental clearance is granted subject to final outcome of Hon'ble supreme court of India Hon'ble NGT and other Court of Law, if any, as may be applicable to this project.</p>	<p>The condition is noted and accepted. The Project Proponent undertakes to abide by the final outcome of any proceedings before the Hon'ble Supreme Court of India, Hon'ble High Court, Hon'ble National Green Tribunal (NGT), or any other court of law, as applicable.</p> <p>Complied</p>
2. Air Quality Monitoring and Preservation		
2.1	<p>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 (CAAQMS)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</p>	<p>In line with regulatory requirements, the Unit has installed a 24x7 Online Continuous Emission Monitoring System (OCEMS) to all major stacks i.e. Submerged Arc Furnace (SAF) and Captive Power Plant (CPP) to monitor stack emissions and a Continuous Ambient Air Quality Monitoring Station (CAAQMS) to monitor ambient air quality parameters across the project premises.</p> <p>The data generated through AAQ and OCEMS monitoring is reviewed quarterly and forms the basis for adaptive environmental planning, reporting to statutory authorities, and continuous improvement under ISO 14001 EMS protocols.</p> <p>Online Continuous Emission Monitoring System (OCEMS) is connected to both CECB and CPCB online servers whereas Continuous Ambient Air Quality Monitoring system (CAAQMS) is connected to CECB server to ensure ongoing compliance and real-time data visibility. These systems are regularly calibrated as per the equipment supplier's specifications through laboratories recognized under the Environment (Protection) Act, 1986, or NABL-accredited laboratories to ensure accuracy and reliability of the monitoring data. The photographs of installed OCEMS and</p>

	supplier specification through labs recognized under Environment (Protection) Act, 1986 or NABL accredited laboratories.	CAAQMS is enclosed as Annexure V. Being Complied.
2.2	The project proponent shall carryout Continuous Ambient Air Quality monitoring for common/criterion parameters relevant to the main pollutants released (e.g. PM10 and PM2.5 in reference to PM emission, and SO2 and NOx in reference to SO2 and NOx emissions) within and outside the plant area covering upwind and downwind directions.	A Continuous Ambient Air Quality Monitoring Station (CAAQMS) has been installed to monitor ambient air quality parameters across the project premises and connected to CECB server. Further, the ambient air quality monitoring is conducted for main pollutants (e.g. PM10 and PM2.5 in reference to PM emission, and SO2 and NOx in reference to SO2 and NOx emissions) within and outside the plant area covering upwind and downwind directions. The ambient air quality monitoring report is as Annexure VI. Being Complied
2.3	The project proponent shall monitor fugitive emissions in the plant premises at least once in every quarter though laboratories recognized under Environment (protection)Act,1986 or NABL accredited laboratories.	The unit has conducted monitoring of fugitive emissions within the plant premises through NABL-accredited laboratory. The monitoring report is enclosed as Annexure VI. Being Complied
2.4	Sampling facility at process stacks and at quenching towers shall be provided as per CPCB guidelines for manual monitoring of emissions.	The Unit has provided sampling facilities at process stacks in accordance with CPCB guidelines to enable manual monitoring of emissions. These facilities ensure accurate collection of samples for periodic analysis and verification of compliance with the prescribed emission standards. The photograph of sampling facility at process stack is provided below.

		 <p>Complied</p>
2.5	<p>Appropriate Air Pollution Control (APC) system shall be provided for all the dust generating points including fugitive dust from all vulnerable sources, so as to comply prescribed stack emission and fugitive emission standards.</p>	<p>The Unit has implemented a comprehensive Air Pollution Control (APC) strategy to manage and minimize emissions from all dust-generating sources within the plant. For point sources, such as process stacks, suitable APC systems i.e., ESP, bag filters, mist cannons, dry gas cleaning units, ID & FD Fans, Pipes, , Pulse Jet, Dust Collector have been installed and are operated regularly to capture particulate matter and control gaseous emissions in compliance with the prescribed standards. The technical specifications of Bag filters and ESP are attached as Annexure VII.</p> <p>Fugitive dust emissions from material handling, storage yards, transportation, and other vulnerable areas are controlled through multiple measures. These include regular water sprinkling on roads and open areas, covering of raw material and product storage, use of closed conveyors and transfer points, and maintenance of proper operational practices. Additionally, green belts and tree plantations around the plant boundary act as natural barriers to further reduce dust dispersion. Fugitive emission monitoring reports are attached as Annexure VI.</p> <p>Periodic inspection, maintenance, and monitoring of all APC</p>

		<p>systems are carried out to ensure their efficiency. Emissions from both point and fugitive sources are regularly measured, and corrective actions are taken immediately if any deviations from standards are observed. The photographs of Air Pollution Control System installed at the premises is enclosed as Annexure VIII.</p> <p>Being Complied</p>
2.6	<p>The project proponent shall provide leakage detection and mechanized bag cleaning facilities for better maintenance of bags.</p>	<p>The unit has opted the following methods for better maintenance of bags.</p> <ul style="list-style-type: none"> • Pneumatic conveying system for bag cleaning. • Regular monitoring is being carried out by Maintenance Team. • Sufficient spare inventory of filter bags, solenoid valves, mist nozzles, and pulse control modules is maintained on-site. • Preventive maintenance schedules are implemented for baghouses, ESP, fogging system, Water sprinklers and mist cannons to ensure consistent APCS uptime. <p>Being Complied</p>
2.7	<p>Sufficient number of mobile or stationery vacuum cleaners shall be provided to clean plant roads, shop floors, regularly.</p>	<p>The unit has provided outdoor machine floor sweeper at the premises for road cleaning of the premises. Further, the shop floors and other project premises area is being cleaned manually. The photographs of the cleaning conducted at the premises is provided below.</p> <div style="display: flex; flex-wrap: wrap;">     </div> <p>Complied</p>
2.8	<p>Ensure covered transportation and conveying of raw material to prevent spillage and dust generation. The</p>	<p>The unit has ensured covered transportation and conveying of raw materials to prevent spillage and dust generation. The leakage proof truck dumpers are being used for carrying coal and other raw materials and cover with tarpaulin sheet to avoid fugitive emissions generated from the transportation of raw materials by</p>

	project proponent use leak proof trucks/dumpers carrying coal and other raw materials and cover them with tarpaulin.	road. The photographs of covered transportation and conveying of raw material is enclosed as Annexure IX . Being Complied
2.9	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.	Iron ore fines, coal and coke fines, lime fines, and other process fines collected from pollution control devices and vacuum cleaning systems are stored in one ton gunny bags and post briquetted/agglomerated, these will be further reused within the manufacturing process. Any surplus material, if generated, is handled through sealed containers for interim storage and transfer, including external sale where applicable. No outdoor piling of fines is practiced. Regular and periodic cleaning, along with routine housekeeping, is carried out to ensure effective material recovery, prevent fugitive dust emissions, and maintain a clean and environmentally safe working environment. Being complied
2.10	The project proponent shall provide primary and secondary fume extraction system at all heat treatment furnaces.	Installation of Fourth-hole extraction system in SAF units is under progress, as part of the standard design to ensure the future adaptability, ensuring efficient removal of high-temperature process gases. The system shall provide to capture high-temperature process fumes from furnaces through a dedicated fourth hole in the furnace roof. The extracted gases shall be conveyed through refractory-lined and water-cooled ducts to high-efficiency air pollution control devices i.e. bag filters, after which the cleaned gases are discharged through an adequately designed stack. Inlet suction ducts are attached to the furnace hood and connected to the bag house through a heavy-duty ID fan. The flue gases pass through an air-cooling heat exchanger to reduce their temperature before entering the bag house. Complied
2.11	Wind shelter fence and chemical spraying shall be provided on the raw material stock piles.	The unit does not maintain any raw material piles within the premises. Raw materials are fed into the ground hopper through dumpers and pay loaders and are subsequently conveyed to storage bunkers via a belt conveyor system. Separate storage bunkers are provided in the stock house for different raw materials, which are fed through reversible conveyors. Not Applicable
2.12	Design the ventilation system for adequate air	A suitable ventilation system has been provided to ensure adequate air changes in all tunnels and motor houses, in line with

	changes as per prevailing norms for all tunnels, motor houses, Oil Cellars.	prevailing industrial safety and ventilation norms. The system is designed to maintain acceptable levels of temperature, humidity, and air quality by effective removal of heat, fumes, and dust generated during operation. Both natural and mechanical ventilation arrangements have been incorporated, wherever applicable, to ensure continuous fresh air circulation and a safe working environment for personnel. Complied
2.13	Pollution control system in the plant shall be provided as per the CREP Guidelines of CPCB.	CREP Guidelines of CPCB is not applicable for Ferrous Alloys Plant. Not Applicable
2.14	The project proponent shall adopt the Clean Air practices like mechanical collectors, wet scrubbers, fabrics (bag houses), electrostatic precipitators, combustion systems (thermal oxidizers), condensers, absorbers, adsorbers, and biological degradation. Controlling emissions related to transportation shall include emission controls on vehicles as well as use of cleaner fuels. Sufficient numbers of additional tuck mounted Fog /mist water cannons shall be procured and operated regularly inside the project premises and also in the surrounding villages to suspended dust in the atmosphere.	The primary air pollutants emitted from the HFAL plant operations consist of particulate matter (PM), along with gaseous pollutants such as SO ₂ and NO _x , primarily from the Captive Power Plant (CPP), ferroalloy furnaces, and associated material handling systems. To Control emission, high efficiency Pulse Jet Bag Filter by using PTFE laminated membrane bags, water mist and fogging system have been provided. Similarly in Power plant, 3- Field High Efficiency ESP (Electrostatic Precipitator), DE System in CHP area, Fog and Mist water system on Conveying belt, and Stationary Water sprinkler is provided. The unit has implemented Clean Air practices to control emissions from all dust-generating source high-efficiency Electrostatic Precipitators (ESP), multiple bag filters, water fogging systems, and mist cannons are installed and operated regularly to meet prescribed emission standards. Further, 3-field Electrostatic Precipitators (ESP) has been provided for Captive Power Plant discharging flue gas through the installed stack. Fugitive emissions from raw material handling, dolomite/lime conveying, coal crushers, and screens are controlled through localized bag filters. Dust suppression is further ensured through a network of strategically placed fixed sprinklers, mobile mist cannon units, and fogging systems at crushers, belt conveyors, and furnace areas. These systems collectively minimize ambient dust levels and protect workers' health. Regular inspection, maintenance, and monitoring of implemented measures are carried out, and corrective actions are taken promptly to ensure compliance. Being Complied
2.15	Bag filters shall be cleaned regularly and efficiency of bag filter system shall be monitored at regular intervals.	The unit ensures regular and systematic cleaning of bag filters through pulse-jet/mechanized cleaning systems to prevent dust accumulation and maintain optimal filtration efficiency. A preventive maintenance schedule is followed, including periodic inspection of filter bags, cages, hoppers, and ducting for wear,

		<p>leakage, or damage.</p> <p>The efficiency of the bag filter system is monitored at regular intervals by checking pressure drop across the filters, stack emission levels, and overall system performance.</p> <p>Periodic stack monitoring is carried out through approved methods and NABL-accredited laboratories to ensure compliance with prescribed emission norms. Any deviation observed is immediately addressed by timely repair or replacement of filter bags and corrective operational measures. The performance monitoring report of Bag Filters is enclosed as Annexure X.</p> <p>Being Complied</p>
2.16	<p>Water Sprinklers /Water mist system shall be installed near raw material yards, operational unit and other strategic locations to control fugitive emissions from the plant.</p>	<p>The unit has implemented comprehensive dust suppression measures across raw material handling areas. Mobile and overhead water sprinklers are provided at raw material feeding and unloading points to control fugitive emissions. A closed dry fog dust suppression system is installed at all conveyor transfer points for effective control of fine particulates.</p> <p>In addition, 65 mobile sprinklers and mist cannon units have been deployed along with overhead sprinklers in raw material unloading areas. A dedicated mist cannon system is also installed at the Coal Handling Plant (CHP) for localized suppression of fine particulate matter.</p> <p>Further strengthening these measures, new additional water sprinklers will be integrated into the raw material handling system, including ground hoppers and conveyors. These initiatives ensure effective dust control, improved housekeeping, and minimization of air pollution within the plant premises. The sample photographs of water sprinklers working within the premises is enclosed as Annexure XXI.</p> <p>Complied</p>
2.17	<p>The particulate matter emissions from the process stacks shall be less than 30 mg /Nm³ and measures shall be undertaken as per the submitted action plan Efficient Air monitoring equipment shall be installed.</p>	<p>The unit ensures that particulate matter emissions from all process stacks are maintained below 30 mg/Nm³ through the installation and proper operation of efficient Air Pollution Control systems as per the approved action plan. Suitable air monitoring equipment is installed, and regular stack monitoring is carried out to verify compliance with the prescribed emission limits. Corrective measures are implemented immediately in case of any deviation.</p> <p>The detailed action plan for the pollution control system to achieve emissions below 30 mg/nm³ is enclosed as Annexure XI.</p> <p>Being Complied</p>

2.18	<p>Following additional arrangements to control fugitive dust shall be provided;</p> <p>a. Fog /Mist Sprinklers at all on bulk raw material storage area (at the transfer points) like Iron Ore, Coal and for Fly Ash and similar solid waste storage areas.</p> <p>b. Proper covered vehicle shall be used while transport of materials.</p> <p>c. Wheel washing mechanism shall be provided in entry and exit gates with complete recirculation system.</p>	<ul style="list-style-type: none"> • Closed Dry Fog Dust Suppression System: A closed dry fog dust suppression system has been installed at all conveyor transfer and material discharge points to effectively control dust generation. The system generates ultra-fine water droplets that agglomerate with dust particles and suppress them at the source without wetting the material or affecting process efficiency. The dry fog system operates within an enclosed arrangement to prevent fugitive dust escape and is interlocked with the conveyor operation to ensure continuous dust control during material transfer. Regular inspection and maintenance of the system are carried out to ensure consistent and efficient performance. • A dedicated mist cannon system is also installed at the Coal Handling Plant (CHP) for localized suppression of fine particulate matter. • Transportations of Materials: All internal roads are of concrete and well maintained. Repairing work required, if any, is carried out immediately. No dust problem arises within the factory premises due to transportation. All transportation vehicles carry/ will carry a valid PUC (Pollution under Control) Certificate. • Wheel Washing Mechanism: Wheel washing mechanisms with a complete water recirculation system are provided at both the entry and exit gates to prevent track-out of mud and dust is under process. The system will operate in a closed loop with sedimentation and filtration, ensuring efficient reuse of water and zero discharge. <p>Being Complied</p>
<p>3. Air Quality Monitoring and Preservation In case of Ferro Alloys Plants</p>		
3.1	<p>Briquetting and Jigging plant shall be installed in Ferro Alloys Plant.</p>	<p>Briquetting and Jigging plant are implemented in Ferro Alloys Plant. The details of Jigging Plant is mentioned below.</p> <ul style="list-style-type: none"> • Jigging Plant Capacity – 10 T /Hrs. • Jigging Machines - 3.5 T x 2 + 3 T x 1 • Jaw Crusher (Jaw) Primary – 2 Nos. – 15 T • Jaw Crusher (Jaw) Secondary – Roller Crusher – 10 T <p>The photographs of Jigging Plant is provided below:</p>



		 <p>Complied.</p>
3.2	<p>The PP shall minimize the evaporation losses in jigging operation to less than 10% using suitable advanced process.</p>	<p>The unit has taken the various steps for Minimization of Evaporation Losses in Jigging Operations as provided below.</p> <ul style="list-style-type: none"> • Covered and Enclosed Jigging Units: Jigging operations are conducted in covered, enclosed, and well-maintained units to minimize direct exposure of water surfaces to sunlight and wind, which are primary contributors to evaporation losses. • Closed-Loop Water Circulation System: Process water is circulated through an optimized closed-loop system, ensuring maximum reuse of water within the jigging operation and significantly reducing the need for fresh water makeup. This also limits open water surface areas exposed to the atmosphere. • Optimized Operational Scheduling: Jigging activities are scheduled to avoid peak ambient temperature periods, particularly during mid-day hours, thereby reducing evaporation rates and conserving water. • Regular Monitoring and Control: Continuous monitoring of water consumption, recycling efficiency, and losses is carried out. Evaporation losses are assessed periodically to ensure they remain within the permissible limit of less than 10%. • Preventive Maintenance and Leak Control: Regular inspection, preventive maintenance of jigging equipment, pipelines, and tanks, and prompt repair of any leakages are ensured to prevent avoidable water losses

		<p>and improve overall water use efficiency.</p> <ul style="list-style-type: none"> • Good Housekeeping Practices: Proper housekeeping, including cleaning of spillage and maintaining optimal water levels in jigging units, is followed to further minimize unnecessary exposure and loss of water. <p>Complied</p>
3.3	The 4th hole extraction system shall be provided in the Sub Merged Act Furnaces and EAF.	<p>Installation of Fourth-hole extraction system in SAF units is under progress, as part of the standard design to ensure the future adaptability, ensuring efficient removal of high-temperature process gases. The system shall provide to capture high-temperature process fumes from furnaces through a dedicated fourth hole in the furnace roof. The extracted gases shall be conveyed through refractory-lined and water-cooled ducts to high-efficiency air pollution control devices i.e. bag filters , after which the cleaned gases are discharged through an adequately designed stack.</p> <p>Complied.</p>
3.4	Industry is going to use silica quartz in large quantities and going to produce Silico Manganese and Ferro alloy steel. Therefore, it is necessary to control silica/ quartz exposures at production Departments, not only emission as per Indian Factories Act. The permissible limit for silica /quartz be within 10 mg/m ³ for total dust as per Indian Factories Act. Therefore, it is recommended to monitor personal and area exposures for silica quartz dust in the process plants.	<p>The unit is being carried out periodic personal and area monitoring of silica/quartz dust through NABL-accredited laboratories to ensure that exposure levels remain within the permissible limit of 10 mg/m³ for total dust as stipulated under the Indian Factories Act. Monitoring records will be maintained systematically, and appropriate corrective measures shall be undertaken wherever required to ensure continued compliance and safeguard occupational health. The monitoring report for silica/quartz sample in total dust ferro production unit is enclosed as Annexure XXII.</p> <p>Complied</p>
3.5	During operational phase at Captive power plant, Action Plan to monitor coke/coal dust exposures in different process plants using personnel and area	<p>The unit has conducted the study to monitor and to assess the coal dust concentration in breathing zone of workers exposed in CHP area with recommendation of control measures for the same. The study concluded that coal dust concentration found to be in TLV norms and also confirmed that DE system is working properly where no dust emission was observed from chimney and nearby areas. Further, the unit has also conducted comprehensive</p>

	air samplers and to compare with permissible limits as per Indian Factories Act, 1948, shall be implemented.	industrial hygiene survey to identify the exposure on person working due to the production unit. The report for both the studies is enclosed as Annexure XXIII . Complied
3.6	The coal dust should be monitored at coal unloading, crushing, furnace areas and should be within 2 mg/m ³ , respirable dust fraction containing less than 5% quartz as per Indian Factories Act, 1948.	The coal dust is monitored at multiple coal handling areas including coal yard, conveyers and hoopers. The monitoring report of last 3 months for the coal dust is enclosed as Annexure XII . Complied
4. Water Quality Monitoring and Preservation		
4.1	The project proponent shall install 24x7 continuous effluent monitoring system with respect to standards prescribed in Environment (Protection) Rules 1986 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 recognized under Environment (Protection) Act, 1986 or NABL accredited laboratories.	The unit generates industrial wastewater majorly during the below process <ul style="list-style-type: none"> • Softener Regeneration • Cooling Tower Blow-down • DM Plant Regeneration and Backwash <p>Effluent generated from the above sources is first collected in a neutralization pit, where chemical dosing is carried out based on sample analysis along with air scouring to ensure effective mixing and pH correction. The treated water is then routed to sedimentation tanks for settling of suspended solids. The clarified water is subsequently reused within the plant for dust suppression, road sprinkling, and ash conditioning, ensuring efficient water conservation and zero discharge. As there is no continuous effluent discharge, continuous online effluent monitoring is not required.</p> <p>However, flow meters have already been installed to measure and record the quantity of industrial effluent generated and reused. The reuse system is operated and maintained properly to ensure efficient water management and compliance with applicable environmental norms. The photographs installed flowmeter is enclosed as Annexure XIII.</p> Complied
4.2	The project proponent shall monitor regularly ground water quality at least twice a year (pre and post monsoon) at sufficient number of piezometers/	The ground water quality report for the project unit is enclosed as Annexure XXIV .

	<p>sampling wells in the plant and adjacent areas through labs recognized under Environment (Protection) Act, 1986 and NABL accredited laboratories.</p>	
4.3	<p>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.</p>	<p>Garland drains along with adequately designed catch pits have been constructed within the plant premises to effectively intercept, collect, and channel surface runoff. These systems facilitate the settling and trapping of suspended solids, thereby preventing runoff material from leaving the plant area. Strategically located catch pits ensure effective removal of sediments and contaminants from runoff, ensuring that no contaminated water is discharged outside the premises. This arrangement supports efficient housekeeping practices and provides effective protection of the surrounding environment.</p> <p>Being Complied</p>
4.4	<p>Water meters shall be provided at the inlet to all units processes in the steel plants.</p>	<p>There is no steel plant operated within the premises.</p> <p>Not Applicable</p>
4.5	<p>The project proponent shall make efforts to minimise water consumption in the steel plant complex by segregation of used water, practicing cascade use and by recycling treated water.</p>	<p>There is no steel plant operated within the premises.</p> <p>Not Applicable</p>
4.6	<p>The proposed project shall be designed as Zero Liquid Discharge Plant. ETP shall be installed and there shall be no discharge of effluent from the plant. Domestic effluent shall be treated in Sewage Treatment Plant. Suitable measures shall be adopted for sewage water handling to ensure no contamination of any kind of water body.</p>	<p>The unit generates industrial wastewater majorly during the below process</p> <ul style="list-style-type: none"> • Softener Regeneration • Cooling Tower Blow-down • DM Plant Regeneration and Backwash <p>Effluent generated from the above sources is first collected in a neutralization pit, where chemical dosing is carried out based on sample analysis along with air scouring to ensure effective mixing and pH correction. The treated water is then routed to sedimentation tanks for settling of suspended solids. The clarified water is subsequently reused within the plant for dust suppression,</p>

		<p>road sprinkling, and ash conditioning, ensuring efficient water conservation and zero discharge. As there is no continuous effluent discharge, continuous online effluent monitoring is not required.</p> <p>Further, the unit has an operational Sewage Treatment plant with capacity of 100 KL inside the plant premises. The domestic wastewater is being treated through existing STP.</p> <p>The plant follows Zero Liquid Discharge process and there is no effluent discharge outside the plant premises.</p> <p>Considering all the above, it is ensured that appropriate measures for sewage water handling have been implemented, and no contamination of any surface or groundwater bodies shall occur.</p> <p>Complied</p>
4.7	<p>All stockyards shall have impervious flooring and shall be equipped with water spray system for dust suppression. Stock yards shall also have garland drains and catch pits to trap the run off material and shall be implemented as per the action plan submitted in EIA/EMP report.</p>	<p>All stockpiles within the unit are stored on a properly designed concrete platform to prevent soil contamination and material loss. Further, the unit has implemented comprehensive dust suppression measures across raw material handling areas. Mobile and overhead sprinklers are provided at feeding and unloading points, while a closed dry fog system is installed at all conveyor transfer points. Additionally, 65 mobile sprinklers and mist cannons, along with a dedicated mist cannon at the Coal Handling Plant (CHP), are deployed. Further, sprinklers covering ground hoppers and conveyors ensure effective dust control, improved housekeeping, and minimization of fugitive emissions within the plant premises.</p> <p>Garland drains along with adequately designed catch pits have been constructed within the plant premises to effectively intercept, collect, and channel surface runoff.</p> <p>Complied</p>
4.8	<p>Rain water harvesting shall be implemented to recharge/harvest water as per the action plan submitted in EIA/EMP report.</p>	<p>The unit has already constructed 7 Nos. of Rainwater Harvesting pit in which Approx. 43305 KL/year water is being recharge into the ground water through injection well through horizontal connected pipe with “V” wire filter Unit.</p> <p>Further, during rainy season, out of total Quantum of available Runoff (Cum/Year), 60 % (64957 cum) of water is lost due to evaporation/runoff and soil absorption and minimum of 43305 Cum/Year of assumed Quality of water can be recharged into the ground water source.</p> <p>The photographs of rainwater harvesting pit within the premises is</p>

		<p>provided below.</p>   <p>Complied</p>
4.9	<p>Air Cooled condensors shall be used in the captive power plant.</p>	<p>Air Cooled Condenser (ACC) system has been installed in the captive power plant to condense turbine exhaust steam without using cooling water. Exhaust steam passes through finned tube bundles, where axial flow fans use ambient air to remove heat and condense the steam. The condensate is collected and reused as boiler feedwater.</p> <p>Air cooled condensors significantly reduces water consumption, eliminates cooling tower blowdown, prevents thermal discharge to water bodies, and supports ZLD and environmental compliance, making the power plant environmentally sustainable.</p> <p>Complied</p>
<p>5. Noise Monitoring and Prevention</p>		
5.1	<p>Noise pollution shall be monitored as per the prescribed Noise Pollution (Regulation and Control) Rules, 2000 and amendments thereof, and report in this regard shall be submitted to Regional</p>	<p>The noise pollution has been monitored as per Noise Pollution (Regulation and Control) Rules, 2000 and amendments. The noise monitoring reports is enclosed as Annexure XIV.</p> <p>Being complied</p>

	Officer of the Ministry as a part of six monthly compliance report.	
5.2	The ambient noise levels should conform to the standards prescribed under E(P)A Rules, 1986 viz. 75 dB(A) during day time and 70 dB(A) during night time.	<p>The ambient noise levels have been monitored through NABL accredited laboratory in line with the standards prescribed under EPA Rules, 1986. All the ambient noise monitoring results are found within the prescribed limits.</p> <p>The noise monitoring report is enclosed as Annexure XIV.</p> <p>Being complied</p>
5.3	PP shall identify extreme hot areas through heat stress survey as well as noise monitoring within process plants to ensure that workers not exposed above 90 dBA levels as per Factories Act, 1948.	<p>The unit has conducted comprehensive industrial hygiene survey to monitor and to assess the respirable dust concentration, noise level, Heat stress, Gas Chemicals, Illumination in the working environment and to further identify the potential hazard and risk arising from work place. The study has suggested the recommended measures to make the environment congenial, conducive and comfortable for the employees. The copy of the report is enclosed as Annexure XXIII.</p> <p>Complied</p>
6. Energy Conservation Measures		
6.1	Provide solar power generation on roof tops of buildings, for solar light system for all common areas, street lights, parking around project area and maintain the same regularly.	<p>The unit has installed 100 KW ground mounted solar power plant to cater the power requirement of the unit with 20 KW Captive Power Plant. Also, HFAL has commissioned 40 MW Captive Solar Power plant at District – Bemetara Chhattisgarh which is operational since March 2023. Further, the unit is being introducing other sustainable measures related to energy conservation across the project unit area.</p> <p>Being Complied</p>
6.2	Provide LED lights in their offices and residential areas.	<p>The unit has provided LED lights across the project premises including office areas and open areas within the facility. The sample photographs of LED is provided below.</p>

		 <p>Complied</p>
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7. Waste Management

<p>7.1</p>	<p>Oil Collection pits shall be provided in oil cellars to collect and reuse/recycle spilled oil.</p>	<p>Waste Oil generated from the unit is collected through dedicated drain ports and is safely transferred to leak-proof steel drums. The drums are properly labeled and stored in a designated, covered area with an impervious floor to prevent any leakage or spillage. The collected waste oil is subsequently reused or disposed of through authorized recyclers, in compliance with applicable environmental regulations.</p> <p>5 KL /Annum of Waste/used oil used for heating ladle and machinery lubrication and will be stored in covered HDPE Drums and will be given to approved vendors/authorized recyclers and also waste oil is reused in co-processing.</p> <p>The photograph for waste oil storage at the premises is provided</p>
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		<p>below.</p>  <p>Complied</p>
7.2	<p>Kitchen waste shall be composted or converted to biogas for further use.</p>	<p>Biodegradable waste generated within the unit, including kitchen and other organic waste, is segregated at source and collected separately. The collected biodegradable waste is scientifically managed through vermi-composting, resulting in the generation of nutrient-rich compost, which is reused for greenbelt development and landscaping within the premises. All activities related to the collection, handling, and disposal of biodegradable waste are carried out in compliance with the Solid Waste Management Rules, 2016, ensuring environmentally sound waste management practices.</p> <p>Complied</p>
7.3	<p>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.</p>	<p>Fly ash generated is stored in dedicated fly ash silos, from where it is either directly dispatched to brick manufacturing units through trucks under a dry handling system, or, where required, conditioned with controlled water spray prior to loading into covered trucks to prevent fugitive dust emissions during transportation. The fly ash conveying system is fully enclosed, ensuring minimal dust generation and negligible human exposure.</p> <p>Entire quantity of fly ash produced is systematically collected, stored in a controlled manner, and sold to the brick manufacturers and suppliers for use as a raw material in brick manufacturing. This practice eliminates on-site disposal, prevents environmental pollution, and fully complies with applicable fly ash utilization norms and regulatory guidelines. The unit has an agreement with a brick manufacturing unit for disposal of Ash. A Copy of the same is enclosed as Annexure XXV.</p>

		<p>Also, Company has being carried out Ash disposal Audit by NIT (Institute of Repute). The audit report is duly submitted every year to CPCB and CECB. The copy of audit report is enclosed as Annexure XXVI.</p> <p>Being complied</p>
7.4	<p>The Plastic Waste Management Rules 2016, inter-alia, mandated banning of identified Single Use Plastic (SUP) items with effect from 01/07/2022. In this regard, CPCB has issued a direction to all the State Pollution Control Boards (SPCBs)/ Pollution Control Committees (PCCs) on 30/06/2022 to ensure the compliance of Notification published by Ministry on 12/08/2021. The technical guidelines issued by CPCB in this regard is available at https://cpcb.nic.in/technical-guidelines-3/. All the project proponents are hereby requested to sensitize and create awareness among people working within the Project area as well as its surrounding area on the ban of SUP in order to ensure the compliance of Notification published by this Ministry on 12/08/2021. A report, along with photographs, on the measures taken shall also be included in the six monthly compliance report being submitted by project proponents.</p>	<p>The unit is a ferrous alloy production facility, and no plastic is used in any of the production processes. Nevertheless, the unit is regularly undertaking measures to sensitize and create awareness among personnel working within the project area, as well as in the surrounding areas, regarding the ban on Single-Use Plastic, in line with applicable regulatory requirements.</p> <p>Being Complied</p>
7.5	<p>A proper action plan must be implemented to dispose</p>	<p>The electronic waste generated from the unit operation is disposed off to authorized vendor. The agreement has been signed with the</p>

	of the electronic waste generated in the industry.	<p>vendor M/s Star E Processors to dispose off the electronic waste generated.</p> <p>The copy of agreement with the vendor is enclosed as Annexure XV.</p> <p>Complied</p>
8. Green Belt		
8.1	The project proponent shall prepare GHG emissions inventory for the plant and shall submit the programme for reduction of the same including carbon sequestration by trees.	<p>GHG emissions inventory has been provided Life Cycle Assessment Report of the unit. The unit has implemented all the associated as recommended in Life Cycle Assessment Report. Further, the Project Proponent has implemented mitigation measures for the reduction of greenhouse gas (GHG) emissions through the plantation of 19660 trees within the plant premises and along the project boundary.</p> <p>This plantation initiative contributes to carbon sequestration by absorbing atmospheric CO₂, thereby helping to mitigate GHG emissions and support the project’s carbon neutrality objectives. The detailed list of tree species planted inside and outside the plant boundary, along with their quantity for carbon sequestration assessment, is provided in LCA report enclosed as an Annexure III.</p> <p>Complied</p>
8.2	Project proponent shall submit a study report on Decarbonisation program, which would essentially consist of company’s carbon emissions, carbon budgeting/balancing, carbon sequestration activities and carbon capture, use and storage and offsetting strategies. Further, the report shall also contain time bound action plan to reduce its carbon intensity of its operations and supply chains, energy transition pathway from fossil fuels to Renewable energy etc. All these activities/ assessments should be measurable and monitorable with defined time frames.	<p>The unit has carried out a Life Cycle Assessment (LCA) study to assess carbon emissions across the entire life cycle of operations, including raw material sourcing, manufacturing, energy use, transportation, and waste management. The LCA outcomes form the basis for carbon footprint estimation, carbon budgeting and balancing.</p> <p>Based on the study, a decarbonisation program has been prepared incorporating energy efficiency measures, supply chain emission reduction, transition towards renewable energy, and carbon sequestration through greenbelt development. The potential for carbon capture, utilization and storage and offsetting strategies shall be explored in a phased manner.</p> <p>A measurable and monitorable time-bound action plan has been formulated to progressively reduce carbon intensity of operations and associated supply chains, ensuring continual improvement and alignment with sustainability goals. The copy of LCA is enclosed as Annexure III.</p> <p>Being Complied.</p>

8.3	Greening and Paving shall be implemented in the plant area to arrest soil erosion and dust pollution from exposed soil surface.	<p>The project has developed 40 % greenbelt w.r.t to total project area. The greening and paving have been implemented in the plant area. There are 6310 nos. of plantation done within the project premises which covers an area of 22500.5 sq.m. i.e. 12% of the total plot area. The concrete roads has been provided within the plant premises for vehicular movement to arrest soil erosion and dust pollution from exposed soil surface. The photographs of concrete road is provided below.</p> <p>Complied</p>
9. Public Hearing and Human Health Issues		
9.1	Emergency Preparedness Plan based on Hazard Identification and Risk Assessment (HIRA) and Disaster Management Plan shall be implemented.	<p>The unit has emergency preparedness plan and related details are presented below.</p> <ul style="list-style-type: none"> • On-Site Emergency Plan (OSEP): A statutory and site-specific On-Site Emergency Plan is implemented across the HFAL facility, approved by competent authorities. It clearly defines roles and responsibilities of the Chief Incident Controller (CIC), Works Incident Controller (WIC), Emergency Response Teams (ERT), and supporting staff. Layout maps, material inventories, communication protocols, and mutual aid coordination with nearby industries are included. • Standard Operating Procedures (SOPs): SOPs are developed for: <ul style="list-style-type: none"> • Submerged Electric Arc Furnace (SEAF) operations • Captive Power Generation (AFBC Boiler and TG) • Solar Power operations • Handling of hazardous substances (e.g., Diesel, Transformer Oil, LPG, Oxygen, Argon, Sulphuric Acid, etc.,) • Mock Drills & Rehearsals: <ul style="list-style-type: none"> • Frequency: Minimum twice a year • Scenarios Covered: Fire outbreak (waste cotton/coal), evacuation, internal communication, first response, equipment mobilization • Emergency Control Centre (ECC): Located within the Factory Manager’s office, the ECC is equipped with: <ul style="list-style-type: none"> • Site layout maps and wind direction indicators • Emergency contact directories and MSDS sheets • First Aid supplies, SCBA sets, PPE, megaphone, and alarm controls • Walkie-talkies and fire logbooks • Assembly Points: <ul style="list-style-type: none"> • Ground Near Gate No.1 & 2 has been marked as Assembly Point

		<ul style="list-style-type: none"> • Clearly marked and known to all workers through orientation sessions. <p>Further, Disaster Management Plan (DMP) is being implemented to ensure that effective emergency preparedness and response systems are in place to minimize the impact of any industrial accident or disaster. The DMP aims to:</p> <ul style="list-style-type: none"> • Safeguard Human Life: Prevent injury or loss of life among workers, staff, and nearby communities during an emergency. • Minimize Damage to Property and Environment: Protect plant assets, equipment, and materials, and prevent environmental degradation due to accidental releases or fires. • Ensure Prompt and Effective Emergency Response: Establish clear procedures and responsibilities for rapid response, control, and mitigation of hazardous incidents. • Facilitate Efficient Evacuation and Rescue Operations: Enable timely evacuation of personnel from hazardous zones and rescue of affected individuals. • Maintain Clear Communication Channels: Ensure coordinated communication within the site and with external emergency services, local authorities, and community representatives. • Define Roles and Responsibilities: Clearly outline the roles of key personnel involved in emergency management, including the Incident Controller, site workers, safety officers, and first responders. • Enhance Preparedness through Training and Drills: Conduct periodic mock drills, training sessions, and awareness programs to improve the readiness of all stakeholders. • Ensure Quick Restoration of Normal Operations: Establish protocols for damage assessment, recovery, and restoration of operations after the incident. • Comply with Legal and Regulatory Requirements: Align emergency planning with the requirements of the Factories Act, Environment Protection Act, and MoEF&CC
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		<p>guidelines.</p> <ul style="list-style-type: none"> • Promote Safety Culture within the Organization: Foster awareness and responsibility among employees towards health, safety, and environmental protection. <p>Complied</p>
9.2	The project proponent shall carry out heat stress analysis for the workmen who work in high temperature work zone and provide Personal Protective Equipment (PPE) as per the norms.	<p>The unit has conducted comprehensive industrial hygiene survey to monitor and to assess the respirable dust concentration, noise level, Heat stress, Gas Chemicals, Illumination in the working environment and to further identify the potential hazard and risk arising from work place. The study has suggested the recommended measures to make the environment congenial, conducive and comfortable for the employees. The copy of the report is enclosed as Annexure XXIII.</p> <p>Complied</p>
9.3	Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP. Safe drinking water, medical health care, creche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.	<p>No new construction has been carried out at the facility.</p> <p>Not Applicable</p>
9.4	Occupational health surveillance of the workers shall be done on a regular basis and records maintained.	<p>The occupational health surveillance of the workers is being done on regular basis. The sample health records are enclosed as Annexure XVI.</p> <p>Complied</p>
10. Environment Management		
10.1	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. As part of Corporate Environment Responsibility (CER) activity, company shall adopt nearby villages	<p>It is proposed to spend INR 1.15 Crores on CER activities in the time span of 3 years from the issuance of Environmental Clearance. HFAL is committed to implement facilities for improvement of infrastructural facilities for the local people in the field of Environmental and Medical. HFAL has implemented the following activities as part of their CER initiatives for the community development.</p> <ul style="list-style-type: none"> ▪ Green belt development and boundary wall white washing & painting work at Achholi Muktidham ▪ Greenbelt development at Urla Muktidham sitting arrangement under CSR

	<p>based on the socio-economic survey and undertake community developmental activities in consultation with the village Panchayat and the District Administration as committed.</p>	<ul style="list-style-type: none"> ▪ Greenbelt development and white washing & painting work at Rawabhata Muktidham ▪ Greenbelt development at Urkura site on allotted govt. Land. ▪ Greenbelt development at Birgaov Muktidham ▪ Achholi Sheetla Talab_Pacharikaran and Gaharikaran ▪ Shulabh Shouchalay by HIRA group ▪ Aakanksha lions school for mentally handicapped under HIRA CSR foundation. ▪ Cancer screening van BALCO hospital _under HIRA CSR foundation ▪ English education project for primary and middle school-step up for India under HIRA CSR foundation ▪ F-95 advance physiotherapy & research centre (a unit of HIRA CSR foundation) ▪ Old age home gomchi (Maa Godawari Anand Vridhashram) under HIRA CSR foundation <p>The details and photographs along with details of expense made is provided in Annexure I.</p> <p>Being Complied</p>
10.2	<p>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 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 / stakeholders. The copy of the board resolution in this regard shall be submitted to the MoEF&CC as a part of six monthly report.</p>	<p>The environmental policy of HFAL is enclosed as Annexure XVII.</p> <p>Complied</p>

10.3	A separate Environmental Cell both at the project and company headquarter level, with qualified personnel shall be setup under the control of senior executive, who will directly to the head of the organization.	HFAL has constituted an Environmental Management Cell (EMC) comprising designated officers to coordinate and implement environmental control measures. The EMC monitors stack emissions, ambient air quality, and noise levels through in-house systems or approved external agencies, as required. Regular environmental monitoring is carried out to identify any deterioration and to implement corrective measures through concerned departments. The EMC also oversees worker health and green belt development and is headed by the Executive Director, who reports to the Board of Directors. The hierarchy along with responsibilities of Environmental Management Cell is provided in Annexure XVIII .
10.4	Performance test shall be conducted on all pollution control systems every year and report shall be submitted to Integrated Regional Office of the MoEF&CC.	The performance test report for Bag Filters and Electrostatic Precipitators is enclosed as Annexure XXVII . Complied
11. Miscellaneous		
11.1	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 in within seven days and in addition this shall also be displayed in the project proponent’s website permanently.	The project proponent has provided the advertisement in two local newspapers namely Central Chronicle and Deshbandhu (Vernacular Language). The newspaper clip and evidence for display of EC on HFAL website is enclosed as Annexure XIX . Complied
11.2	The copies of the environmental clearance shall be submitted by the proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn	The copies of the environmental clearance have been submitted to Nagar Nigam. The receiving for the submission is enclosed as Annexure XX .

	has to display the same for 30 days form the of receipt.	
11.3	The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and update the same on half-yearly basis.	<p>The project proponent is submitting six monthly reports on the status of the compliance of the stipulated environmental conditions.</p> <p>Being Complied</p>
11.4	The project proponent shall monitor the criteria pollutants level namely; PM10, S02, NOx (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the project and display the same at a convenient location for disclosure to the public and put on the website of the company.	<p>The project proponent has monitored ambient air and stack emissions from the project operation through Continuous Ambient Air Quality Monitoring Station (CAAQMS). The levels have been displayed at the unit premises. The photograph of the station is provided as Annexure V.</p> <p>Complied</p>
11.5	Action plan for developing connecting and internal road in terms of MSA per IRC guidelines shall be implemented	<p>Concrete roads are provided within the manufacturing unit.</p> <p>The photograph of internal concrete road is provided below</p> <div style="display: flex; justify-content: space-around;">   </div>

		 <p>Complied</p>
11.6	<p>The project proponent shall submit six- monthly reports on the status of the compliance of the stipulated environmental conditions on the website of the ministry of Environment, Forest and Climate Change at environment clearance portal.</p>	<p>The project proponent is submitting six monthly reports on the status of the compliance of the stipulated environmental conditions.</p> <p>Being Complied</p>
11.7	<p>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.</p>	<p>Noted and agreed</p>
11.8	<p>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.</p>	<p>Presently, no additional plant or production machinery has been installed. Only modifications/upgradation of pollution control systems have been carried out to improve environmental performance and ensure regulatory compliance.</p> <p>The unit will inform Regional office as well as Ministry for the required aspects once the amendment based on issued EC will be completed and production will be started.</p> <p>Compliance under process</p>

11.9	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 and agreed
11.10	The recommendations of the approved Site -Specific Wildlife Management Plan (in case of involvement of Schedule -I species) shall be implemented in consultation with the State Forest Department. The implementation report shall be furnished along with the six- monthly compliance report to the concerned Regional Office of the MoEF&CC.	Not Applicable
11.11	The PP shall put all the environment related expenditure, expenditure related to Action Plan on the PH issues, and other commitments made in the EIA/ EMP Report etc. in the company web site for the information to public/public domain. The PP shall also put the information on the left over funds allocated to EMP and PH as committed in the earlier ECs and shall be carried out and spent in next three years, in the company web site for the information to public/public domain.	<p>The unit is in the process of compiling and uploading details of all environment-related expenditures, expenditures related to the Action Plan on Public Health (PH) issues, and other commitments made in the EIA/EMP Report on the company website for public information. Information regarding unutilized funds allocated for EMP and PH, as committed in earlier ECs, along with the plan for utilization over the next three years, is also under progress and shall be disclosed on the company website upon completion.</p> <p>Compliance under process.</p>
11.12	No further expansion or modifications in the plant shall be carried out without	Noted and agreed

	prior approval of the Ministry of Environment, Forests and Climate Change (MoEF&CC).	
11.13	Concealing factual date or submission of False /fabricated date may result in revocation of this environmental clearance and attract action under the provisions of Environment (Protection) Act,1986.	Noted and agreed
11.14	The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is satisfactory.	Noted and agreed
11.15	The Ministry reserves the right to stipulate additional conditions if found necessary. The Company in a time bound manner shall implement these conditions .	Noted and agreed
11.16	The Regional Office of this Ministry shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the office (s) of the Regional Office by furnishing the requisite date /information/ monitoring reports.	Noted and agreed
11.17	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 National Green Tribunal Act,2010.	Noted and agreed

ANNEXURES

Annexure I: CER Details and Expense



**GREENBELT
DEVELOPMENT
&
CSR & CER ACTIVITIES**

LIST OF ACTIVITIES UNDER CSR AND GREENBELT DEVELOPMENT

- GREEN BELT DEVELOPMENT AND BOUNDARYWALL_WHITE WASHING & PAINTING WORK AT ACHHOLI MUKTIDHAM
- GREENBELT DEVELOPMENT AT URLA MUKTIDHAM SITTING ARRANGEMENT UNDER CSR
- GREENBELT DEVELOPMENT AND WHITE WASHING & PAINTING WORK AT RAWABHATA MUKTIDHAM
- GREENBELT DEVELOPMENT AT URKURA SITE ON ALLOTTED GOVT. LAND.
- GREENBELT DEVELOPMENT AT BIRGAOV MUKTIDHAM
- ACHHOLI SHEETLA TALAB_PACHARIKARAN AND GAHARIKARAN
- SHULABH SHOUCHALAY BY HIRA GROUP
- AAKANKSHA LIONS SCHOOL FOR MENTALLY HANDICAPPED_UNDER HIRA CSR FOUNDATION
- CANCER SCREENING VAN BALCO HOSPITAL _UNDER HIRA CSR FOUNDATION
- ENGLISH EDUCATION PROJECT FOR PRIMARY AND MIDDLE SCHOOL-STEP UP FOR INDIA _UNDER HIRA CSR FOUNDATION
- F-95 ADVANCE PHYSIOTHERAPY & RESEARCH CENTRE (A UNIT OF HIRA CSR FOUNDATION)
- OLD AGE HOME GOMCHI (MAA GODAWARI ANAND VRIDHASHRAM)_UNDER HIRA CSR FOUNDATION

GREEN BELT DEVELOPMENT AT ACHHOLI MUKTIDHAM



GREEN BELT DEVELOPMENT AT ACHHOLI MUKTIDHAM



BOUNDARYWALL WHITE WASHING & PAINTING WORK AT ACHHOLI MUKTIDHAM



GREENBELT DEVELOPMENT AT URLA MUKTIDHAM



GREENBELT DEVELOPMENT AT URLA MUKTIDHAM



SITTING ARRANGEMENT AT URLA Muktidham UNDER CSR



GREENBELT DEVELOPMENT AT RAWABHATA MUKTIDHAM



GREENBELT DEVELOPMENT AT RAWABHATA MUKTIDHAM



CSR ACTIVITIES WHITE WASHING & PAINTING WORK AT RAWABHATA Muktidham



CSR ACTIVITIES WHITE WASHING & PAINTING WORK AT RAWABHATA Muktidham



GREENBELT DEVELOPMENT AT URKURA SITE ON ALLOTTED GOVT. LAND





GREENBELT DEVELOPMENT AT URKURA SITE ON ALLOTTED GOVT. LAND



GREENBELT DEVELOPMENT AT BIRGAOV MUKTIDHAM







ACHHOLI SHEETLA TALAB_PACHARIKARAN AND GAHARIKARAN



SHULABH SHOUCHALAY BY HIRA GROUP

AT BAJAR CHOWK ACCHOLI



AT NEAR SHEETLA TALAB



AT NEAR BIRGAOV CANAL



Aakanksha Lions School for Mentally Handicapped_Under HIRA CSR FOUNDATION



Cancer Screening Van Balco Hospital _UNDER HIRA CSR FOUNDATION



Cancer Screening Van Balco Hospital _UNDER HIRA CSR FOUNDATION



Old Age Home Gomchi (Maa Godawari Anand Vridhashram)_UNDER HIRA CSR FOUNDATION



**English Education Project for Primary and Middle School-Step Up For India
_UNDER HIRA CSR FOUNDATION**



F-95 Advance Physiotherapy & Research Centre (A Unit of HIRA CSR Foundation)



CER/CSR Expenditure for Unit II FY 2025-26

1	22/09/2025	HIRA CSR FOUNDATION	15,00,000			15,00,000	BEING AMOUNT OF CSR FUND FOR THE MONTH OF SEP-2025 VIDE RECD DTD 15.09.2025		
2	24/11/2025	SHIVASHA FOUNDATION, S/O	1,00,000			1,00,000	BEING AMOUNT TRANSFER AGT CSR FUND		
						1600000			
URKURA PLANTATION									
1	26/4/2025	CHHATTISGARH STATE POWER DISTRIBUTION CO. LTD.				10700	ELECTRIC BILL OF URKURA GARDEN FOR MARCH-25		ELECTRIC BILL
2	05-12-2025	HARSHIT CONSTRUCTION AND MAINTENANCE SERVICES	157 dt. 12/05/2025	5000	900	5900	GREEN BELT URKURA SURVEY GROUND WATER WORK	FERRO\25-26\SO\0106 08/05/2025	
3	23/05/2025	CHHATTISGARH STATE POWER DISTRIBUTION CO. LTD.		5440		5440	ELECTRIC BILL OF URKURA GARDEN FOR APRIL-25		ELECTRIC BILL
4	26/06/2025	CHHATTISGARH STATE POWER DISTRIBUTION CO. LTD.	May-25			8160	ELECTRIC BILL OF URKURA GARDEN FOR MAY-25		ELECTRIC BILL
5	30/06/2025	GEETA NURSERY(S/S)	1696 dt. 12/06/2025	191934		191934	KUNDA JASMIN 25.000 NOS @ Rs 40.00 Per NOS	FERRO\25-26\PO\0392	

							,MADHU KAMINI 15 X 16 25.000 NOS @ Rs 40.00 Per NOS ,DELTA FORM 13X13 500.000 NOS @ Rs 60.00 Per NOS ,GULMOHAR (RED) SIZE: 15X16 600.000 NOS @ Rs 60.00 Per NOS ,CONOCARPUS ERITUS PLANT 2500.000 NOS		
6	28/07/2025	CHHATTISGARH STATE POWER DISTRIBUTION CO. LTD.	Jun-25	5470		5470	ELECTRIC BILL OF URKURA GARDEN FOR JUNE-25		
7	29/08/2025	CHHATTISGARH STATE POWER DISTRIBUTION CO. LTD.	Jul-25	26210		26210	ELECTRIC BILL OF URKURA GARDEN FOR JULY-25		
8	26/09/2025	CHHATTISGARH STATE POWER DISTRIBUTION CO. LTD.	Aug-25	10530		10530	BEING AMOUNT OF ELECTRICITY BILL OF URKURA GARDEN FOR AUGUST-25 FOR 500 UNITS		
9	27/10/2025	CHHATTISGARH STATE POWER DISTRIBUTION CO. LTD.	SEP-2025 18/10/2025	4360		4360	BEING AMOUNT OF ELECTRICITY BILL OF URKURA GARDEN FOR AUGUST-25 FOR 500 UNITS		
10	28/11/2025	CHHATTISGARH STATE POWER DISTRIBUTION CO. LTD.		7080		7080	BEING AMOUNT OF ELECTRICITY BILL OF URKURA GARDEN		

							FOR AUGUST-25 FOR 500 UNITS		
						275784			
URLA MUKTIDHAM									
1	30/4/2025	HARSHIT CONSTRUCTION AND MAINTENANCE SERVICES	152 dt. 30/04/2025	45000	8100	53100	GREEN BELT PLANTATION	FERRO\25-26\SO\0071 30/04/2025	
2	31/05/2025	HARSHIT CONSTRUCTION AND MAINTENANCE SERVICES	159 dt. 31/05/2025	45000	8100	53100	GREEN BELT PLANTATION	FERRO\25-26\SO\0071 30/04/2025	
3	18/06/2025	GEETA NURSERY(S/S)	1696 dt. 12/06/2025	131323		131323	CONOCARPUS ERITUS PLANT	FERRO\25-26\PO\0392	
4	30/06/2025	HARSHIT CONSTRUCTION AND MAINTENANCE SERVICES	166 dt. 30/06/2025	45000	8100	53100	GREEN BELT PLANTATION	FERRO\25-26\SO\0071 30/04/2025	
5	31/07/2025	HARSHIT CONSTRUCTION AND MAINTENANCE SERVICES	174 dt. 31/07/2025	45000	8100	53100	GREEN BELT PLANTATION	FERRO\25-26\SO\0071 30/04/2025	
6	31/08/2025	HARSHIT CONSTRUCTION AND MAINTENANCE SERVICES	182 dt. 31/08/2025	45000	8100	53100	GREEN BELT PLANTATION	FERRO\25-26\SO\0071 30/04/2025	

7	30/09/2025	HARSHIT CONSTRUCTION AND MAINTENANCE SERVICES	186 dt. 30/09/2025	45000	8100	53100	GREEN BELT PLANTATION	FERRO\25-26\SO\0071 30/04/2025	
8	30.11/2025	HARSHIT CONSTRUCTION AND MAINTENANCE SERVICES	193 dt. 30/11/2025	90000	16200	106200	GREEN BELT PLANTATION	FERRO\25-26\SO\0552 10/11/2025	
						556123			
ACHHOLI MUKTIDHAM									
1	04-07-2025	HARSHIT CONSTRUCTION AND MAINTENANCE SERVICES	150 dt. 07/04/2025	20000	3600	23600	INSTALLATION & TESTING CHARGES OF DRIP IRRIGATION SYSTEM	FERRO\25-26\SO\0005 DT.05/04/2025	
2	30/4/2025	HARSHIT CONSTRUCTION AND MAINTENANCE SERVICES	153 dt. 30/04/2025	30000	5400	35400	GREEN BELT PLANTATION	FERRO\24-25\SO\0207 27/06/2024	
3	31/05/2025	HARSHIT CONSTRUCTION AND MAINTENANCE SERVICES	160 dt. 31/05/2025	30000	5400	35400	GREEN BELT PLANTATION	FERRO\24-25\SO\0207 27/06/2024	
4	30/06/2025	HARSHIT CONSTRUCTION AND MAINTENANCE SERVICES	167 dt. 30/06/2025	30000	5400	35400	GREEN BELT PLANTATION	FERRO\24-25\SO\0207 27/06/2024	

5	31/07/2025	HARSHIT CONSTRUCTION AND MAINTENANCE SERVICES	175 dt. 31/07/2025	30000	5400	35400	GREEN BELT PLANTATION	FERRO\24-25\SO\0207 27/06/2024	
6	30/09/2025	HARSHIT CONSTRUCTION AND MAINTENANCE SERVICES	185 dt. 30/09/2025	60000	10800	70800	GREEN BELT PLANTATION	FERRO\25-26\SO\0402 13/09/2025 ,	AUGUST & SEP.
7	31/10/2025	HARSHIT CONSTRUCTION AND MAINTENANCE SERVICES	188 dt. 31/10/2025	30000	5400	35400	GREEN BELT PLANTATION	FERRO\25-26\SO\0402 13/09/2025 ,	
8	30/11/2025	HARSHIT CONSTRUCTION AND MAINTENANCE SERVICES	191 dt. 30/11/2025	30000	5400	35400	GREEN BELT PLANTATION	FERRO\25-26\SO\0402 13/09/2025 ,	
						306800			
RAWABHATHA MUKTIDHAM									
1	30/4/2025	HARSHIT CONSTRUCTION AND MAINTENANCE SERVICES	154 dt. 30/04/2025	70000	12600	82600	GREEN BELT PLANTATION	FERRO\24-25\SO\0314 20/08/2024 ,FERRO\24- 25\SO\0537 11/12/2024	
2	31/05/2025	HARSHIT CONSTRUCTION AND MAINTENANCE SERVICES	161 dt. 31/05/2025	70000	12600	82600	GREEN BELT PLANTATION	FERRO\24-25\SO\0314 20/08/2024 ,FERRO\24- 25\SO\0537 11/12/2024	

3	18/06/2025	GEETA NURSERY(S/S)	1696 dt. 12/06/2025	65662		65662	KUNDA JASMIN 25.000 NOS @ Rs 40.00 Per NOS ,MADHU KAMINI 15 X 16 25.000 NOS @ Rs 40.00 Per NOS ,DELTA FORM 13X13 500.000 NOS @ Rs 60.00 Per NOS ,GULMOHAR (RED) SIZE: 15X16 600.000 NOS @ Rs 60.00 Per NOS ,CONOCARPUS ERITUS PLANT 2500.000 NOS	FERRO\25-26\PO\0392	
4	30/06/2025	HARSHIT CONSTRUCTION AND MAINTENANCE SERVICES	168 dt. 30/06/2025	70000	12600	82600	GREEN BELT PLANTATION	FERRO\24-25\SO\0314 20/08/2024 ,FERRO\24- 25\SO\0537 11/12/2024	
5	31/07/2025	HARSHIT CONSTRUCTION AND MAINTENANCE SERVICES	176 dt. 31/07/2025	70000	12600	82600	GREEN BELT PLANTATION	FERRO\24-25\SO\0314 20/08/2024 ,FERRO\24- 25\SO\0537 11/12/2024	
6	30.09.2025	HARSHIT CONSTRUCTION AND MAINTENANCE SERVICES	184 dt. 30/09/2025	140000	25200	165200	GREEN BELT PLANTATION	FERRO\25-26\SO\0401 11/09/2025 ,	AUGUST & SEP.
7	31/10/2025	HARSHIT CONSTRUCTION AND	189 dt. 31/10/2025	70000	12600	82600	GREEN BELT PLANTATION	FERRO\25-26\SO\0401 11/09/2025 ,	

		MAINTENANCE SERVICES							
8	30/11/2025	HARSHIT CONSTRUCTION AND MAINTENANCE SERVICES	192 dt. 30/11/2025	70000	12600	82600	GREEN BELT PLANTATION	FERRO\25-26\SO\0401 11/09/2025 ,	
						726462			
NIMORA Muktidham									
NO.	DATE	PARTY NAME	BILL NO.	BASIC AMT	GST 18%	TOTAL AMT	ITEM DESCRIPTION	SERVICE ORDER NO.	PAYMENT TYPE
1	10-10-2025	SILIP KUMAR UIKE	13 DT. 30.09.2025	262400		262400	GREEN BELT NIMORA Muktidham PLANTATION WORK , FANCING POLE FIXING , BARBED WIRE BENDING , CLEANING WORK AND 3 NOS NEW GATE MAKING & FIXING WORK	FERRO\25-26\SO\0299 DT. 28.07.2025	
2						262400			
				TOTAL CSR		3727569			

Profit Center: HEAD OFFICE FINANCE BOOK Account Name: CORPORATE SOCIAL RESPONSIBL Export With Borders
 COA: COA HFAL 01/04/2025 To 31/03/2026 Fast Export (Without Formatting)

Voucher No.	Voucher Date	Particular	Voucher No.	Voucher Type	Bill No.	Debit Amount	Credit Amount
50	30/09/2025	HARSHIT CONSTRUCTION AND MAINTENANCE SERVICES (S/S)	FERRO\25-26JV\0246	Journal	186 30/09/2025	8100.00	
51	10/10/2025	REPAIR MAINTANANCE PROVISIONS	FERRO\25-26JV\0046	Journal	13 30/09/2025	262400.00	
52	27/10/2025	CHHATTISGARH STATE POWER DISTRIBUTION CO. LTD. (URKURA GARDEN)	FERRO\25-26JV\0012	Journal	SEP-2025 18/10/2025	4360.00	
53	31/10/2025	REPAIR MAINTANANCE PROVISIONS	FERRO\25-26JV\0026	Journal	189 31/10/2025	70000.00	
54	31/10/2025	REPAIR MAINTANANCE PROVISIONS	FERRO\25-26JV\0028	Journal	188 31/10/2025	30000.00	
55	31/10/2025	HARSHIT CONSTRUCTION AND MAINTENANCE SERVICES (S/S)	FERRO\25-26JV\0162	Journal	188 31/10/2025	5400.00	
56	31/10/2025	HARSHIT CONSTRUCTION AND MAINTENANCE SERVICES (S/S)	FERRO\25-26JV\0163	Journal	189 31/10/2025	12600.00	
57	31/10/2025	HARSHIT CONSTRUCTION AND MAINTENANCE SERVICES (S/S)	FERRO\25-26JV\0244	Journal	TDS INTEREST 31/10/2025		254.00
58	24/11/2025	SHIVASHA FOUNDATION, S/O	FERRO\25-26JV\0081	Journal		100000.00	
59	28/11/2025	CHHATTISGARH STATE POWER DISTRIBUTION CO. LTD. (URKURA GARDEN)	FERRO\25-26JV\0053	Journal	OCT-2025 20/11/2025	7080.00	
60	30/11/2025	REPAIR MAINTANANCE PROVISIONS	FERRO\25-26JV\0070	Journal	191 30/11/2025	30000.00	
61	30/11/2025	REPAIR MAINTANANCE PROVISIONS	FERRO\25-26JV\0071	Journal	192 30/11/2025	70000.00	
62	30/11/2025	REPAIR MAINTANANCE TO OTHER(SERVICE)	FERRO\25-26JV\0099	Journal		106200.00	
63	30/11/2025	CGST INPUT TAX CREDIT	FERRO\25-26JV\0100	Journal		12600.00	
64	30/11/2025	CGST INPUT TAX CREDIT	FERRO\25-26JV\0101	Journal		5400.00	
				Open. Bal.			0.00
				Curr. Total		3727568.58	254.00
				Closing Bal.		3727314.58	

F12 : Configura

- Alt F1 : Details
- Ctrl F2 : Period
- F4 : Ledger
- Alt F6 : Dly Brk-Up
- Alt F7 : Monthly
- Alt F5 : Quarterly
- Alt F8 : Columnar
- Alt B : Outstanding Rep
- F12 : Configuration**
- Alt F12 : Range
- Ctrl P : Print
- Ctrl R : Print Preview
- Ctrl T : Export
- Ctrl E : Email
- Ctrl L : Close

Annexure II: Water Details



Chhattisgarh State Industrial Development Corporation Limited

(A Government of Chhattisgarh Undertaking)

(ISO 9001:2015 Certified)

First Floor, Udyog Bhawan, Ring Road No.-1, Telibandha, Raipur-492006 (C.G.)

CIN : U45203CT1981SG001853, PAN : AABCM6288N, GST Regn. No. : 22AABCM6288N5ZY

Phone No. : 0771-6002071, 72, 73, Fax No. : 0771-2583794

Website: www.csidc.in, Email address: csidc_raipur@yahoo.com, csidc.cg@nic.in

No./CSIDC/EE/DIV.-II/2021-22/

Raipur, Dated 27/08/2021

236

WATER AVAILABILITY CERTIFICATE FOR FRESH/TREATED WATER

TO WHOMSOEVER IT MAY CONCERN

Chhattisgarh State Industrial Development Corporation is providing fresh water supply/treated water supply to the tune of $100\text{m}^3/\text{day}$ to the firm M/s HIRA FERRO ALLOYS LTD. Located at Plot No. 567-B, 568 & 553-B Urla Industrial Complex, Raipur(C.G)

As such the firm has to make its own arrangement for water supply to meet its entire/balance requirement after obtaining the necessary permission from the competent authority.

Executive Engineer
(Division-II)

date :-



भारत सरकार
जल शक्ति मंत्रालय
जल संसाधन, नदी विकास
और गंगा संरक्षण विभाग
केन्द्रीय भूमि जल प्राधिकरण
Government of India
Ministry of Jal Shakti
Department of Water Resources,
River Development & Ganga Rejuvenation
Central Ground Water Authority

(भूजल निकासी हेतु अनापत्ति प्रमाण पत्र)
NO OBJECTION CERTIFICATE (NOC) FOR GROUND WATER ABSTRACTION

Project Name:	Hira Ferro Alloys Ltd												
Project Address:	Plot No-567b,568 And 553-b, Village-achholi												
Town:	Birgaon (m)			Block:	Dharsiwa								
District:	Raipur			State:	Chhattisgarh								
Pin Code:													
Communication Address:	Plot No- 490/1, 491/2, Urla Industrial Area, Urla Raipur Chhattisgarh, Urla Industrial Complex, Dharsiwa, Raipur, Chhattisgarh - 492003												
Address of CGWB Regional Office :	Central Ground Water Board North Central Chhattisgarh, 2nd Floor, Lk Corporate And Logistic Park, Dhamtari Road, Nh-30, Dumartarai, Raipur, Chhattisgarh - 492015												
1. NOC No.:	CGWA/NOC/IND/REN/1/2024/10003			2. Date of Issuance	04/10/2024								
3. Application No.:	21-4/670/CT/IND/2017			4. Category: (GWRE 2023)	Critical								
5. Project Status:	Existing Ground Water			6. NOC Type:	Renewal								
7. Valid from:	23/09/2024			8. Valid up to:	22/09/2027								
9. Ground Water Abstraction Permitted:													
Fresh Water		Saline Water		Dewatering		Total							
m ³ /day	m ³ /year	m ³ /day	m ³ /year	m ³ /day	m ³ /year	m ³ /day	m ³ /year						
100.00	36500.00					100.00	36500.00						
10. Details of ground water abstraction /Dewatering structures													
Total Existing No.:3							Total Proposed No.:0						
	DW	DCB	BW	TW	MP	MPu	DW	DCB	BW	TW	MP	MPu	
Abstraction Structure*	0	0	3	0	0	0	0	0	0	0	0	0	
*DW- Dug Well; DCB-Dug-cum-Bore Well; BW-Bore Well; TW-Tube Well; MP-Mine Pit;MPu-Mine Pumps													
11. Ground Water Abstraction/Restoration Charges paid (Rs.):							438000.00						
12. Environment Compensation (if applicable) paid (Rs.):							0.00						
13. Number of Piezometers(Observation wells) to be constructed/ monitored & Monitoring mechanism.	No. of Piezometers					Monitoring Mechanism							
						Manual	DWLR**	DWLR With Telemetry					
**DWLR - Digital Water Level Recorder	1					0	1	0					

18/11, जामनगर हाउस, मानसिंह रोड, नई दिल्ली - 110011 / 18/11, Jamnagar House, Mansingh Road, New Delhi-110011

Phone: (011) 23383561 Fax: 23382051, 23386743

Website: cgwa-noc.gov.in

पानी बचाये - जीवन बचाये
SAVE WATER - SAVE LIFE

(Compliance Conditions given overleaf)

This is an auto generated document & need not to be signed.

CENTRAL GROUND WATER AUTHORITY

18/11, जामनगर हाउस, मानसिंह रोड, नई दिल्ली - 110011 / 18/11, Jamnagar House, Mansingh Road, New Delhi-110011

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Validity of this NOC shall be subject to compliance of the following conditions:

Mandatory conditions:

- 1) Installation of tamper proof digital water flow meter with telemetry on all the abstraction structure(s) shall be mandatory for all users seeking No Objection Certificate and intimation regarding their installation shall be communicated to the CGWA within 30 days of grant of No Objection Certificate.
- 2) Proponents shall mandatorily get water flow meter calibrated from an authorized agency once in a year.
- 3) Construction of purpose-built observation wells (piezometers) for ground water level monitoring shall be mandatory as per Section 14 of Guidelines. Water level data shall be made available to CGWA through web portal. Detailed guidelines for construction of piezometers are given in Annexure-II of the guidelines.
- 4) Proponents shall monitor quality of ground water from the abstraction structure(s) once in a year. Water samples from bore wells/ tube wells / dug wells shall be collected during April/May every year and analysed in NABL accredited laboratories for basic parameters (cations and anions), heavy metals, pesticides/ organic compounds etc. Water quality data shall be made available to CGWA through the web portal.
- 5) In case of mining projects, additional key wells shall be established in consultation with the Regional Director, CGWB for ground water level monitoring four (4) times a year (January, May, August and November) in core as well as buffer zones of the mine.
- 6) In case of mining project the firm shall submit water quality report of mine discharge/ seepage from Govt. approved/ NABL accredited lab.
- 7) The firm shall report compliance of the NOC conditions online in the website (www.cgwa-noc.gov.in) within one year from the date of issue of this NOC.
- 8) Industries abstracting ground water in excess of 100 m³/d shall undertake annual water audit through certified auditors and submit audit reports within three months of completion of the same to CGWA. All such industries shall be required to reduce their ground water use by at least 20% over the next three years through appropriate means.
- 9) Application for renewal can be submitted online from 90 days before the expiry of NOC. Ground water withdrawal, if any, after expiry of NOC shall be illegal & liable for legal action as per provisions of Environment (Protection) Act, 1986.
- 10) This NOC is subject to prevailing Central/State Government rules/laws/norms or Court orders related to construction of tube well/ground water abstraction structure / recharge or conservation structure/discharge of effluents or any such matter as applicable.

General conditions:

- 11) No additional ground water abstraction and/or de-watering structures shall be constructed for this purpose without prior approval of the Central Ground Water Authority (CGWA).
- 12) The proponent shall seek prior permission from CGWA for any increase in quantum of groundwater abstraction (more than that permitted in NOC for specific period).
- 13) Proponents shall install roof top rain water harvesting in the premise as per the existing building bye laws in the premise.
- 14) The project proponent shall take all necessary measures to prevent contamination of ground water in the premises failing which the firm shall be responsible for any consequences arising thereupon.
- 15) In case of industries that are likely to contaminate the ground water, no recharge measures shall be taken up by the firm inside the plant premises. The runoff generated from the rooftop shall be stored and put to beneficial use by the firm.
- 16) Wherever feasible, requirement of water for greenbelt (horticulture) shall be met from recycled / treated waste water.
- 17) Wherever the NOC is for abstraction of saline water and the existing wells (s) is /are yielding fresh water, the same shall be sealed and new tubewell(s) tapping saline water zone shall be constructed within 3 months of the issuance of NOC. The firm shall also ensure safe disposal of saline residue, if any.
- 18) Unexpected variations in inflow of ground water into the mine pit, if any, shall be reported to the concerned Regional Director, Central Ground Water Board.
- 19) In case of violation of any NOC conditions, the applicant shall be liable to pay the penalties as per Section 16 of Guidelines.
- 20) This NOC does not absolve the proponents of their obligation / requirement to obtain other statutory and administrative clearances from appropriate authorities.
- 21) The issue of this NOC does not imply that other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would consider the project on merits and take decisions independently of the NOC.
- 22) In case of change of ownership, new owner of the industry will have to apply for incorporation of necessary changes in the No Objection Certificate with documentary proof within 60 days of taking over possession of the premises.
- 23) This NOC is being issued without any prejudice to the directions of the Hon'ble NGT/court orders in cases related to ground water or any other related matters.
- 24) Proponents, who have installed/constructed artificial recharge structures in compliance of the NOC granted to them previously and have availed rebate of upto 50% (fifty percent) in the ground water abstraction charges/ground water restoration charges, shall continue to regularly maintain artificial recharge structures.
- 25) Industries which are likely to cause ground water pollution e.g. Tanning, Slaughter Houses, Dye, Chemical/ Petrochemical, Coal washeries, pharmaceutical, other hazardous units etc. (as per CPCB list) need to undertake necessary well head protection measures to ensure prevention of ground water pollution as per Annexure III of the guidelines.
- 26) In case of new infrastructure projects having ground water abstraction of more than 20 m³/day, the firm/entity shall ensure implementation of dual water supply system in the projects.
- 27) In case of infrastructure projects, paved/parking area must be covered with interlocking/perforated tiles or other suitable measures to ensure groundwater infiltration/harvesting.
- 28) In case of coal and other base metal mining projects, the project proponent shall use the advance dewatering technology (by construction of series of dewatering abstraction structures) to avoid contamination of surface water.
- 29) The NOC issued is conditional subject to the conditions mentioned in the Public notice dated 27.01.2021 failing which penalty/EC/cancellation of NOC shall be imposed as the case may be.
- 30) This NOC is issued subject to the clearance of Expert Appraisal Committee (EAC) (if applicable).
- 31) In the self-compliance report, the PP shall submit details of Drilling Agency/ Agencies, which has/ have constructed BW(s)/ TW(s) along with undertaking to the effect that all necessary measures have been taken as per directions of Hon'ble Supreme Court provided in Annexure-VII of guidelines dated 24.09.2020 in respect of abandoned/ failed BW(s)/ TW(s)/Piezometer(s), if any. The PP is advised to engage registered drilling agency/ agencies. In the event of any mishap/ unfortunate incident due to negligence in taking measures for prevention of accident due to falling in Bore Well, both PP and concerned drilling agency shall jointly be held responsible and penal action as per extant Government rules shall be taken.

(Non-compliance of the conditions mentioned above is likely to result in the cancellation of NOC and legal action against the proponent.)

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CENTRAL GROUND WATER AUTHORITY

Department of Water Resources, River Development and Ganga Rejuvenation
Ministry of Jal Shakti, Govt. of India

Receipt

(As per the guideline Gazette Notification S.O. 3281(E) regarding the New Guidelines dated 24.09.2020 of CGWA, MoJS, Govt. of India)
<https://cgwa-noc.gov.in>

Application No.:	21-4/670/CT/IND/2017	Date of Issuance:	04/10/2024
Name of Firm:	HIRA FERRO ALLOYS LTD		
AppType Category:	Iron Steel bar		
Application Type:	Industrial		
PAN/GSTIN No. of Firm/Individual:	/		

S N	Description	Amount (Rs.)
1.	Application Processing Fee	5000.00
2.	Ground Water Abstraction charges	438000.00
3.	Ground Water Restoration charges	0
4.	Environmental Compensation Charges (ECRGW) (Date From to) Days-	
5.	Penalty for non-Compliance of NOC conditions Condition to be mentioned	
6.	Adjustment Charges	
7.	Rebate	
8.	Charges for correction/modification in the existing issued No Objection Certificate	
S.No.	Description	Rate
(i)	Change in User ID	Rs. 1000
(ii)	Change in firm Name	Rs. 5000
(iii)	Extension of No Objection Certificate	Rs. 5000
(iv)	Issuance of duplicate No Objection Certificate	Rs. 5000
(v)	Issuance of corrigendum to No Objection Certificate	Rs. 5000
(vi)	Any other items/correction etc.	Rs. 500
Rs. Rupees Four Lakh Forty Three Thousand Only		443000.00

This is an system generated invoice, hence, does not require ink signed.

18/11, जामनगर हाउस, मानसिंह रोड, नई दिल्ली - 110011 / 18/11, Jamnagar House, Mansingh Road, New Delhi-110011

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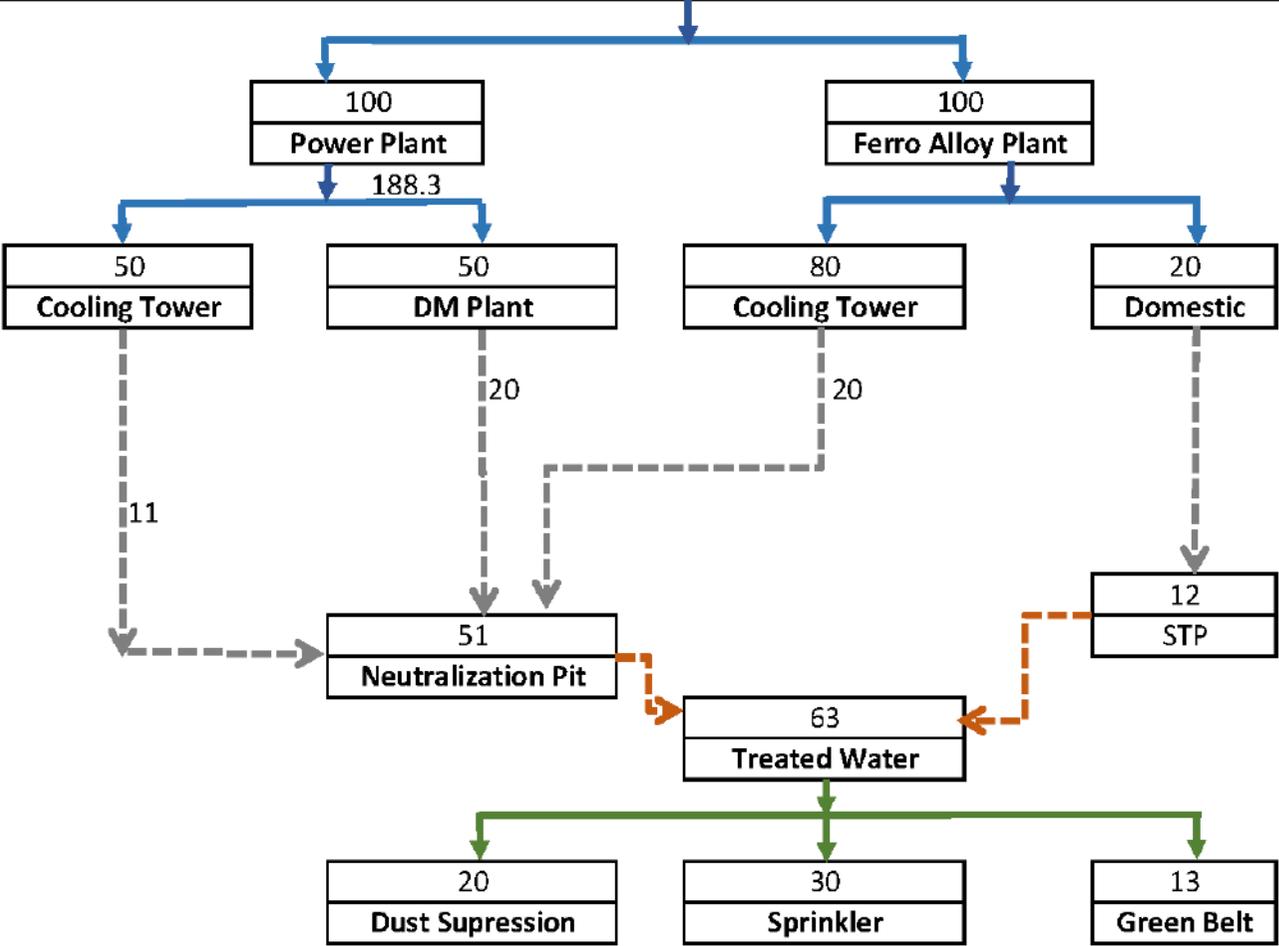
Term and conditions:

- i. All disputes are subject to Delhi Jurisdiction.
- ii. Any complaint in regard to the rates will not be entertained.

Member-Secretary
CGWA, New Delhi

CENTRAL GROUND WATER AUTHORITY

Fresh Water From Ground Water (200 KLD) + & Recycled Water (63 KLD) = 263 KLD



Water Balance Diagram for Manufacturing Unit II and Captive Power Plant



छत्तीसगढ़ CHHATTISGARH

U 162624

Agreement for Distribution of water

BETWEEN

Alok Ferro Alloys Limited (AFAL)

AND

RR Ispat (A Unit of M/s Godawari Power and Ispat Ltd.)

AND

Hira Power and Steel Limited (HPSL)

AND

Hira Ferro Alloys Limited (HFAL)

FOR DISTRIBUTION OF STP WATER DRAWN FROM RAIPUR MUNICIPAL CORPORATION FROM THEIR SEWAGE TREATMENT PLANT AT NIMORA, RAIPUR, C.G.

This Quadripartite Agreement is being entered upon by and between the parties below on this...^{21st}... Day of ...^{January}... 2025,

By and Between

Alok Ferro Alloys Limited, a company incorporated under provisions of the Companies Act, 1956, having its registered office at Plot No.458/1 & 459, Urla Industrial Complex, Raipur - 492003 (C.G.) (herein after referred to as the "AFAL"), which expression shall, unless the context otherwise requires, include its successors in interest, permitted assigns and substitutes of the FIRST PART;

[Signature]

[Signature]
RR I

[Signature]
HPSL

[Signature]

DISTRICT TREASURY OFFICE
14 JUL 2025
RAIPUR (CHHATTISGARH)

क्रमांक 5940 दिनांक 14/07/25 कीमत 100/-
विक्रेता आ. लोड ट्रेड ए लॉयर्स लि.
पिता/पति/बेदा
निवासी उ. लोड तहसील रायपुर (छ.ग.)
मार्फत ओम प्रकाश कुटे
केला शोभा ट्रेड ए लॉयर्स लि. रायपुर
पिता/पति/बेदा
निवासी उ. लोड तहसील रायपुर (छ.ग.)
बास्ते ए. लोड/इ. लोड केनामा कीमती 100/-

Rizwan Chamadia, Stamp Vender, Narmadapara, RAIPUR (C.G.)

ओम प्रकाश कुटे

AND

RR Ispat (A Unit of M/s Godawari Power & Ispat Ltd), a company incorporated under provisions of the Companies Act,1956 ,having Its registered office at **Plot No 480, 480/1,490/1 and 491/2, Urla Industrial Complex, Raipur – 492003 (C.G.)** (here in after referred to as the "**RRI**"), which expression shall, unless the context otherwise requires, include its successors in interest, permitted assigns and substitutes of the **SECOND PART**;

AND

Hira Power & Steel Limited, a company incorporated under provisions of the Companies Act,1956 ,having Its registered office at **Plot No 511/1,512/2, Urla Industrial Complex, Raipur – 492003 (C.G.)** (here in after referred to as the "**HPSL**"), which expression shall, unless the context otherwise requires, include its successors in interest, permitted assigns and substitutes of the **THIRD PART**;

AND

Hira Ferro Alloys Limited, a company incorporated under provisions of the Companies Act,1956 ,having Its registered office at **Plot No.567-B, Urla Industrial Complex, Raipur – 492003 (C.G.)** (here in after referred to as the "**HFAL**"), which expression shall, unless the context otherwise requires, include its successors in interest, permitted assigns and substitutes of the **FOURTH PART**;

Altogether, all the parties will be hereafter referred as All parties.

Whereas, AFAL has entered into an Agreement dated 15.01.2025 (hereafter referred as the "Agreement") with the Raipur Municipal Corporation (hereafter referred as RMC) for drawl of Treated water from their Sewage Treatment Plant (STP) at Nimora, Raipur, C.G.

That, as per the terms of the Agreement AFAL has agreed for drawl of a total of 3MLD treated water from the RMC, out of which all parties agree for pro-rata consumption of 2MLD of STP water and remaining 1 MLD of STP water shall remain for open consumption for any party or parties who wishes to use the additional water as per their requirement.

Therefore, in mutual consideration of the below mentioned terms and conditions all parties agree:-

- 1) Term of Agreement:** This agreement shall be operational for a period of 15 years starting from the commencement of drawl of

[Handwritten Signature]

[Handwritten Signature]
RRI

[Handwritten Signature]
HFAL

[Handwritten Signature]

STP water from the Sewage Treatment Plant of RMC and shall be subjected to the Terms and Conditions (T&C's) of the Agreement as applicable from time to time along with all the amendments and renewal of the agreement.

2) Distribution of STP Water:

- i) As per the Agreement AFAL has agreed for drawl of upto 3MLD treated water from the Sewage Treatment Plant of Raipur Municipal Corporation (RMC) at Nimora, Raipur, C.G., and hereby all parties agree for regular consumption of 2MLD treated water on pro-rata basis and consumption of remaining 1 MLD of treated water shall be open to all parties and any party(ies) shall expressly convey their requirement from this additional water in advance to the remaining parties.
- ii) Accordingly, The regular distribution of 2 MLD drawn STP water shall be as follows: **AFAL shall draw 1MLD of STP water, RRI shall draw 0.45 MLD of STP water, HPSL shall draw 0.45 MLD of STP water and HFAL shall draw 0.1 MLD of STP water.**
- iii) Thereafter, the remaining 1 MLD of STP water shall be available for open consumption by any party or parties who require the STP water for their usage upon expressing their requirement in advance to the remaining parties.

3) Adherence and Compliances of Terms and Conditions (T&C's) of Agreement: The Terms and Conditions (T&C's) mentioned in Agreement of AFAL with the RMC shall be binding on all parties in all respects. (*Agreement between AFAL and RMC are annexed herein as Annexure-I*) and All parties are to strictly adhere to the T&C's of the Agreement as applicable from time to time including any and all amendments, additional agreements or MOU's and renewal of the Agreement. Further including any decision or recommendations of the Joint Oversight Committee (JOC).

4) Civil Work and Maintenance Work:

- i) All parties earlier contributed on pro-rata basis towards the Civil/Construction work that was required to be done for laying of pipelines and infrastructures for drawl of water from RMC's STP at Nimora.
- ii) Now, all parties agree that any cost of further construction work or maintenance of existing works or any new Capital work shall be borne by all parties on pro-rata basis as well. Accordingly, AFAL shall bear 50% of any such costs, whereas, RR Ispat and HPSL agree for 22.5%-22.5% as their contribution towards any such work and HFAL shall have 5% share on any such costs. All

[Handwritten signature]

[Handwritten signature]
RRI

[Handwritten signature]
HPSL

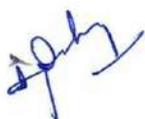
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payments in this regard shall be made to AFAL accordingly as per mutually agreed terms.

5) Payment:

- i) The parties shall bear the cost of the STP water that party draws on consumption basis.
- ii) **Payment of RMC Bills:** The RMC will generate the bill of water consumption in the name of AFAL on monthly basis as per the T&C's of the Agreement, thereafter, AFAL shall generate the details of share of each party depending on their respective water consumption as per the Meter readings as agreed below. Each party shall pay their respective share to AFAL before the deadline of payment of Bill to RMC.
- iii) The share of each party will be based on consumption as per the reading of the meter and records of the parties.
- iv) All parties shall submit records of over-drawl and under-drawl to AFAL for adjustment and share in the annual over-drawl and under-drawl bill of the RMC as per the applicable T& C's from time to time. AFAL shall monitor, regulate and record the over-drawl and under-drawl of each party.
- v) All parties agree to comply with the terms of the Agreement regarding under-drawl of water and shall, in any event, pay AFAL a minimum of 10% of their designated share.
- vi) All parties mutually agree to bear all costs on consumption basis including any losses in pipelines that shall be adjusted or shared by AFAL.
- vii) All Parties agree to share the costs of any or all losses in pipeline from RMC to Drawl points and to share any and all all difference in RMC meter reading and Party meter reading on pro-rata basis.
- viii) AFAL shall generate other share of payments made as per this internal agreement or in subsequence thereof to the other parties and the remaining parties shall submit their share to AFAL within a week of receiving of such share.
- ix) In case any party defaults in payment of their share in regular bills of RMC other costs then the defaulting party shall pay late penalty @5% per month for delay and if the default is continued more than 6 months the defaulting party shall be terminated from this internal agreement and their connection for water shall be cut off.
- x) If the party wishes to be reinstated in this internal agreement then the party shall cure the default and submit a sum as decided by other parties in advance as security deposit that may be settled in future as per mutually agreed terms of the other parties.

6) Hiring: All parties agree that hiring of Contractor, laborers,




RRI


HPS



Experts, Technicians, Machinery, Equipment for fulfillment of the Terms of this internal Agreement, maintenance of existing or new Civil Work and hiring of Laboratories for quality testing shall be done by AFAL as per the requirement, whereas All parties agree to share the payment towards any cost arising out of the above on pro-rata basis of AFAL:RRI: HPSL:HFAL in 50:22.5:22.5:5 ratio. AFAL shall generate the respective share of each party towards any such costs.

7) Meter:

- I) Each party has installed a meter at the respective drawl end of the pipeline for effective measure of water drawn.
- II) Meter Readings shall be conducted by a designated Personnel of AFAL.
- III) Meter shall be calibrated and regularly checked by AFAL and faulty meter shall be immediately replaced at the meter owner's cost.
- IV) Whereby, in case of faulty meter or meter irregularity of any party, the reading shall be made by making necessary deductions by setting off the actual water consumed by all parties as per the readings of meter of other parties and the meter at drawl end at RMC.

8) Maintenance:

- i) All Parties agree that AFAL shall conduct regular maintenance work for the Pipelines and meters whereby all parties agree to share the cost of this regular maintenance work on Pro-rata basis and settle the costs on quarterly basis.
- ii) Any expenditure/maintenance on labour costs, Staff wages/Salaries, equipment, spares & repairs, costs towards Joint Oversight Committee (JOC)- its maintenance cost- and any other expenses, and all other related miscellaneous expenses shall be shared by the parties on pro-rata basis.
- iii) **Electricity Charges:-** All parties agree to share the Electricity Charges incurred in respect to the drawl of water on Pro-rata Basis.

9) Liabilities:

- i) AFAL shall be liable to get the construction work done and make payment for the contractor-labourer-machinery,etc necessary in order to draw the STP water and the remaining parties i.e. RRI, HPSL and HFAL will be liable to pay their share in the said Civil/construction work.

[Handwritten signature]

[Handwritten signature]
RRI

[Handwritten signature]
HPSL

[Handwritten signature]

- ii) AFAL shall be liable for all the maintenance work and the parties will contribute the costs of maintenance on quarterly basis.
- iii) In the event of any accident or unforeseen incident, AFAL may bear initial liability; however, the cost of repairs or restoration shall be shared by all parties on a pro-rata basis, *provided* the incident occurs at a location commonly shared by all. If the incident affects only a specific party and occurs exclusively within their demarcated property, then the entire liability for repairs or restoration shall rest solely with that party.

10) Subletting:- The rights of distribution of water solely rests with AFAL and No party shall sublet, assign, or transfer its rights, obligations, or entitlements under this Agreement, whether in whole or in part, to any third party. Any such subletting or assignment shall be deemed null and void and shall constitute a material breach of this Agreement.

11) Confidentiality: All party will keep the terms and conditions of this agreement entirely confidential and will at no point disclose the terms and conditions to any other person or company who is not a part of this agreement, unless deemed fit to do so.

12) Termination:

- i) This internal agreement is subjected to the T&C's of the Agreement of AFAL and RMC and all parties shall adhere to the T&C's of the Termination of the Agreement.
- ii) Any party who wishes to exit from this internal agreement shall do so only after clearing all payment dues with AFAL after giving 60 days notice to AFAL and other parties.

13) Force Majeure

No Party shall be considered to be in default in the performance of any of its obligations when a failure to perform is due to or materially contributed to by an act of God, war, fire, earthquake, Pandemic, epidemic, windstorm, flood, and other natural catastrophe, civil disturbance or disobedience, strikes, lockouts, work stoppage, vandalism, sabotage, terrorism, which such Party could not reasonably have been expected to avoid and which by exercise of due diligence has been unable to overcome. The Party whose performance is affected by force majeure shall, as soon as practicable, but in any event no later than 7 days thereafter, give written notice of the event of force majeure to the other Parties and all the Parties shall use their best efforts and cooperate with each other to mitigate the effects of force majeure resulting to.

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- 14) Amendment:** All party may amend the terms and conditions of this agreement by mutual consent of all the parties.
- 15) Severability:** If any part of the agreement violates any law or rules then that part shall be strike of and the rest of the agreement shall continue to be in force.
- 16) Entire Agreement:** This agreement will all of its terms and conditions and pages and annexures shall be considered as one single agreement.
- 17) Governing law:** This agreement shall be governed by the laws of India and local laws of Raipur, Chhattisgarh.
- 18) Disputes:** Any Dispute arising out of this agreement shall be decided amicably by all four parties or by Arbitration as per the Arbitration and Conciliation Act 1996.
- 19) Notices:** Any notice required or permitted to be given under this Agreement shall be in writing, shall specifically refer to this Agreement, and shall be addressed to the appropriate Party at their respective address and shall be deemed to have been given for all purposes when Hand Delivered or send by E-mail or by Registered Post.

Alok Ferro Alloys Limited

For, R.R. ISPAT

For, HIRA POWER & STEELS LTD.

(A Unit of Godawari Power & Ispat Ltd.)

For Hira Ferro Alloys Ltd.

Director/ Authorised Signatory
AFAL

RRI

HPSL

Director/ Authorised Signatory

Witnesses:

Witness:1:

[Signature]
FIROZ KHAN
Alok Ferro Alloys Ltd.

Witness:2:

RRI

RK TRIVEDI
URLA RAIPUR
[Signature]

Witness:3:

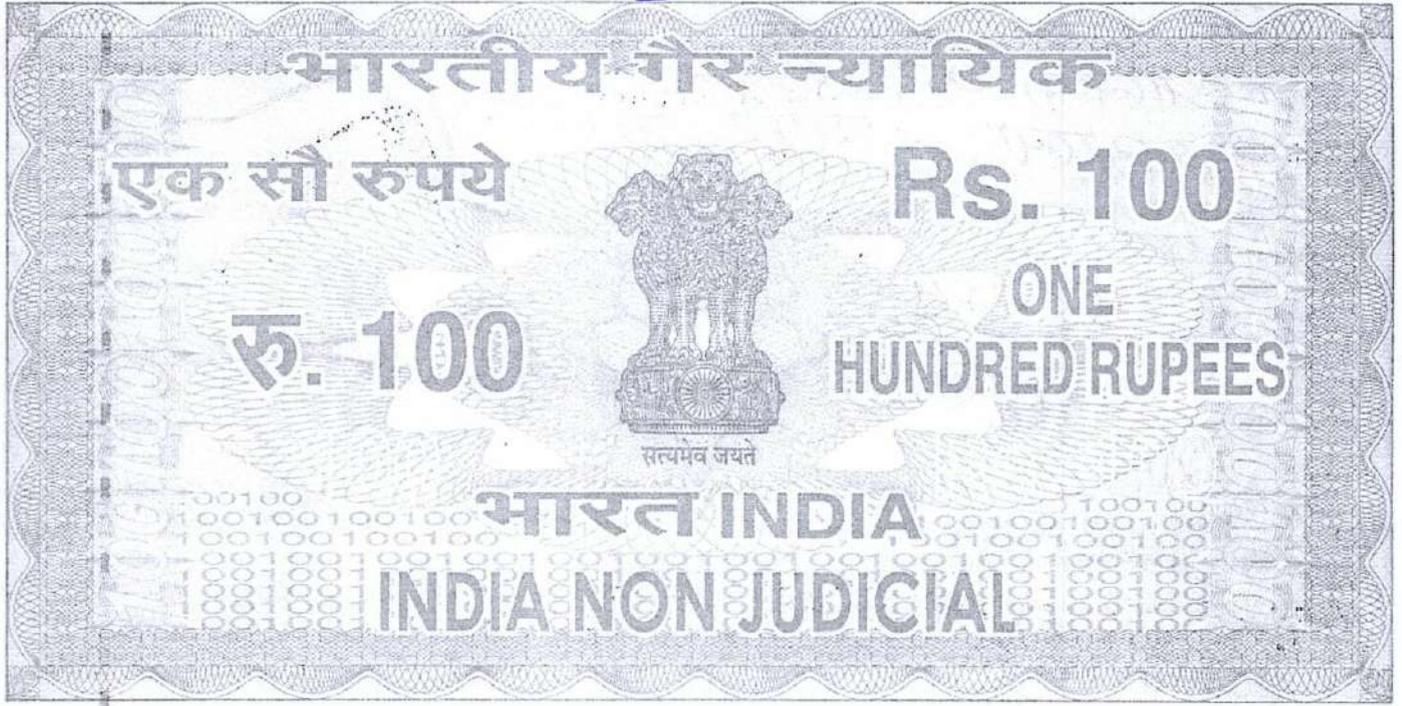
HPSL

(Narayan Sahu)
Hira Power and Steels Ltd.

Witness:4:

Lalit Tembhare
URLA Raipur
9755098126

[Signature]



छत्तीसगढ़ CHHATTISGARH

NO 629 /SBM/ RMC/ 2024-25

T 684988

Date - 15.01.20

AGREEMENT

BETWEEN

RAIPUR MUNICIPAL CORPORATION (RMC)

AND

M/S ALOK FERRO ALLOYS LIMITED (AFAL)

This Agreement is entered upon by and between the parties below on this
.....^{15th} Day of JANUARY 2025,

By and Between

Raipur Municipal Corporation, the governing body of the city of Raipur in the state of Chhattisgarh, having its registered office at White House, Raipur, Chhattisgarh PIN 492001 (hereinafter referred to as the "**RMC**"), which expression shall, unless the context otherwise requires, include its successors in interest, permitted assigns and substitutes of the **FIRST PART**;

AND

M/s Alok Ferro Alloys Limited, a company incorporated under provisions of the Companies Act, 1956, having its registered office at Plot

Alok Ferro Alloys Limited


Director/ Authorised Signatory


Additional Commissioner
Municipal Corporation Raipur (C.G.)

4088 08/01/2025 100/-

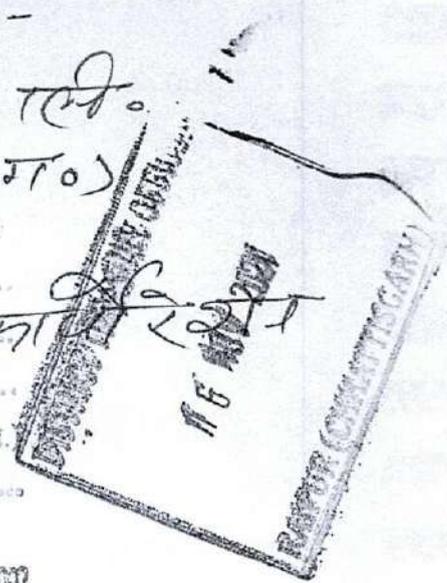
आलोक फॅरी हिल्स एल.सी.

उरला रायपुर (ह.ग.)

पवन द्विवेदी

रायपुर म्युनिसिपल कार्पोरेशन

रायपुर (ह.ग.) (उ.ग.)



हस्ताक्षर

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08/01/2025

रायपुर (उ.ग.) मोबा. 9827013003, 7987947037

No. 458/1 & 459, Urla Industrial Complex, Urla, Raipur, C.G. (hereinafter referred to as the "**Purchaser**"), which expression shall, unless the context otherwise requires, include its successors in interest, permitted assigns and substitutes of the **SECOND PART**;

"**RMC**" and "**PURCHASER**" are collectively referred to as "**Parties**" and individually as "**Party**".

Whereas, the Purchaser sought permission for drawl of water from RMC and after obtaining the above both parties entered upon an MOU dated 19.06.2024 after which the Purchaser has made necessary arrangement for drawl of water and is now entering upon this agreement for use of treated sewage water by PURCHASER from 90 MLD Sewage Treatment Plant of RMC at Nimora, Raipur C.G.

A. Raipur Municipal Corporation (RMC) desires to deliver treated sewage water to PURCHASER for its **M/s Alok Ferro Alloys Limited situated at** Plot No. 458/1 & 459, Urla Industrial Complex, Urla, Raipur, C.G. 492003 for Non-potable application after treatment of raw municipal sewage through sewage treatment plant. The secondary treated sewage water shall meet the NGT norms.

B. PURCHASER desires to accept treated sewage water for its Industry for Non-potable application by construction of pumping system, Tertiary Treatment Plant (as applicable to their requirement) and pipe conveying system up to the doorstep of the PURCHASER, to be executed by the PURCHASER at their end.

Whereas, both the parties are entering into this agreement as the construction of TTP, laying of conveyance pipes and commissioning of the work has been completed and the purchaser is now ready for drawl of water.

Whereas the Purchaser is going to withdraw water from the RMC and will distribute the water among its group of companies namely M/s Hira Power & Steel Ltd., M/s RR Ispat (A Unit of M/s Godawari Power & Ispat Ltd.) and M/s Hira Ferro Alloys Ltd as has been agreed between both parties.

Now, in witness whereof and upon mutual considerations both the parties agree upon the following terms and conditions: -

Alok Ferro Alloys Limited

Director/ Authorised Signatory

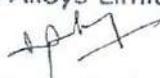

Municipal Commissioner
Raipur (C.G.)

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1. DEFINITIONS

- (a) **"Annual Contract Quantity"** means annual quantity (in ML) of 1050-- ML per year (3 MLDx350 days= 1050ML/Annum) of Treated Sewage Water, considering water to be supplied for 350 days in a year.
- (b) **"Daily Amount"** means 3 MLD of treated sewage water.
- (c) **"Emergency"** means an unanticipated event, which causes a malfunction of either Party's facilities, preventing either the delivery or the acceptance of water.
- (d) **"Joint Oversight Committee"** (JOC) means that committee comprised of four members, two (02) representatives each from - Raipur Municipal Corporation (RMC)/PURCHASER (as given in Annexure-III) established to share information and coordinate to fulfil each Party's interest as per agreement.
- (e) **"Meter"** means meter that will be established by the for measuring the daily intake of water.
- (f) **"Point-of-Delivery"** means the point at which Raipur Municipal Corporation (RMC) delivers water at the sump with Pumphouse near the STP.
- (g) **"Project completion"** means that point in time when the Project (Pumping System, Pipeline conveying system and Tertiary Treatment System (as applicable)) has been constructed, tested and commissioned successfully in accordance with Project specifications, the facilities are put under full operation, and the Project has been accepted in writing by the JOC.
- (h) **"Third Party"** means any person or entity (governmental, semi government or private) other than Raipur Municipal Corporation (RMC) or PURCHASER.
- (i) **"Raw Sewage"** means sewage water received at inlet of STP for treatment.
- (j) **"Secondary Treated Sewage"** means output from STP, which are input to pumping system or TTP (as applicable) meeting quality requirement as per Annexure-I.
- (k) **"Sewage Treatment Plant"** (STP) means Sewage Treatment facilities constructed by Raipur Municipal Corporation (RMC) at Nimora, Raipur.
- (l) **"Tertiary Treatment Plant"** (TTP) means Tertiary Treatment facility, to treat the secondary treated sewage water, constructed by RMC (Not Applicable).

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Additional Commissioner
Municipal Corporation Raipur (C.G.)

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(m) "Treated Sewage water Supply Charges" means the charges payable (if any) by PURCHASER to RMC towards the Supply of Treated Sewage water of the required quality and quantity

(n) "RMC" means Raipur Municipal Corporation.

(o) "PURCHASER " means the Industry desiring to purchase the secondary treated sewage water for non potable purpose , Raipur/Durg

(p) "ML & MLD" means Million Litres & Million Litres per Day.

(q) "Capex charges (RMC scope)" shall mean the capital cost of facilities defined under RMC scope (price bid of the successful Bidder in Open Tender, mutually agreed upon and subject to approval of respective Managements).

(r) "Opex charges (PURCHASER Scope)" shall mean the O&M charges of the facilities defined under PURCHASER scope (price bid of the successful Bidder in Open Tender, mutually agreed upon and subject to approval of respective Managements) payable on per cubic meter basis.

2. QUANTITY

"Demand by PURCHASER Raipur and Supply by RMC"

2.1 STP of 90 MLD has been constructed by RMC at Nimora, Raipur (C.G.) out of which 3 MLD secondary treated sewage water shall be supplied to PURCHASER Raipur (C.G.). PURCHASER agrees to accept 3 MLD treated sewage water from the Existing STP recently constructed by RMC at Nimora, Raipur.

2.2 The transmission piping system shall be designed by the PURCHASER to deliver Treated Sewage Water to the PURCHASER's **Factory Premises**. RMC agrees to supply the treated sewage water at a steady uniform rate (allowable variation of (+/-) 15%) with storage facility at STP premise on daily basis.

2.3. The daily drawl of water by the PURCHASER M/s Alok Ferro Alloys Limited shall be 3 MLD, whereby a meter shall be installed at the point of delivery to measure the actual drawl of water by PURCHASER and to cross check any network losses Purchaser will install one meter at premises delivery end the actual reading of which shall be accounted at the time of billing every month.

2.4 Commencement of this agreement shall start when the Purchaser starts withdrawing water from the STP.

3. "QUALITY"

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Municipal Corporation Raipur (C.G.)

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3.1 RMC shall be bound to supply secondary treated sewage meeting NGT Norms as per Annexure-I. Additional parameters like TDS, Chloride and total hardness shall not be ensured as they are not treated in the STP (Annexure-II).

3.2 PURCHASER shall use treated sewage water for non-potable purposes in its Industry/ plant.

3.3 RMC shall supply treated sewage water as per the quality standards mentioned in Annexure-I as per statutory norms.

3.4 In case of disagreement on treated sewage water quality, the same shall be tested in an accredited third-party laboratory mutually agreed and through the joint sampling. The sampling and testing shall be done atleast once a month. The water quality results obtained out of such process shall only be considered for the operation of any quality related clauses in this agreement.

4. "DIVISION OF SCOPE"

4.1 PURCHASER scope shall include TPP (as applicable) and pumping system, to be located at the premises of Purchaser property, supply and laying of conveying pipeline to TPP, to be executed by PURCHASER as per their suitable design and cost.

4.2 RMC shall be responsible to supply secondary treated sewage water at sump within STP premises (the point of delivery).

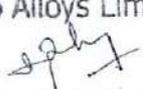
4.3 RMC shall facilitate filling arrangement at the point of delivery of water for the purpose of filling water tankers of the purchaser company till the pipeline is completely laid from delivery point to company premises. Energy charges of the above shall be paid to RMC by Purchaser when RMC raises demand in writing.

5. "COST & PAYMENT"

5.1 The tariff for secondary treated sewage water shall be levied as per the rate of Rs. 06.00 (Rs Six Only) Per Kilo Liter. The rates shall be binding and can be increased with a maximum rate of 3% every year. The rates shall be inclusive of the taxes and levies on RMC's part however GST if applicable shall be charged extra as per the prevailing rates.

5.2 The Capex & Opex charges for installation and O&M of, pumping & piping system defined under the scope of PURCHASER shall be payable by PURCHASER.

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5.3 PURCHASER shall pay the amount on calendar month basis based on actual drawl of water based on the meter readings further subject to Treated Sewage Water meeting the effluent quality as indicated in Annexure-I.

5.4 The bill shall be raised by 7th of the month for the quantity supplied in the previous calendar month. The same shall be paid within 15 days from the receipt of the bill by hard copy or by e-mail.

5.5 In case of Under drawl, the PURCHASER agrees to pay 10% amount towards minimum demand charges of the total Annual Contract Quality demand. The minimum demand would be 10% of the contracted demand.

5.6 In case of over drawl, the PURCHASER shall be restricted to draw not more than 10% additional water of annual contract quantity without incurring additional charges or incremental tariff. For any quantity exceeding the above 110% drawl the PURCHASER will pay to the RMC @ 1.5times the tariff rate for the excess drawl.

5.7 The bill for every month shall be raised on actual drawl of STP water, however, calculation for under drawl and over drawl shall be conducted on annual basis for the entire financial year along with the monthly bill for the month of March, that shall be payable in the April of the Next financial year.

5.8 RMC shall waive off the payment of Minimum Demand Charges till the PURCHASER completes the laying of pipeline from STP to its factory/plant premises.

5.9 If the PURCHASER does not lift the desired water without providing any prior notice of emergency or any notice of non-withdrawal the PURCHASER will be liable to pay the Minimum demand charges of 10% on under drawl water towards the yearly drawl to RMC as explained in clause 5.5 towards minimum demand charges by the PURCHASER in any case.

5.10 However if the PURCHASER does not lift the desired water without providing any prior notice of emergency or any notice of non withdrawal the PURCHASER will be liable to pay the Minimum demand charges of 10% towards the monthly drawl to RMC as explained in clause 5.5 towards minimum demand charges by the PURCHASER in any case.

6. "METER AND METER READING"

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6.1 A meter indicator and other necessary specialized equipments shall be established by the RMC at the point of delivery for measuring of the water intake by the PURCHASER, whereas a check meter shall be established by the PURCHASER .

6.2 The meter shall be read by the competent officials of the RMC once a month prior to raising the bill or as when necessary.

6.3 The meter after reading shall be sealed by the competent officials of RMC, to prevent any dispute in regards to tampering of reading.

6.3 The meter shall be maintained by the PURCHASER and the JOC must ensure the working of the meter and to keep it in good working condition always.

6.4 In case of a dispute with regards to the meter or meter reading, the data from the check meter will be considered for all billing related matters. In case of both meters being out of order the monthly billing shall be based on the average of previous 3 months of water drawl. The JOC may try and settle the matter amicably and in happenstance of non settlement of issue the matter shall be dealt as per the clause 18.

6.5 Leakage in pipe line network shall be within stipulated norms/byelaws

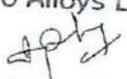
7. "PERIOD OF AGREEMENT"

The minimum period of agreement for supply of Treated Sewage Water shall be for 15 years, from the date of start of operation & commencement of supply of treated sewage water to PURCHASER Raipur from RMC. Renewal of agreement shall be upto the tune of the period of the agreement upon mutually agreed terms.

8. "END USE OF TREATED SEWAGE WATER"

8.1 PURCHASER M/s Alok Ferro Alloys Limited shall have all the rights for end use of Treated Sewage Water of agreed quantity at specified quality for any non-potable application. RMC shall discharge/utilise surplus treated sewage water, if any, meeting quality level as per prevalent norms of concerned statutory authority (ies). RMC shall keep the provision of discharging/utilising treated sewage water due to less/no drawl of Treated Sewage Water by PURCHASER, based on the operational requirement of the PURCHASER.

8.2 PURCHASER shall have the right to refuse drawl of treated sewage water in case RMC fails to deliver water of agreed quality and/or quantity. The purchaser shall have to notify to the RMC by a notice stating

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deviations in quality parameters. Whereby the RMC shall compensate towards minimum demand charges to the PURCHASER for the days wherein the quality of water was not as per contracted parameters.

9. "RIGHTS, PERMISSIONS, STATUTORY OBLIGATIONS"

RMC shall be responsible for all the rights permissions and statutory obligations, the norms of state or central pollution control board or water right issues with water resources department or any other government department related to the treatment and disposal of effluent of the sewage treatment plant.

10. DELIVERY AND ACCEPTANCE OF WATER

10.1 Upon commencement of operations, RMC shall deliver to PURCHASER at the point of delivery, the daily amount of water as agreed in this document except for supply interruption as set forth in clause-14 or excused as provided in Clause-13.

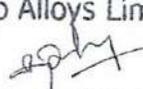
10.2 For the purpose of measuring the Parties' compliance with this section, the day shall be the twenty-four hours period commencing on 12.00 noon on the first day of the month following Commencement of Operations. Quality parameter and quantity delivered shall be measured at the point of delivery and shall be considered for acceptance. JOC will maintain all records related to quality and quantity of treated sewage water supplied to PURCHASER. The instruments for measurements of quantity and quality shall be regularly checked for correct calibration once in every month by JOC or as desired.

11. QUALITY SAMPLING & TESTING OF WATER

11.1 PURCHASER shall have access to RMC facilities and records for the purpose of either testing or verifying the quality of the Treated Sewage Water only after prior permission from RMC.

11.2 The PURCHASER shall take one sample each for 3 shifts in a day to test the quality of water at the purchaser end whereby, in case of any deviation with regards to the quality of water, the PURCHASER and RMC shall jointly test the water to determine the quality of water at the point of delivery. If any dispute as to whether the quality of water is as per the required standards occurs then the sampling and testing of the water will be drawn at the point of delivery and shall be referred to an independent

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NABL accredited LAB. The outcome of the 3rd party lab report is binding to both the parties.

11.3 If the Treated Sewage Water quality do not meet the quality performance set at the point of delivery for whatsoever reason then PURCHASER shall not accept the water to be supplied to its Industry & shall not have any obligation of payment towards any minimum charges in such case.

11.4 The quality parameters declared at the time of signing the MOU, as attached at Annexure-I, shall be considered final and binding throughout the period of agreement.

12. JOINT OVERSIGHT COMMITTEE (JOC)

12.1 The Parties shall establish the JOC. The goal of the JOC shall be to achieve maximum efficiency of the overall work. The representative of RMC and PURCHASER Ltd shall occupy the position of Chairman of JOC by rotation after each period of one calendar year.

12.2 Each Party shall designate its two (2) representatives within 10 days following execution of this Agreement and each Party shall provide notice to the others pursuant to clause 30.

12.3 The JOC shall keep written minutes of its meetings.

12.4 Each Party may, by written or oral notice to the other Party, designate an alternate or substitute to act as its representative in the absence of any of its regular members or to act on specified occasions with respect to specific matters.

12.5 Meeting of JOC shall conduct for a minimum of 4 times a year.

13. DUTIES OF JOINT OVERSIGHT COMMITTEE (JOC)

13.1 Each Party shall have two members in JOC. At least one authorized representative each from RMC & PURCHASER shall be present at all meetings.

13.2 The JOC shall share information between the Parties and coordinate the operations of the Parties in order to achieve the objectives of this agreement and resolve disputes between the Parties. However, JOC will not have any right to verify the design and supervise the quality of

Alok Ferro Alloys Limited

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Municipal Corporation Raipur (C.G.)

construction works.

13.3 The JOC shall be responsible for the periodic review of the water quality parameters as given in Annexure-I & II. Sampling protocol shall be established by the JOC.

13.4 The JOC shall meet whenever requested by a member of the JOC.

13.5 If the JOC is unable to act on any issue raised by a member of the JOC, the JOC shall refer the issue to mediation.

13.6 The JOC shall be the administering body at the time of emergency therein the JOC shall authorize interruption or delivery of water and shall be responsible for regularly providing updates to both the parties about the nature of emergency, the rectifications repairs required and the party responsible for such rectification and repairs.

14. FORCE MAJEURE

14.2 No Party shall be considered to be in default in the performance of any of its obligations when a failure to perform is due to or materially contributed to by an act of God, war, fire, earthquake, Pandemic, epidemic, windstorm, flood, and other natural catastrophe, civil disturbance or disobedience, strikes, lockouts, work stoppage, vandalism, sabotage, terrorism, which such Party could not reasonably have been expected to avoid and which by exercise of due diligence has been unable to overcome.

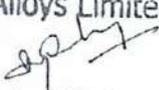
14.3 The Party whose performance is affected by force majeure shall, as soon as practicable, but in any event no later than 7 days thereafter, give written notice of the event of force majeure to the other Party.

14.4 The Parties shall use their best efforts and cooperate with each other to mitigate the effects of force majeure resulting to.

15. SUPPLY INTERRUPTIONS

15.1 To allow maintenance or in an Emergency, the JOC may authorize an interruption of delivery and acceptance of water. The Party who is in emergency situation shall inform the other immediately over mail/phone/SMS and tackle the emergency situation expeditiously and shall not wait till formal meeting of JOC. The Parties' respective duty to deliver and accept water under this Agreement is temporarily suspended during a supply/acceptance (use) interruption authorized by the JOC.

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15.2 The Parties shall use their best efforts to minimize the length of supply/acceptance (use) interruption.

15.3 In case of administrative / technical constrains, emergency or forced restrictions, the disbursement of water shall be on first come first serve basis.

16. OBLIGATIONS, RIGHTS AND RELATIONSHIP OF THE PARTIES

A) Obligations of RMC

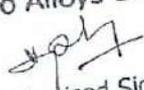
- i. RMC shall be responsible for timely execution of the complete scope of work for supplying the treated sewage water at the point of delivery.
- ii. RMC shall not be responsible for arranging all permissions, right of use, right of way etc as required, for executing and laying of treated sewage water supply pipeline up to doorstep of PURCHASER Raipur power plant.
- iii. RMC shall be responsible for maintaining the quality and quantity of the Treated Sewagewater at the point of delivery.
- iv. Pumping system, (as applicable) shall be in the premises of STP and the TTP if applicable shall be constructed by PURCHASER in their premises.
- v. RMC shall be responsible for O&M of the facilities (under RMC scope) and the PURCHASER shall be responsible for O&M of PURCHASER Scope.

B. Rights of RMC

RMC shall have the right to receive the tariff that will be levied by them upon the PURCHASER for drawl of water.

C. Obligations of PURCHASER Ltd

- i. PURCHASER shall make payments regularly to RMC on the date and manner agreed in this Agreement
- ii. PURCHASER shall be the lawful owner of the assets (under PURCHASER scope).
- iii. PURCHASER shall use the Treated Sewage Water for its industry for non-potable purpose.
- iv. PURCHASER shall be lawful owner of assets.

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Additional Commissioner
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v. PURCHASER shall use the Treated Sewage Water for its Industry for Non-potable usage.

D. RIGHTS OF PURCHASER

The PURCHASER shall have the right to receive the secondary treated water for non-potable purposes and in the quality as described by the NGT in ANNEXURE-I whereby in case of default by the RMC the PURCHASER will have the right to compensation.

E. General Obligations

i. Each Party shall use its best efforts and work diligently, in good faith, and in a timely manner to carry out the duties and obligations imposed by this Agreement.

ii. Each Party shall provide to the other Party services to permit efficient and reliable operations under this Agreement as follows:

iii. The obligations, rights and liabilities of the Parties under this Agreement are intended to be several and not joint or collective, and nothing herein is intended to create an association, joint venture, trust, or partnership, or to impose a trust or partnership obligation or liability on or with regard to RMC or PURCHASER Ltd.

iv. Except as expressly provided for in this Agreement or any other agreements, no Party shall be deemed the agent of or have the right or power to bind any other Party.

v. This Agreement shall become effective subject to approval from Commissioner RMC, for which necessary assistance and justification for the queries raised by Purchaser shall be provided by RMC.

vi. Both Parties shall Enter upon an agreement after the completion of the construction and commission of the work.

17. DEFAULT

If either Party to this Agreement defaults in respect to any of its obligations or under any of the clauses of this Agreement, the non-defaulting Party may notify the defaulting Party in writing, setting out in what respects the non-defaulting Party deems the defaulting Party to be in default. If within thirty (30) days or such other period as agreed to by the Parties in writing after receipt of notice, the defaulting Party has corrected the default alleged by the non-defaulting Party, the defaulting Party shall no longer be in default. In the event of failure by the party to mitigate the default(s), the other party may resort to the dispute resolution procedure under clause 18 for resolution of the said dispute(s).

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18. DISPUTE RESOLUTION

18.1 The parties in case of dispute shall sought to amicable settlement to be administered by the JOC. The terms and conditions of this agreement once agreed are non-negotiable whereby if a dispute arises then in such a situation the JOC shall administer the issues involved and resolve the same through amicable methods and mutual consultation of both parties.

18.2 If either party who is not satisfied by the resolve of the JOC, shall sought to arbitration whereby either party may propose a sole arbitrator who shall be or should belong to the judiciary and should hold position not below the level of Additional District Judge, whereby the arbitration shall be governed as per the Arbitration and Conciliation Act 1996.

19. ASSIGNMENTS

19.1 No Party shall assign, either in whole or in part, any of the rights, duties or obligations created or imposed under this Agreement without the prior written consent of the other Party, except to another Party to this Agreement or to a subsidiary, affiliate or any other entity succeeding to all or substantially all of the affected interests and assets of the Party provided that such subsidiary, affiliate or succeeding Party shall assume the assigning Party's obligations hereunder in writing.

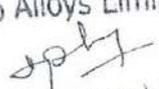
19.2 No delegation of any obligation owed, or of the performance of any obligation, by any Party, may be made without the prior written permission of the other Party. Any attempted assignment or delegation shall be wholly void and totally ineffective for all purposes unless made in conformity with this clause-

19.3 Consent may be withheld, refused, or conditioned if the economic viability of the other Party is a concern; provided, however, that consent may not be unreasonably withheld, conditioned or delayed.

20. INDEMNITY

(a) RMC Responsibilities: RMC shall, to the fullest extent permitted by law, defend, indemnify and hold harmless PURCHASER Ltd, its present and future members, officers, directors, employees and agents from and against

(a) any and all liabilities and losses resulting from claims or causes of action by any third party to the extent that claims or causes of action arise

Alok Ferro Alloys Limited

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Additional Commissioner
Municipal Corporation Raipur (C.G.) Page 13 of 18

out of, or are in any way related to, RMC's active negligence or wilful misconduct in the performance of RMC's responsibilities under this Agreement, and

(b) the consequences of RMC's violation or alleged violation of permits, statutes, ordinances, orders, rules or regulations of any government entity to the extent that a violation or alleged violation arises out of, or is in any way related to, MC's responsibilities.

(b) PURCHASER's Responsibilities: PURCHASER Ltd shall, to the fullest extent permitted by law, defend, indemnify and hold harmless RMC, their present and future members, officers, directors, employees and agents from and against

(a) any and all liabilities and losses resulting from claims or causes of action by any third party, to the extent that claims or causes of action arise out of, or are in any way related to, PURCHASER's active negligence or willful misconduct in the performance of PURCHASER's responsibilities under this Agreement, and

(b) the consequences of PURCHASER's violation or alleged violation of permits, statutes, ordinances, orders, rules or regulations of any governmental entity to the extent that a violation or alleged violation arises out of or is in any way related to PURCHASER's responsibilities.

(c) Notwithstanding anything contained herein, neither party shall be responsible to the other for any consequential or indirect damages.

21. NO DEDICATION OF FACILITY

Any undertaking by a Party under any provision of this Agreement is rendered strictly as an accommodation and shall not constitute the dedication of any facility by the undertaking Party to the public, to the other Party or to any Third Party. RMC shall have no interest in any facility owned or operated by PURCHASER Ltd and shall not be responsible for any shutdown, abandonment or cleanup of any facility.

PURCHASER Ltd shall have no interest in RMC's facilities and shall not be responsible for any repairs, shutdown, abandonment or cleanup of any RMC facilities.

22. NO THIRD PARTY BENEFICIARIES

None of the promises, rights or obligations contained in this Agreement shall inure to the benefit of any person or entity not a Party to this

Alok Ferro Alloys Limited

Director/ Authorised Signa


Additional Commissioner
Municipal Corporation Raipur (C.G.)

Agreement.

23. GOVERNING LAW

This Agreement shall be governed by the laws of India and the courts of Raipur shall have the exclusive jurisdiction.

24. ENTIRE AGREEMENT

This Agreement represents and contains the entire agreement and understanding between the Parties with respect to the subject matter hereof and supersedes any and all prior oral and written agreements and understandings. No promises, agreements, or warranties additional to this Agreement shall be deemed to be a part hereof, nor will any alteration, amendment or modification hereto be effective unless confirmed in writing by both Parties.

25. TERMINATION OF AGREEMENT AND TERMINATION PAYMENT

(a) PURCHASER may terminate this Agreement if:

(I) RMC fails to deliver treated sewage water of specified quality and quantity as reduced pursuant to Sections 9.1 for a continuous period of two months; and in such a case, the depreciated value of the cost borne by PURCHASER, towards use of treated sewage water shall be borne by the RMC whereby the PURCHASER shall become entitled to compensation to be made by RMC. If RMC has to pay compensation then the entire pipeline and related infrastructure shall be sole property of the RMC.

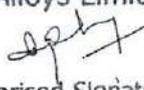
(II) PURCHASER is forced into a position of total shutdown of operations because of unforeseen circumstances then the PURCHASER by notification may terminate the Agreement. The PURCHASER shall pay compensation amount as agreed by JOC to RMC.

(b) RMC may terminate this agreement if:

PURCHASER defaults in accepting the treated sewage water meeting the specified quality parameters for a period more than 3 months continuously and not making payment for 3 months continuously.

Procedure for termination - The party wishing to terminate the agreement for the default of the other party; shall follow the procedure as laid down in clause 16 'Default'.

Alok Ferro Alloys Limited


Director/ Authorised Signatory


Additional Commissioner
Municipal Corporation Raipur (C.G.)

26. COMPLIANCE WITH LAWS

Both Parties shall comply with all applicable laws and the rules and regulations of Government of India, state, local judicial body having jurisdiction over the activities and operations conducted pursuant to this Agreement.

27. SEVERABILITY

This agreement shall be irreversible in general, however, in case of any change of law/notification/MoP guidelines, the agreement shall be mutually discussed and updated/amended. In the event that any term, covenant or condition of this Agreement or the application of any such term, covenant or condition shall be held invalid as to any person, entity or circumstance by any court or agency having jurisdiction, such term, covenant or condition shall remain in force and effect to the extent not held invalid, and all other terms, covenants and conditions of this Agreement and their application shall not be affected thereby but shall remain in full force and effect unless a court holds that such provisions are not severable from the other provisions of this Agreement.

28. WAIVER

Any waiver at any time by a Party of its rights with respect to any matter arising in connection with this Agreement shall not be deemed a waiver with respect to any subsequent matter. Any waiver must be in writing.

29. AMENDMENT AND MODIFICATION

This Agreement may be amended or modified by mutual consent by an instrument in writing signed by the Parties hereto.

30. NOTICES

Any and all notices or other communications required or permitted by this Agreement or by law to be delivered to, served on by mail or fax, or given to either Party to this Agreement shall be dated and in writing and shall be deemed properly delivered, served, or given when personally delivered or faxed to the Party to whom it is directed or, five business days after postal mail, first-class postage prepaid, addressed to the Parties as follows:

Alok Ferro Alloys Limited

Director/ Authorised Signatory


Additional Commissioner
Municipal Corporation Raipur (C.G.)

Party

Address

RMC, Raipur
AFAL, Raipur (PURCHASER)

Attn.: The Commissioner, RMC
Attn.: Director, AFAL

Any Party hereto may change its address for the purpose of Section 30.1 by giving written notice of such change in the manner prescribed herein to the other Party to this Agreement.

IN WITNESS WHEREOF, both Parties hereto have by their duly authorised representatives executed this MOU on the day and year first above written.

For & behalf of

Raipur Municipal Corporation

Uoo

Additional Commissioner
Municipal Corporation Raipur (C.G.)

PURCHASER

M/s Alok Ferro Alloys Limited

Alok Ferro Alloys Limited

spdy

Director/ Authorised Signatory

Witnesses

1. Dr. Dakshi Diggh Sharma
Khamteerai, Raipur
(C.G.)
2. Lalit
Lalit Kumar Tembhere
Uda Raipur
3. Yogesh Kumar
A.G. P.M.C.

Annexure - I

Required/Accepted parameters of treated water from STP by the PURCHASER:-

S.T.P WATER REPORT (NIMORA)		
DATE - 24/04/2023		
SR. No.	DESCRIPTION	PERMISSIBLE LIMITS
1	P H	7.3 TO 7.7
2	TOTAL HARDNESS (mg/L)	LESS THAN 650
3	CHLORIDE (mg/L)	200 to 380
4	CONDUCTIVITY (us/cm)	LESS THAN 1200
5	T.D.S (mg/L)	LESS THAN 600
6	ALKALINE P (mg/L)	NIL
7	ALKALINE M (mg/L)	200 to 300
8	TURBIDITY (NTU)	LESS THAN 5
9	TOTAL PHOSPHATE (PPM)	0.02 to 0.05
10	TOTAL SUSPENDED SOLIDS T.S.S. (mg/L)	LESS THAN 2 to 5
11	OIL & GREASE (mg/L)	0.05 to 0.08
12	IRON (mg/L)	0.02 to 0.1
13	COD (mg/L)	LESS THAN 50
14	BOD (mg/L)	10 TO 20
15	AMMONIUM NITROGEN (mg/L)	0.05 to 0.1
16	T.K.N (mg/L)	0.02 to 0.05
17	DISSOLVED OXYGEN (mg/L)	7 TO 8
18	CHLORINE (mg/L)	0.15 to 0.2

Alok Ferro Alloys Limited

Director/ Authorised Signatory

Uoo
Additional Commissioner
Municipal Corporation Raipur (C.G.)

Annexure III: LCA Report



Life Cycle Impact Assessment Report

Expansion of Ferro Alloys Production Unit

at Urla Industrial Area, Chhattisgarh

For

M/s Hira Ferro Alloys Limited

Submitted on: 08.11.25



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Disclaimer: *This report has been prepared based on information that we believe to be reliable and accurate. We do not warrant the accuracy or completeness of the assumptions made. This report has been prepared for the exclusive use and benefit of the addressee(s) and solely for the purpose for which it is provided. Unless we provide prior written consent, no part of this report should be reproduced, distributed or communicated to any third party. We do not accept any liability if this report is used for an alternative purpose from which it is intended, nor to any third party in respect of this report.*

1 Executive Summary

This study was undertaken to assess the life cycle impact of Ferro Alloys production within the manufacturing process, analysing its environmental and resource implications from cradle to gate.

Environmental assessments for the production of Si-Mn, Fe-Mn, Fe-Si, Pig Iron, and Ferro Alloys (Si-Mn/Fe-Mn) using Ferro Melt Induction Furnaces typically focus on plant uptake and emissions. However, incorporating Life-Cycle Assessment (LCA) provides a more thorough evaluation by also considering the impacts throughout the production process. Therefore, utilizing LCA in product development, alongside traditional methods, is recommended for a more comprehensive assessment.

The results of the life cycle assessment for producing 1 ton of each product at the proposed expansion of the Ferro Alloys Production Unit of M/s Hira Ferro Alloys Limited, situated in Urla Industrial Area, Accholi Village, Raipur Tehsil, and District, Chhattisgarh, are detailed in the following chapters.

2 Introduction

In the production of Si-Mn, Fe-Mn, Fe-Si, Pig Iron and Ferro Alloys (Si-Mn/Fe-Mn), we have analysed both overall unit emissions and per-product emissions and evaluated the total emissions associated with production. The impacts of these emissions are discussed in the following study.

LCA Framework:

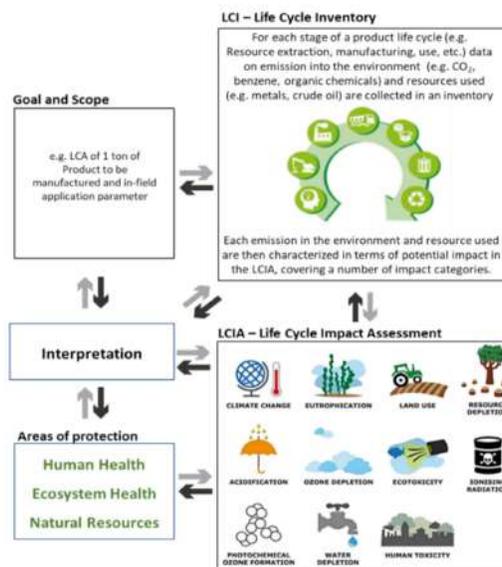
Goal and Scope definition is the LCA phase in which the aim of the study, and in relation to that, the breadth and depth of the study is established as per ISO 14044. It is the first phase of an LCA. The goal of the study includes the purpose of the study. The scope of the study includes function, functional unit, and reference flow, initial choices (system boundaries, data categories, inputs and outputs, data quality, critical review), critical review and other procedural aspects.

Life Cycle Assessment (LCA) is a step-by-step process for computing the lifetime environmental impact of a product or service. The complete process of LCA includes goal and scope definition, inventory analysis, impact assessment, and interpretation. The process is naturally iterative as the quality and extensiveness of data and its credibility is constantly being verified.

Life Cycle Inventory (LCI), which is the data collection portion of LCA. LCI is the straight-forward accounting of everything involved in the “system” of interest. It consists of detailed tracking of all the flows in and out of the product system, including raw resources or materials, energy by type, water, and emissions to air, water and land by specific substance. This kind of analysis can be extremely complex and may involve dozens of individual unit processes in a supply chain (e.g., the extraction of raw resources, various primary and secondary production processes, transportation, etc.) as well as hundreds of tracked substances.

Life Cycle Impact Assessment (LCIA). In LCIA, the inventory is analysed for environmental impact. For example, manufacturing a product may consume a known volume of natural gas (this data is part of the inventory); in the LCIA phase, the global warming impact from combustion of that fuel is calculated. There are various methods globally for categorizing and characterizing the life cycle impact of the flows to and from the environment, which can somewhat complicate the comparability of different LCA studies.

Figure 2-1 Life Cycle Assessment steps: goal and scope definition, life cycle inventory, life cycle impact assessment and interpretation



3 Methodology

This study was carried out to assess the life cycle impact of the 5 products to be manufactured at the facility.

1. Si-Mn
2. Fe-Mn
3. Fe-Si
4. Pig Iron
5. Ferro Alloys (Si-Mn/Fe-Mn)

3.1 Software and Database Details

To evaluate the entire synthesis holistically, detailed foreground data and background data are necessary. In Figure 3.1, the system boundary is shown schematically. Data regarding the production process and mass balance steps were obtained. All processes were modelled by considering the Ecoinvent version 3.11 database on SimaPro Software. In cases where no database was available, reference published literature was used to create the reference flows and processes. Life cycle impact assessment (LCIA) was conducted by applying the LCIA methodology CML IA Baseline World 2000 for characterizing human toxicological and ecotoxicological impacts of emissions.

The inventory database comprises of input and output flows from different product systems including material, resources, energy and emission flows. The input inventory is based on the manufacturing data provided by the proponent and the LCA database available. The inventory was classified into the following groups: input materials, waste material and products & by-products.

3.2 Goal and scope

The goal of this LCA study is to study the impacts of the production of 5 products for the proposed establishment of M/s Hira Ferro Alloys Limited.

3.3 Functional Unit

A functional unit describes a quantity of a product or product system on the basis of the performance it delivers in its end-use application. Functional units are foundational to LCA, as they enable objective comparisons across different products or systems that serve the same final function. For comparing the impact of products, a constant parameter is required for both materials, i.e. to achieve apple to apple comparison. The functional unit set was the production of 1 ton of the product.

3.4 System boundary

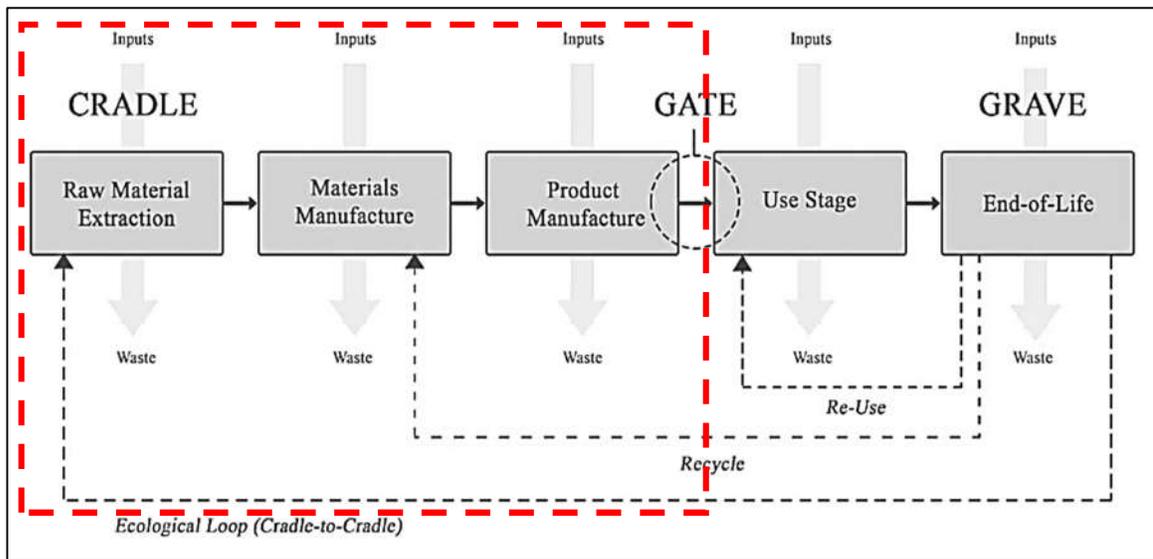
The LCA study included impact of the processes included in the life cycle of a product. This study was carried out from 'cradle to gate' that included the extraction and procurement of raw materials required for the production of chemicals, transportation of these raw materials to the production site, and manufacturing of the chemicals and its packaging and other secondary impacts of the distribution of the chemicals to different locations and end use of the product.

Figure 2-1 shows all the processes that are included while performing LCA. The waste generated after the use of products is not considered under the scope of the present study. All the raw material and the energy consumption at all stages in the product's life cycle is considered while calculating its impact on the environment.

The system boundary definition is necessary in order to outline the processes which will be involved in, or omitted from the entire analysis. Depending on the start point and endpoint of the system boundary it will be defined as either of the following: cradle to grave, cradle to gate, gate to gate, gate to grave etc. Following Figure 3-1 illustrates the system boundary types.

For this study, a cradle-to-gate approach is followed, for the products which includes the environmental aspects and potential impacts throughout a product's life cycle from raw materials transportation, energy production chain, use and waste generation, production of the product, process wastes. The end use of the product is not considered.

Figure 3-1: System Boundaries in LCA



 System Boundary

3.5 Life Cycle Inventory

Life Cycle Inventory (LCI) analysis involves creating an inventory of flows from and to nature (ecosphere) for a product system. It is the process of quantifying raw material and energy requirements, atmospheric emissions, land emissions, water emissions, resource uses and other releases over the life cycle of a product or process. In other words, it is the aggregation of all elementary flows related to each unit process within a product system.

To develop the inventory, it is often recommended to start with a flow model of the technical system using data on inputs and outputs of the product system. The flow model is typically illustrated with a flow diagram that includes the activities that are going to be assessed in the relevant supply chain and gives a clear picture of the technical system boundaries. Generally, the more detailed and complex the flow diagram, the more accurate the study and results. The input and output data needed for the construction of the model is collected for all activities within the system boundary, including from the supply chain (referred to as inputs from the technosphere).

3.6 Life cycle Impact Analysis

Life Cycle Inventory analysis is followed by life cycle impact assessment (LCIA). This phase of LCA is aimed at evaluating the potential environmental and human health impacts resulting from the elementary flows determined in the LCI. The ISO 14040 and 14044 standards require the following mandatory steps for completing an LCIA:

The Mandatory steps are selection, classification and characterization.

Selection includes choice of impact categories, category indicators, and characterization models. The impacts should be relevant to the geographical region of the study and justification for each chosen impact should be discussed. Often times in practice, this is completed by choosing an already existing LCIA method (e.g. CML-IA which is used for this study). It is an LCA methodology developed by the Center of Environmental Science (CML) of Leiden University in The Netherlands. In classification of inventory results, the LCI results are assigned to the chosen impact categories based on their known environmental effects. In practice, this is often completed using LCI databases or LCA software. Common impact categories include Global Warming, Ozone Depletion, Acidification, Human Toxicity, etc.

Characterization, which quantitatively transforms the LCI results within each impact category via "characterization factors" (also referred to as equivalency factors) to create "impact category indicators." In other words, this step is aimed at answering "how much does each result contribute to the impact category?" A main purpose of this step is to convert all classified flows for an impact into common units for comparison. For example, for Global Warming Potential, the unit is generally defined as CO₂-equiv or CO₂-e (CO₂ equivalents) where CO₂ is given a value of 1 and all other units are converted respective to their related impact.

Table 3.1: Impact categories and category indicators

Indicators	Impact Category	Unit	Description
Midpoint Indicators	Global warming potential (GWP 100a)	kg CO ₂ eq	Indicator of potential global warming due to emissions of greenhouse gases into the air.
	Terrestrial ecotoxicity	Kg 1,4-DBeq	Impact on land-dependent organisms and their environment
	Human Toxicity	kg 1,4-DBeq	Impact on humans of toxic substances emitted to the environment and divided into non-cancer and cancer-related toxic substances.
	Freshwater aquatic ecotoxicity	kg 1,4-DBeq	Impact on freshwater organisms of toxic substances emitted to the environment.
	Acidification	kg SO ₂ eq	Indicator of the potential acidification of soils and water due to the release of gases such as nitrogen oxides and sulphur oxides
	Eutrophication	kg PO ₄ ³⁻ eq	An indicator of the enrichment of the freshwater ecosystem with nutritional elements, due to the emission of nitrogen or phosphorus-containing compounds

3.7 Interpretation

Life cycle interpretation is a systematic technique to identify, quantify, check, and evaluate information from the results of the life cycle inventory and/or the life cycle impact assessment. The results from the inventory analysis and impact assessment are summarized during the interpretation phase. The outcome of the interpretation phase is a set of conclusions and recommendations for the study.

A key purpose of performing life cycle interpretation is to determine the level of confidence in the final results and communicate them in a fair, complete, and accurate manner. Interpretation begins with understanding the accuracy of the results, and ensuring they meet the goal of the study. This is accomplished by identifying the data elements that contribute significantly to each impact category, evaluating the sensitivity of these significant data elements, assessing the completeness and consistency of the study, and drawing conclusions and recommendations based on a clear understanding of how the LCA was conducted and the results were developed.

Specifically, the goal of the LCA interpretation phase is to identify the activities that have the most environmental negative impact on land, sea, and air resources. Once the identification is done mitigation measures for the same may be recommended for the reduction of these impacts.

4 Project Details

4.1 Project description

M/s Hira Ferro Alloys Limited manufacturing unit has proposed Si-Mn, Fe-Mn, Fe-Si, Pig Iron, and Ferro Alloys (Si-Mn/Fe-Mn) production at Urla, Chhattisgarh. The total production capacity of the plant will be 91,800 TPA Si-Mn, 1,27,000 TPA Fe-Mn, 41,600 TPA Fe-Si and 1,33,500 TPA Pig Iron.

The project will be involved in the production of Si-Mn, Fe-Mn, Fe-Si, and Pig Iron. Following is the list of proposed products considered for LCA analysis.

Table 4.1 List of proposed products and production details

Sr. No	Name of Product	Proposed capacity (Ton/ Annum)
1	Si-Mn	91,800
2	Fe-Mn	1,27,000
3	Fe-Si	41,600
4	Pig Iron	1,33,500
5	Ferro Alloys (Si-Mn/Fe-Mn) by Ferro-Melt Induction Furnace	9,000

5 LCA and LCIA

5.1 Goal and Scope

5.1.1 Goal

- 1) To ascertain the emissions and their impacts from the production process of 5 products at the Chhattisgarh Unit of M/s Hira Ferro Alloys Limited to be located at Urla Industrial Area, Chhattisgarh
- 2) To assess the reductions achieved due to the different mitigation measures in the midpoint impact categories

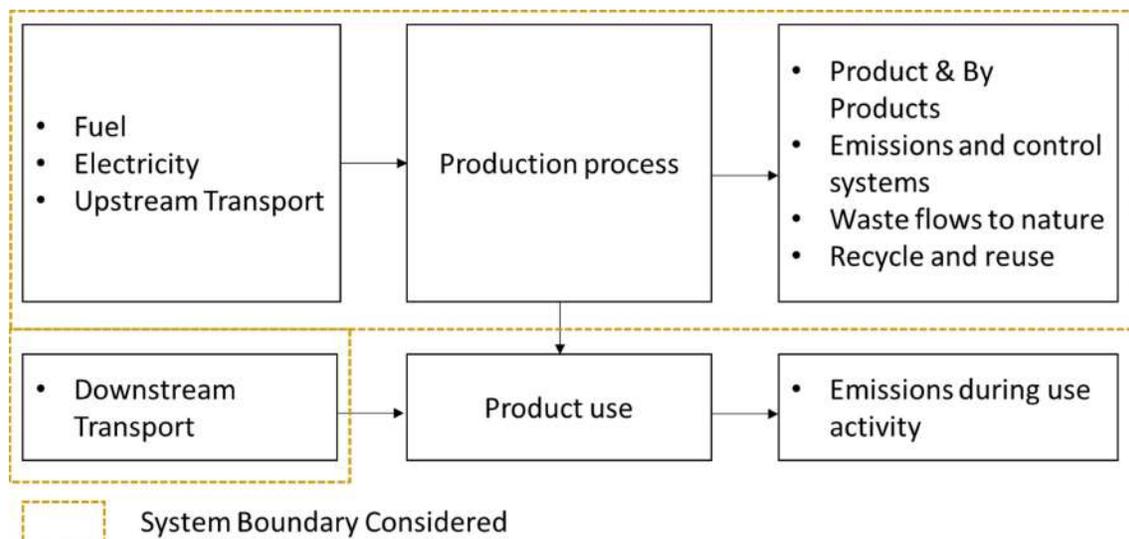
5.1.2 Scope

The function of the system is the production of Ferro Alloys. The functional unit thus is considered as production of 1 ton of product.

5.1.3 System Boundary

This study covers the raw material transportation to the manufacturing site, the production process of the process, downstream transportation of the product. This study excludes the packaging at the user's side and the product packaging disposal after use.

Figure 5-1 System Boundary



5.1.4 Data Assumptions

The preliminary assumptions are based on the stages and impact categories selected as well as general assumptions about the future stages of the life cycle, e.g., disposal routes, types of transport etc. Following are the specific LCA assumptions for this study:

- Transport distances for raw materials are based on the data provided in by the client.
 - For upstream transportation of raw materials and downstream transportation of the product, a freight lorry with a 7.5 to 16-ton capacity and Euro 6 standards (equivalent to Indian Bharat Stage VI) from the Ecoinvent database is considered for study.
 - For hazardous waste transport, a freight lorry with a 3.5 to 7-ton capacity and Euro 6 standards (equivalent to Indian Bharat Stage VI) from the Ecoinvent database is considered for study.
 - For upstream transportation of raw materials freight, sea, container ship from the Ecoinvent database is considered for study.
 - For downstream transportation of the final product, the road transport distance is considered to be 500 km.
 - For hazardous waste transportation, the road transport distance is considered to be 50 km.
 - Embodied carbon of raw materials (Scope 3 – Category 1) used in production is not considered in this assessment.
 - Embodied carbon and Background emissions of solar panels used for renewable electricity production is not considered in this assessment. The emissions from energy generation from solar panels are considered with null emissions.
 - The electricity mix data in the Ecoinvent 3.11 database used in SimaPro 10.2 is country and region-specific for the Western Grid of India, which is used for the study.
 - The power Consumption (kWh) Per ton of product is considered as per the data provided in by the client.
 - Captive power generation will be regulated within the complex after prioritizing power generated in the plant, with minimal reliance on the State grid for electricity supply. Therefore, Reject coal / Coal are considered as fuel source for electricity in process.
 - For electricity generation in a 1 MW captive power plant, total 1.9 ton/MWh of fuel is considered from the EIA Report. Reject coal, (75%) and F grade Coal (25%) were considered as fuel inputs. A separate process for CPP-based electricity generation was created in the SimaPro software using the Ecoinvent 3.11 database, with inputs added based on the required electricity output.
 - In the SimaPro software for proposed case, it is considered that 60% of the electricity is generated from a Captive Power Plant, 2% is sourced from the electricity grid while 38% is sourced from solar energy.
 - In emissions to air, the emissions from fuel consumption and the emissions from the process are considered.
 - The packaging material is not considered part of the cargo, as it is transported in covered trucks only.
-

5.2 Life Cycle Analysis

The life cycle analysis of the 05 products was done using LCIA methodology (CML IA Baseline World 2000). The result of each product is shown below:

5.2.1 Si-Mn

The total production capacity is 91,800 ton/Annum.

Table 5-1 Mass Balance of the Product Si-Mn Proposed Case Manufacturing Process

	Mass flow	MT			Output	MT	
Mass Flow	Coal	1.38	→	Formation of Product Si-Mn proposed case	→	Si-Mn	1
	Reject Coal	3.12	→		→	Carbon dioxide(kg)	5352.59
Non-Mass Flow	Electricity from CPP (kWh)	2190.00	→		→	Methane(kg)	0.57
	Electricity from CSPDC (kWh)	73	→		→	Nitrous Oxide(kg)	0.08
	Electricity from Solar (kWh)	1387	→				
	Road Transport (upstream) (tkm)	899.1	→				
	Sea transport (upstream) (tkm)	18764.69	→				
	Transport (downstream) (tkm)	500	→				
	Hazardous (downstream) (tkm)	50	→				

Figure 5-2 Impact categories of life cycle of 1ton of Si-Mn Proposed Case

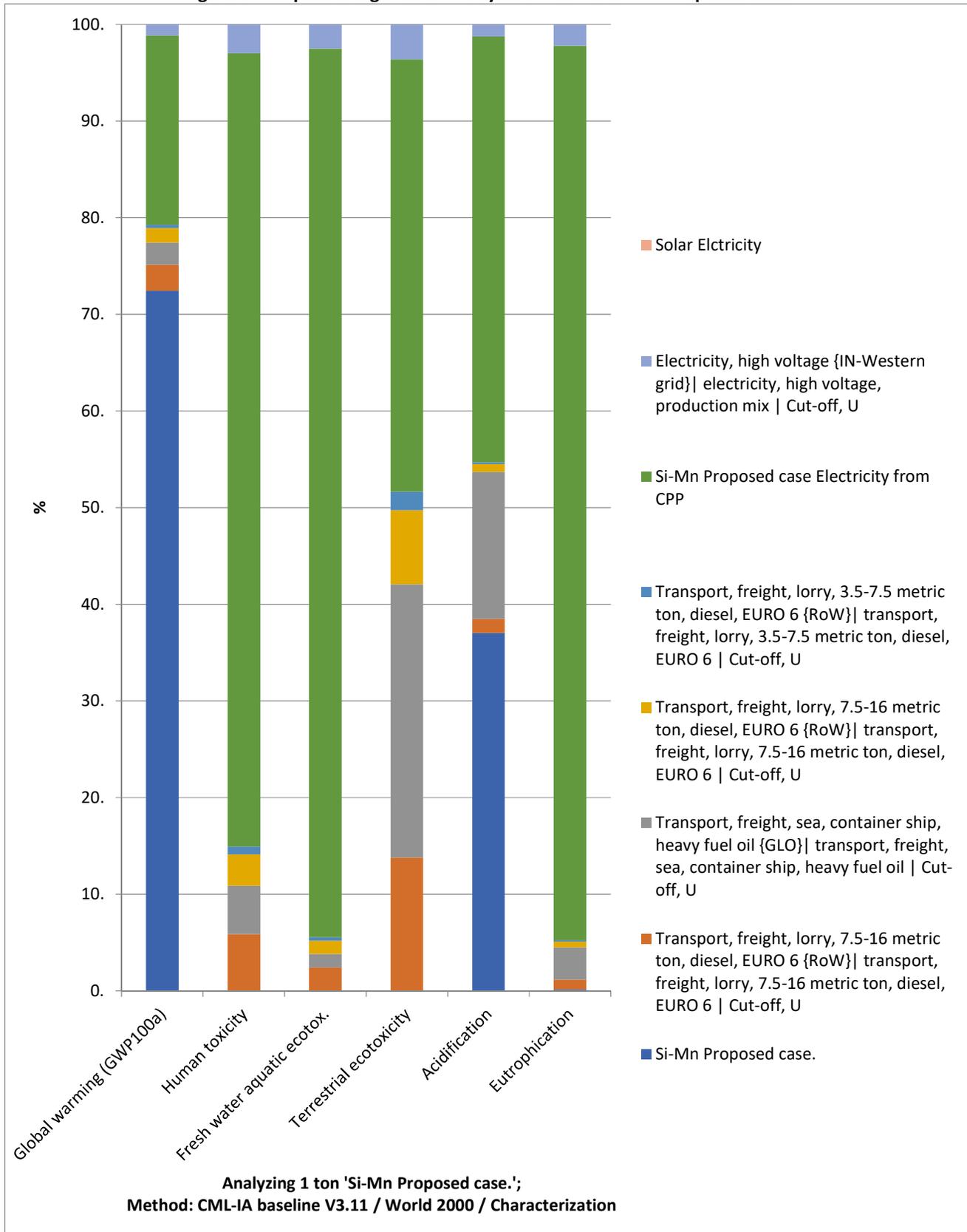


Table 5-2 LCIA Result of 1 ton of Si-Mn Proposed Case

Impact category	To be considered in scope (1,2 or 3)	Global warming potential (GWP 100a)	Human Toxicity	Fresh water aquatic ecotoxicity	Terrestrial ecotoxicity	Acidification	Eutrophication
Unit		kg CO ₂ eq	kg 1,4-DB eq	kg 1,4-DB eq	Kg 1,4-DBeq	kg SO ₂ eq	kg PO ₄ ³⁻ eq
Si-Mn (Direct Emissions from fuel combustion)	1	6085.15	0.88	0.00	0.00	10.98	0.02
Transport Road (upstream) (tkm)	3	226.60	98.00	60.92	0.76	0.43	0.16
Transport Sea (upstream) (tkm)	3	191.19	84.77	35.10	1.56	4.50	0.51
Transport Road (downstream) (tkm)	3	126.01	54.50	33.88	0.42	0.24	0.09
Hazardous Waste Transport (downstream) (tkm)	3	30.29	13.85	9.53	0.11	0.06	0.02
Electricity from CPP (kWh)	3	1645.91	1384.58	2302.67	2.46	13.06	14.11
Electricity from CSPDC (kWh) (Embodied energy of fuel)	2	94.92	50.29	62.82	0.20	0.37	0.34
Electricity from Solar (kWh)	Savings	0.00	0.00	0.00	0.00	0.00	0.00
Total		8,400.07	1,686.87	2,504.91	5.51	29.65	15.25

Figure 5-3 Carbon footprint Emissions and classifications per for Life Cycle of 1ton Si-Mn Proposed Case

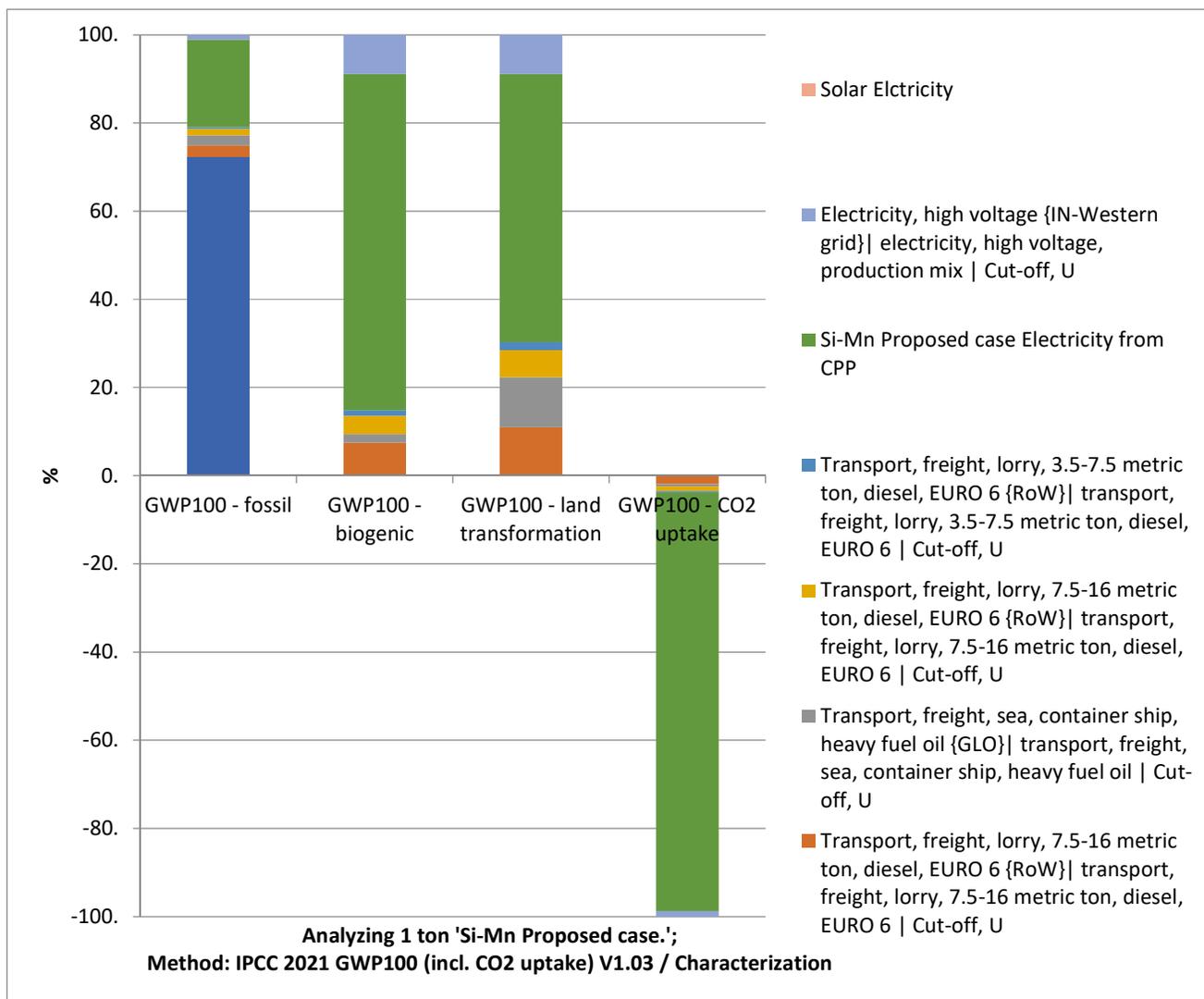


Table 5-3 Scoping of Si-Mn Proposed Case for 1 ton

Scoping	Emissions in kgCO ₂ eq	Percent contribution	Contributing Parameter
Scope 1	6085.15	72%	Reject Coal/ Coal fuel combustion direct emissions for the generation of electricity & Process Emission
Scope 2	94.92	1%	Purchased Electricity from Grid supply
Scope 3	2220.00	26%	Reject Coal/ Coal embodied energy, Upstream and Downstream Transportation.
Total	8,400.07	100.00%	

Interpretation of Results:

The major contributors to the overall GWP are:

1. Direct emissions from Coal/ Rejected Coal combustion releases a major source of carbon dioxide (CO₂) emissions, a greenhouse gas that contributes to global warming and climate change. Additionally, it releases various air pollutants such as sulfur dioxide (SO₂), nitrogen oxides (NO_x), particulate matter (PM), and mercury (Hg). These pollutants contribute to smog formation, acid rain, respiratory issues, and ecosystem damage.

2. Electricity generation in captive power plants (CPP) using coal and rejected coal leads to high greenhouse gas emissions due to the carbon-intensive nature of the fuels. Rejected coal has lower energy content, which requires burning larger quantities, increasing emissions. Additionally, upstream activities like mining and coal washing add background emissions. Process emissions are also substantial because of combustion inefficiencies and higher pollutants from rejects. Overall, the combination of raw material properties, background emissions, and combustion inefficiencies makes this electricity generation method a significant emitter of greenhouse gases.
3. Transportation: Due to the large quantity of raw materials, transportation emissions are high. The combustion of fossil fuels in vehicles, such as gasoline and diesel, releases carbon dioxide (CO₂) and other greenhouse gases (GHGs) into the atmosphere, contributing to global warming and climate change. Additionally, transportation constitutes a substantial portion of global energy consumption, mainly derived from fossil fuels.

Figure 5-4 Carbon footprint Emissions and classifications per for Life Cycle of 1ton Si-Mn Base Case

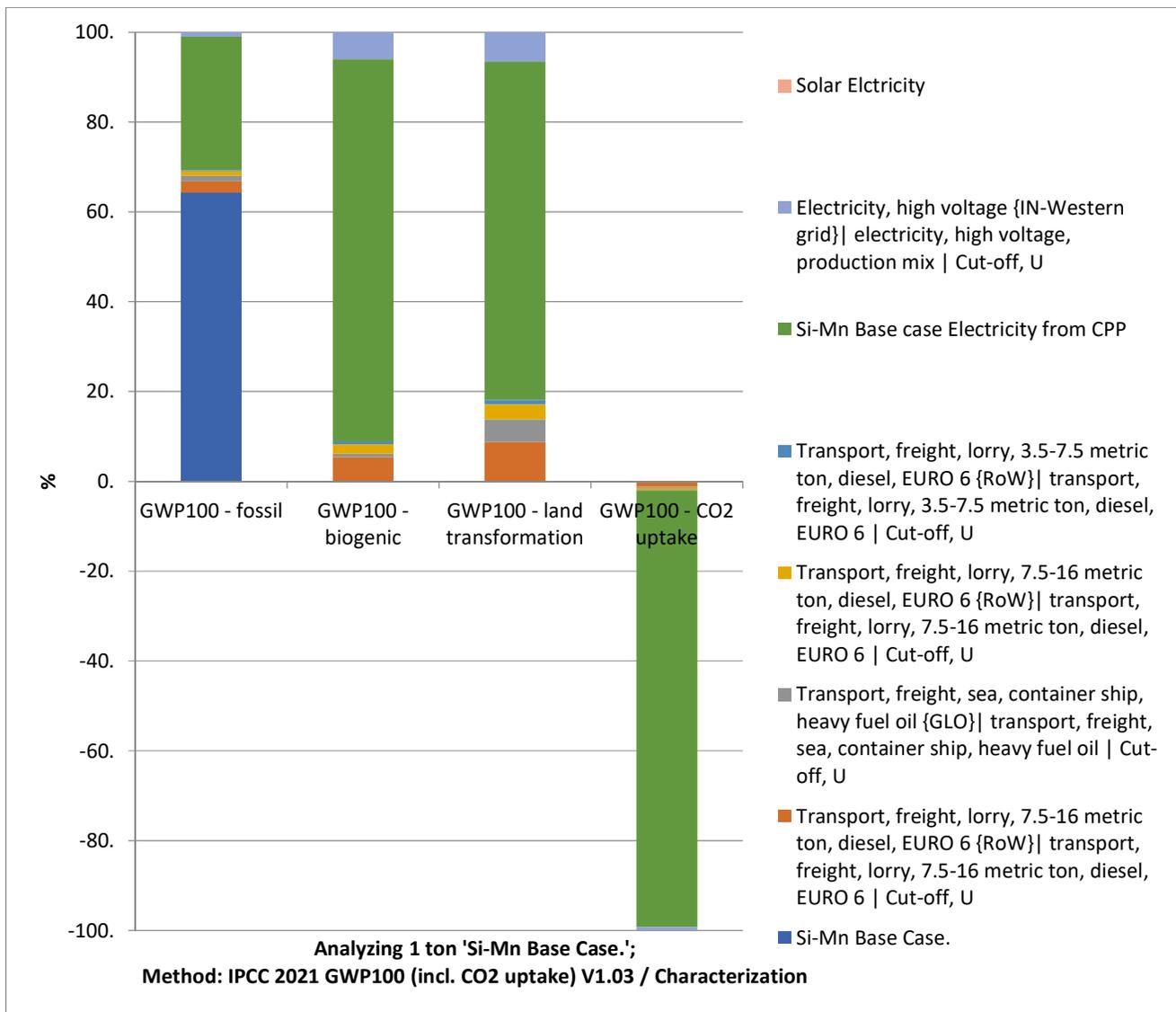


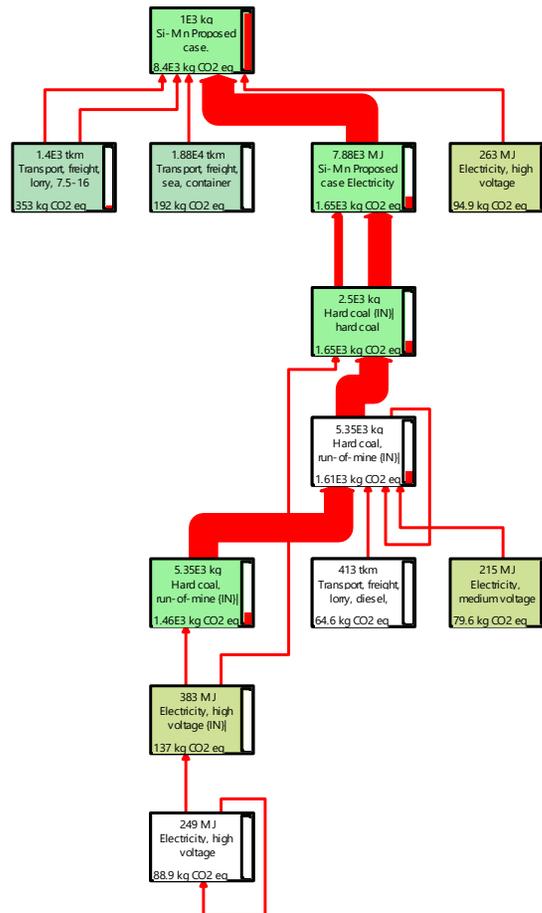
Table 5-4 Scoping of Si-Mn Base Case for 1 ton

Scoping	Emissions in kgCO ₂ eq	Percent contribution	Contributing Parameter
Scope 1	7968.90	65%	Reject Coal/ Coal fuel combustion direct emissions for the generation of electricity & Process Emission
Scope 2	126.12	1%	Purchased Electricity from Grid supply
Scope 3	4259.47	34%	Reject Coal/ Coal embodied energy, Upstream and Downstream Transportation.
Total	12,354.50	100%	

Table 5-5:Product Life Cycle Stagewise Results of Si-Mn Proposed Case

Sr. No.	Life Cycle Stages	Global warming (GWP100a)	Human toxicity	Freshwater aquatic ecotox.	Terrestrial ecotoxicity	Acidification	Eutrophication
	Unit	kg CO ₂ eq	kg 1,4-DB eq	kg 1,4-DB eq	kg 1,4-DB eq	kg SO ₂ eq	kg PO ₄ ³⁻ eq
Raw Material Processing & Raw Material Transport							
1	Raw material–Transport	226.60	98.00	60.92	0.76	0.43	0.16
2	Raw material–Transport by sea	191.19	84.77	35.10	1.56	4.50	0.51
3	Reject Coal/ Coal Embodied Energy	1645.91	1384.58	2302.67	2.46	13.06	14.11
Manufacturing Process							
4	Reject Coal/ Coal combustion for the generation of electricity & Process Emission	6085.15	0.88	0.00	0.00	10.98	0.02
5	Electricity from Supply Grid	94.92	50.29	62.82	0.20	0.37	0.34
Downstream Transportation							
6	Product - Downstream Transportation by Road	126.01	54.50	33.88	0.42	0.24	0.09
7	Hazardous Waste Transportation by Road	30.29	13.85	9.53	0.11	0.06	0.02

Figure 5-5 Process Flow for Si-Mn in SimaPro



5.2.2 Fe-Mn

The total production capacity is 1,27,000 ton/Annum.

Table 5-6: Mass Balance of the Fe-Mn Proposed Case Manufacturing Process

	Mass flow	MT			Output	MT	
Mass Flow	Coal	0.74	→	Formation of Product Fe-Mn proposed case	→	Fe-Mn	1
	Reject Coal	2.22	→		→	Carbon dioxide(kg)	3812.80
Non-Mass Flow	Electricity from CPP (kWh)	1560.00	→		→	Methane(kg)	0.40
	Electricity from CSPDC (kWh)	52	→		→	Nitrous Oxide(kg)	0.06
	Electricity from Solar (kWh)	988	→				
	Transport (upstream) (tkm)	757.1	→				
	Sea transport (upstream) (tkm)	21505.36	→				
	Transport (downstream) (tkm)	500	→				
	Hazardous (downstream) (tkm)	40	→				

Figure 5-6 Impact categories of life cycle of 1ton of Fe-Mn Proposed Case

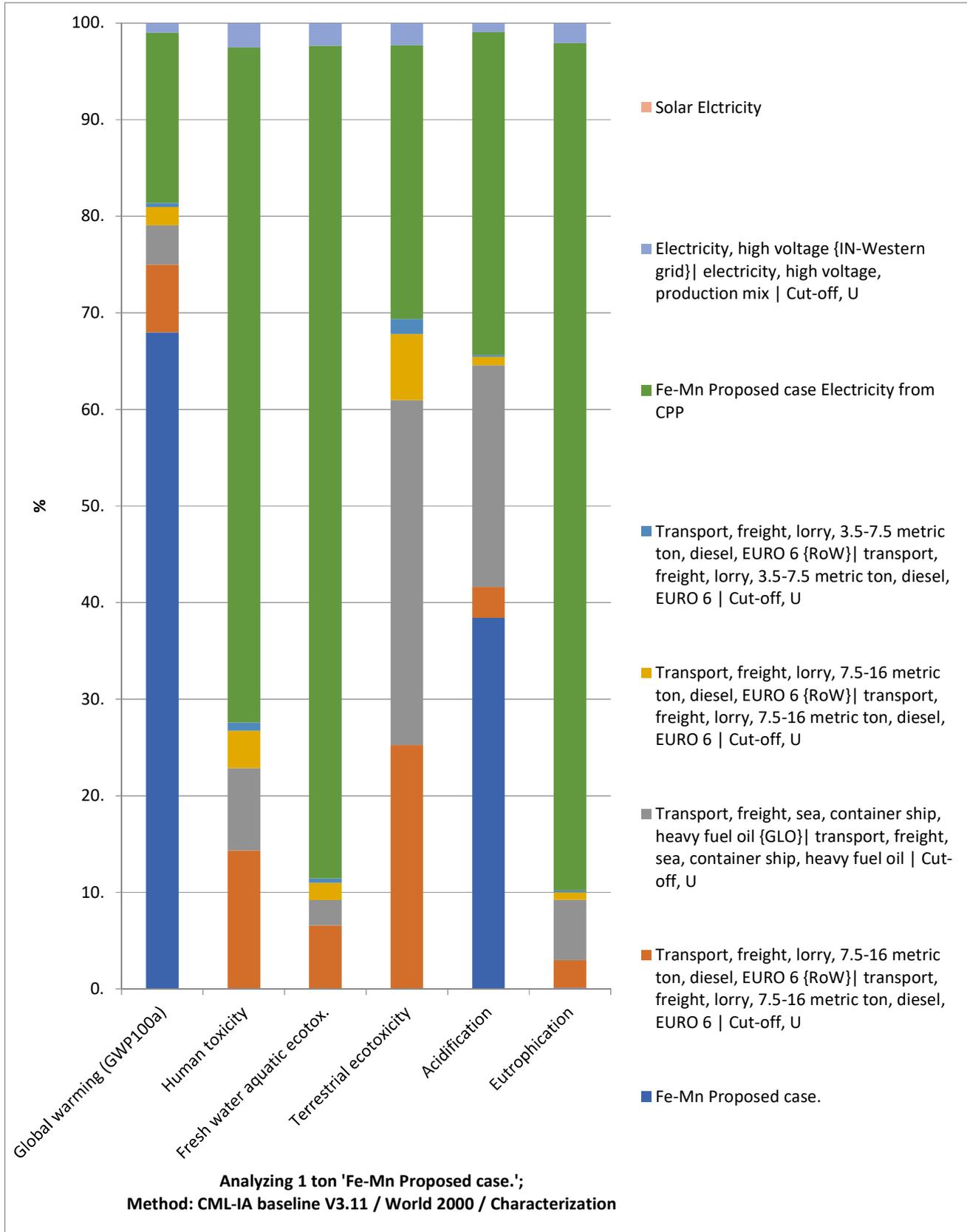


Table 5-7 LCIA Result of 1 ton of Fe-Mn Proposed Case

Impact category	To be considered in scope (1,2 or 3)	Global warming potential (GWP 100a)	Human Toxicity	Fresh water aquatic ecotoxicity	Terrestrial ecotoxicity	Acidification	Eutrophication
Unit		kg CO ₂ eq	kg 1,4-DB eq	kg 1,4-DB eq	Kg 1,4-DBeq	kg SO ₂ eq	kg PO ₄ ³⁻ eq
Fe-Mn proposed case (Direct Emissions from fuel combustion)	1	4516.30	0.85	0.00	0.00	10.68	0.02
Transport Road (upstream) (tkm)	3	465.52	201.34	125.15	1.56	0.89	0.32
Transport Sea (upstream) (tkm)	3	270.83	120.08	49.72	2.21	6.38	0.72
Transport Road (downstream) (tkm)	3	126.01	54.50	33.88	0.42	0.24	0.09
Hazardous Waste Transport (downstream) (tkm)	3	27.26	12.46	8.57	0.10	0.05	0.02
Electricity from CPP (kWh)	3	1171.13	985.18	1638.44	1.75	9.29	10.04
Electricity from CSPDC (kWh) (Embodied energy of fuel)	2	67.61	35.82	44.75	0.14	0.26	0.24
Electricity from Solar	Savings	0.00	0.00	0.00	0.00	0.00	0.00
Total		6,644.67	1,410.24	1,900.51	6.18	27.80	11.45

Figure 5-7 Carbon footprint Emissions and classifications per for Life Cycle of 1ton Fe-Mn Proposed Case

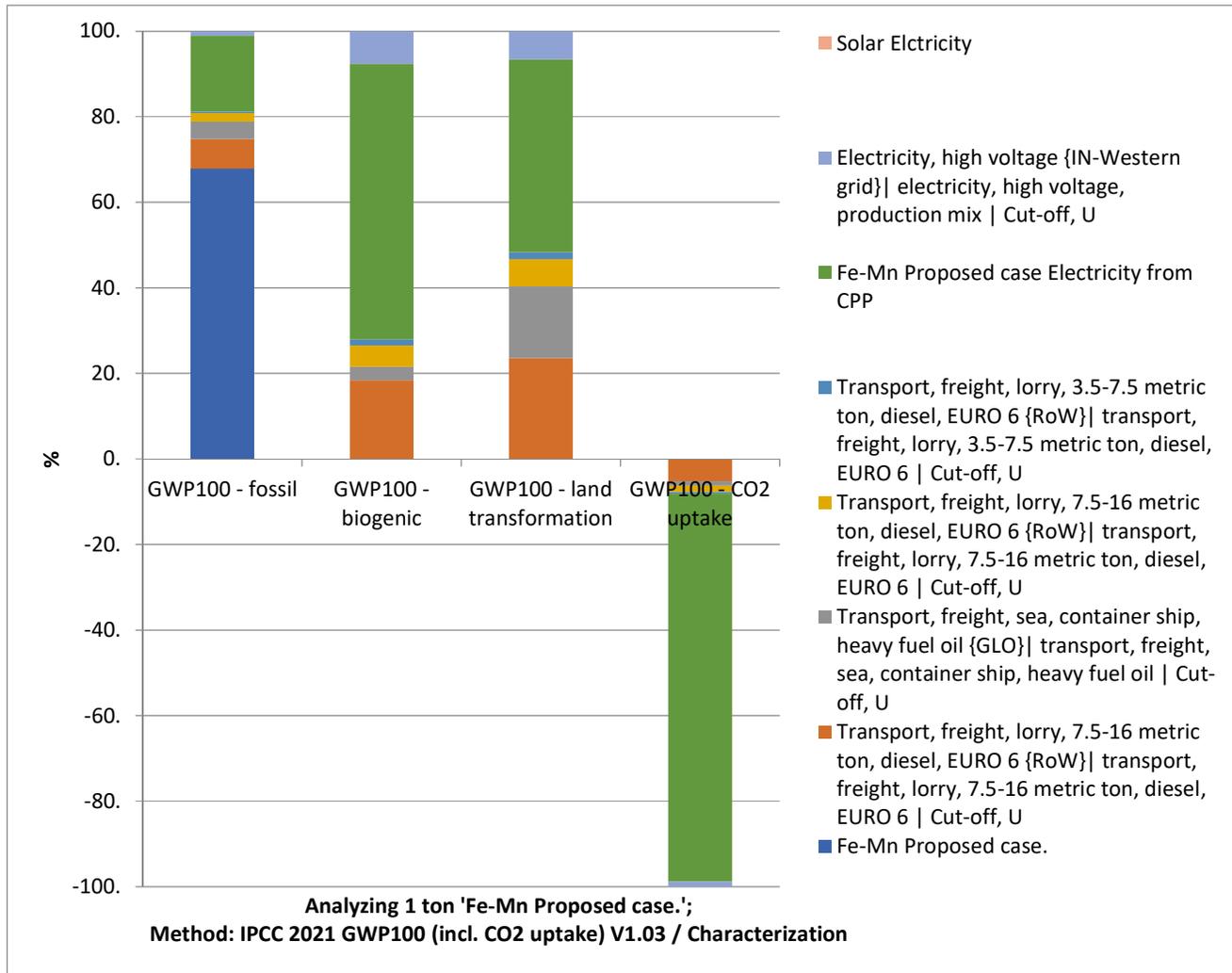


Table 5-8 Scoping of Fe-Mn Proposed Case for 1 ton

Scoping	Emissions in kgCO ₂ eq	Percent contribution	Contributing Parameter
Scope 1	4516.30	68%	Reject Coal/ Coal fuel combustion direct emissions for the generation of electricity & Process Emission
Scope 2	67.61	1%	Purchased Electricity from Grid supply
Scope 3	2060.76	31%	Reject Coal/ Coal embodied energy, Upstream and Downstream Transportation.
Total	6,644.67	100%	

Interpretation of Results:

The major contributors to the overall GWP are:

1. Direct emissions from Coal/ Rejected Coal combustion releases a major source of carbon dioxide (CO₂) emissions, a greenhouse gas that contributes to global warming and climate change. Additionally, it releases various air pollutants such as sulfur dioxide (SO₂), nitrogen oxides (NO_x), particulate matter (PM), and mercury (Hg). These pollutants contribute to smog formation, acid rain, respiratory issues, and ecosystem damage.

2. Electricity generation in captive power plants (CPP) using coal and rejected coal leads to high greenhouse gas emissions due to the carbon-intensive nature of the fuels. Rejected coal has lower energy content, which requires burning larger quantities, increasing emissions. Additionally, upstream activities like mining and coal washing add background emissions. Process emissions are also substantial because of combustion inefficiencies and higher pollutants from rejects. Overall, the combination of raw material properties, background emissions, and combustion inefficiencies makes this electricity generation method a significant emitter of greenhouse gases.

3. Transportation: Due to the large quantity of raw materials, transportation emissions are high. The combustion of fossil fuels in vehicles, such as gasoline and diesel, releases carbon dioxide (CO₂) and other greenhouse gases (GHGs) into the atmosphere, contributing to global warming and climate change. Additionally, transportation constitutes a substantial portion of global energy consumption, mainly derived from fossil fuels.

Figure 5-8 Carbon footprint Emissions and classifications per for Life Cycle of 1ton Fe-Mn Base Case

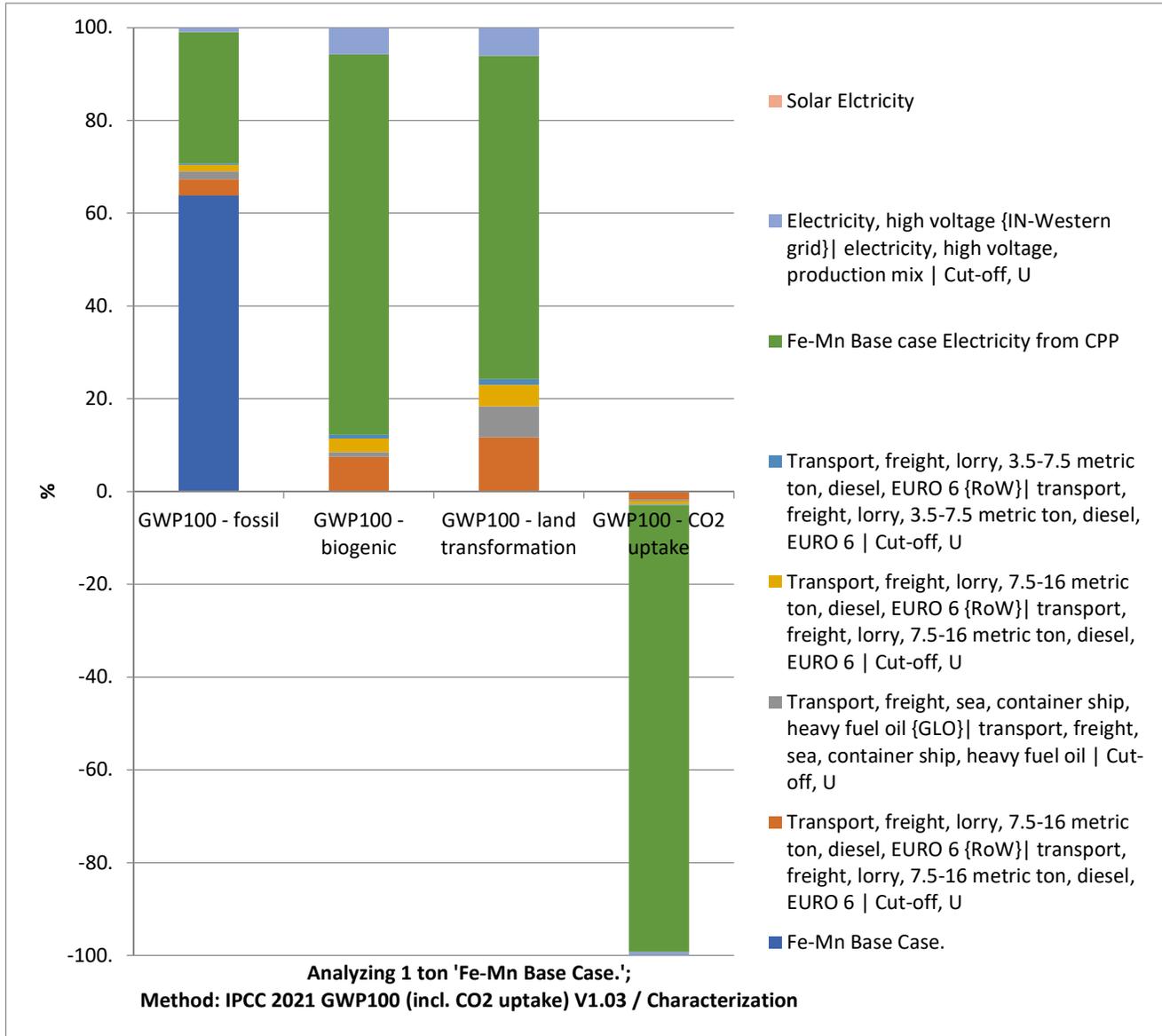


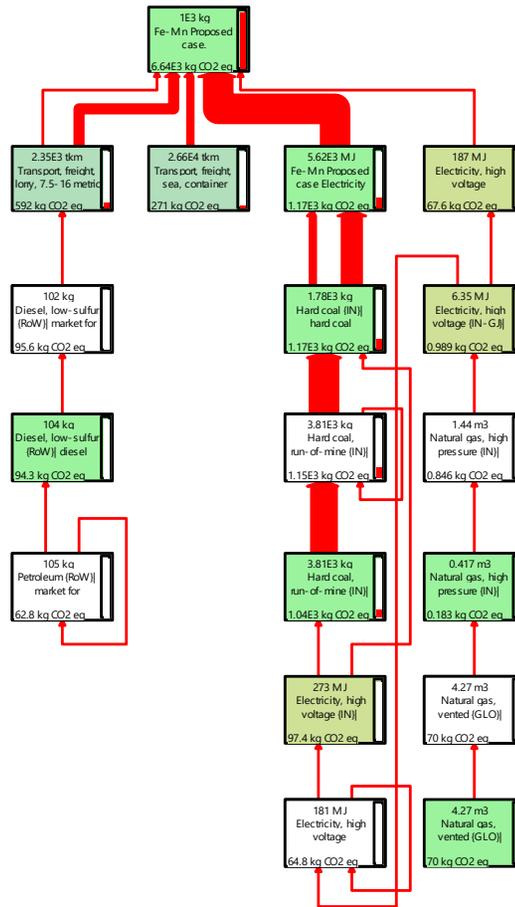
Table 5-9 Scoping of Fe-Mn Base Case for 1 ton

Scoping	Emissions in kgCO ₂ eq	Percent contribution	Contributing Parameter
Scope 1	5738.81	64%	Reject Coal/ Coal fuel combustion direct emissions for the generation of electricity & Process Emission
Scope 2	87.12	1%	Purchased Electricity from Grid supply
Scope 3	3139.54	35%	Reject Coal/ Coal embodied energy, Upstream and Downstream Transportation.
Total	8,965.47	100%	

Table 5-10:Product Life Cycle Stage Wise Results of Fe-Mn Proposed Case

Sr. No.	Life Cycle Stages	Global warming (GWP100a)	Human toxicity	Freshwater aquatic ecotox.	Terrestrial ecotoxicity	Acidification	Eutrophication
	Unit	kg CO ₂ eq	kg 1,4-DB eq	kg 1,4-DB eq	kg 1,4-DB eq	kg SO ₂ eq	kg PO ₄ ³⁻ eq
Raw Material Processing & Raw Material Transport							
1	Raw material–Transport	465.52	201.34	125.15	1.56	0.89	0.32
2	Raw material–Transport by sea	270.83	120.08	49.72	2.21	6.38	0.72
3	Reject Coal/ Coal Embodied Energy	1171.13	985.18	1638.44	1.75	9.29	10.04
Manufacturing Process							
4	Reject Coal/ Coal combustion for the generation of electricity & Process Emission	4516.30	0.85	0.00	0.00	10.68	0.02
5	Electricity from Supply Grid	67.61	35.82	44.75	0.14	0.26	0.24
Downstream Transportation							
6	Product - Downstream Transportation by Road	126.01	54.50	33.88	0.42	0.24	0.09
7	Hazardous Waste Transportation by Road	27.26	12.46	8.57	0.10	0.05	0.02

Figure 5-9 Process Flow for Fe-Mn in SimaPro



5.2.3 Fe-Si

The total production capacity is 41,600 ton/Annum.

Table 5-11 Mass Balance of the Product Fe-Si Manufacturing Process

	Mass flow	Input in MT			Output	MT
Mass Flow	Coal	2.28	→	Formation of Product Fe-Si proposed case	→ Fe-Si	1
	Reject Coal	6.84	→		→ Carbon dioxide(kg)	11731.70
Non-Mass Flow	Electricity from CPP (kWh)	4800.00	→		→ Methane(kg)	1.24
	Electricity from CSPDC (kWh)	160	→		→ Nitrous Oxide(kg)	0.19
	Electricity from Solar (kWh)	3040	→			
	Transport (upstream) (tkm)	777	→			
	Sea transport (upstream) (tkm)	700	→			
	Transport (downstream) (tkm)	500	→			
	Hazardous (downstream) (tkm)	6.25	→			

Figure 5-10 Impact categories of life cycle of 1ton of Fe-Si

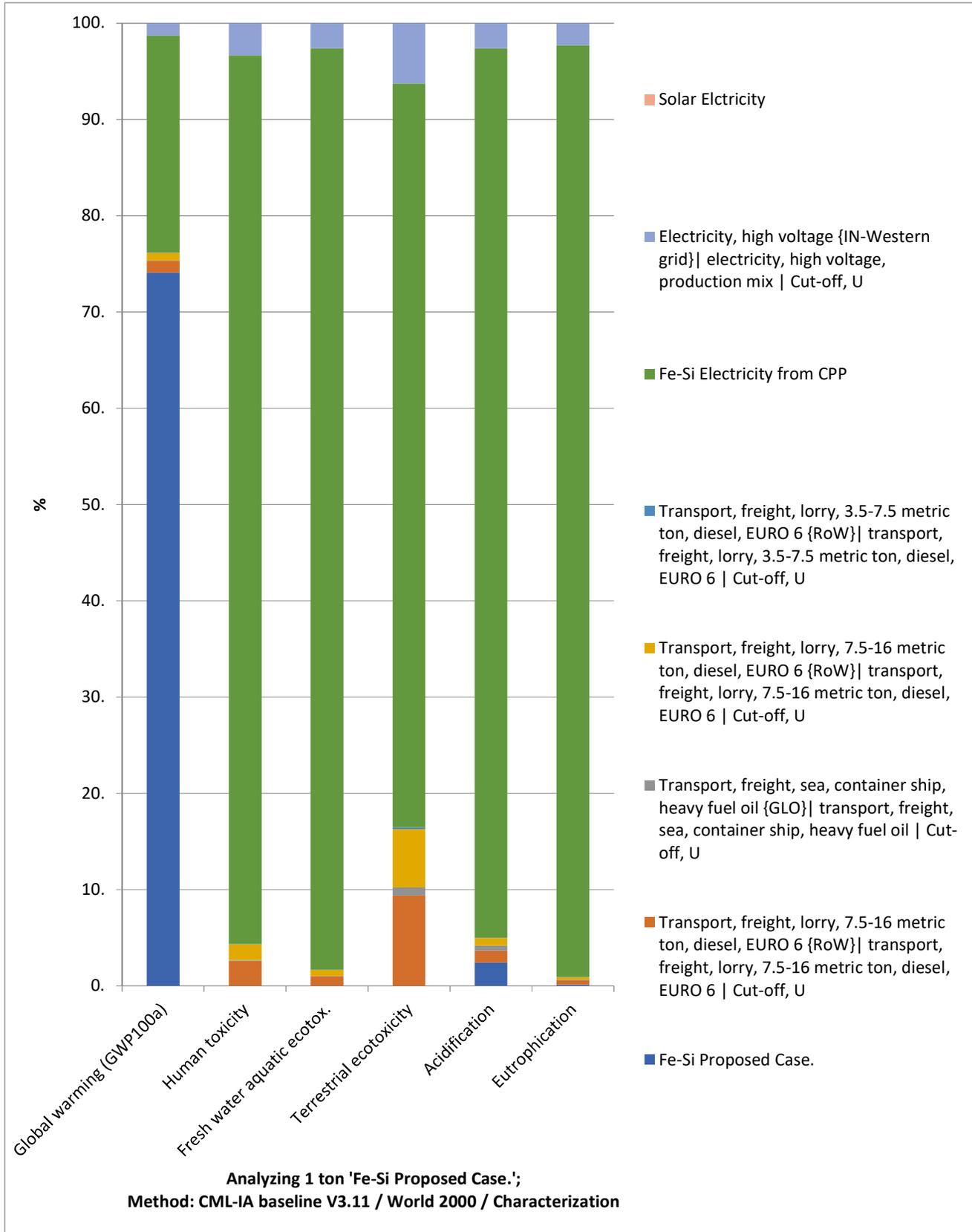


Table 5-12 LCIA Result of 1 ton of Product Fe-Si

Impact category	To be considered in scope (1,2 or 3)	Global warming potential (GWP 100a)	Human Toxicity	Fresh water aquatic ecotoxicity	Terrestrial ecotoxicity	Acidification	Eutrophication
Unit		kg CO ₂ eq	kg 1,4-DB eq	kg 1,4-DB eq	Kg 1,4-DBeq	kg SO ₂ eq	kg PO ₄ ³⁻ eq
Fe-Si proposed case (Direct Emissions from fuel combustion)	1	11864.27	0.06	0.00	0.00	0.76	0.05
Transport Road (upstream) (tkm)	3	195.83	84.69	52.64	0.66	0.38	0.14
Transport Sea (upstream) (tkm)	3	7.13	3.16	1.31	0.06	0.17	0.02
Transport Road (downstream) (tkm)	3	126.01	54.50	33.88	0.42	0.24	0.09
Hazardous Waste Transport (downstream) (tkm)	3	3.79	1.73	1.19	0.01	0.01	0.00
Electricity from CPP (kWh)	3	3608.34	3035.42	5048.16	5.39	28.62	30.94
Electricity from CSPDC (kWh) (Embodied energy of fuel)	2	208.04	110.23	137.69	0.44	0.81	0.74
Electricity from Solar	Savings	0.00	0.00	0.00	0.00	0.00	0.00
Total		16,013.41	3,289.79	5,274.88	6.98	30.98	31.97

Figure 5-11 Carbon footprint Emissions and classifications per for Life Cycle of 1ton of Fe-Si

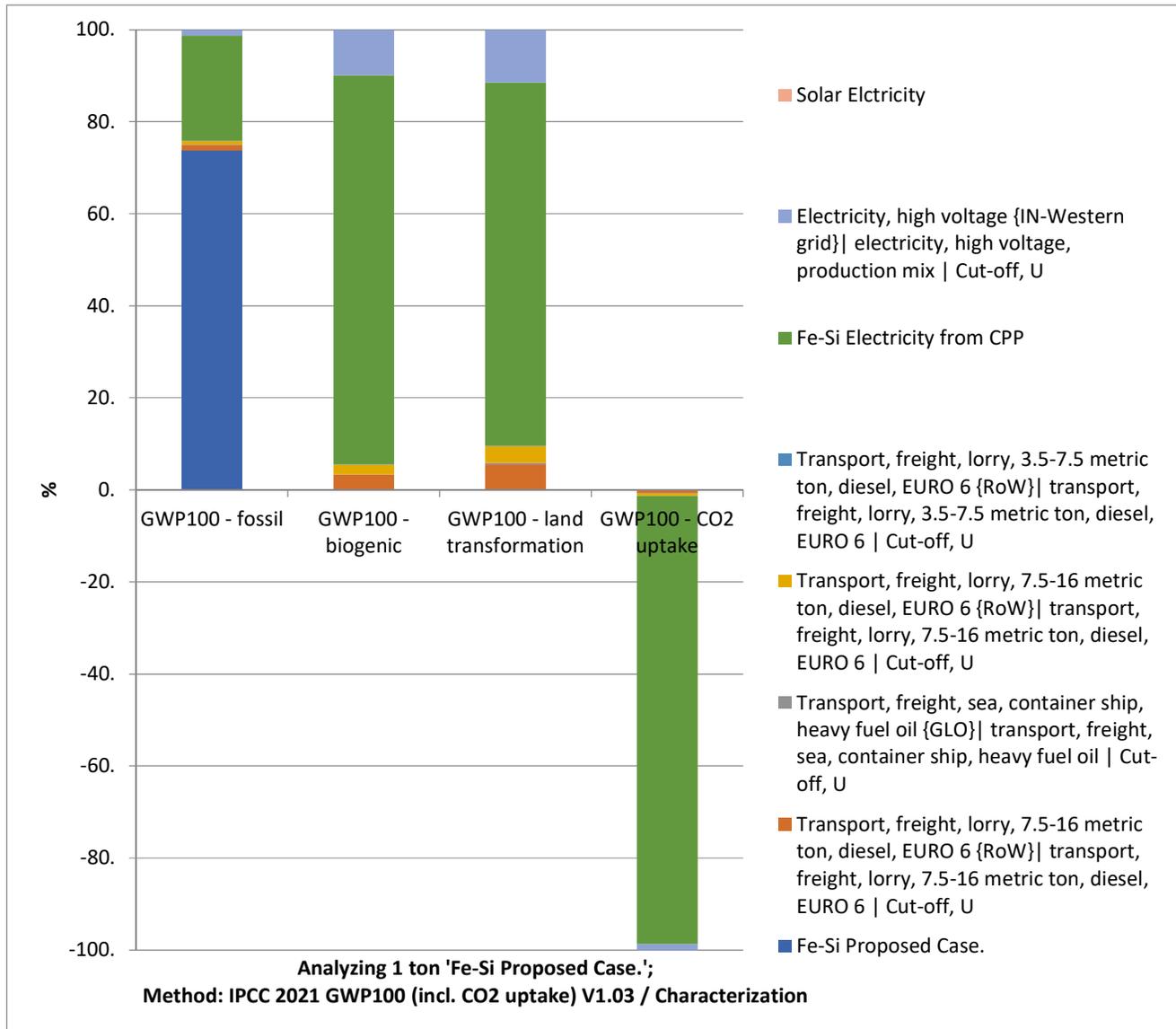


Table 5-13 Scoping of Fe-Si for 1 ton

Scoping	Emissions in kgCO ₂ eq	Percent contribution	Contributing Parameter
Scope 1	11864.27	74%	Reject Coal/ Coal fuel combustion direct emissions for the generation of electricity & Process Emission
Scope 2	208.04	1%	Purchased Electricity from Grid supply
Scope 3	3941.10	25%	Reject Coal/ Coal embodied energy, Upstream and Downstream Transportation.
Total	16,013.41	100%	

Interpretation of Results:

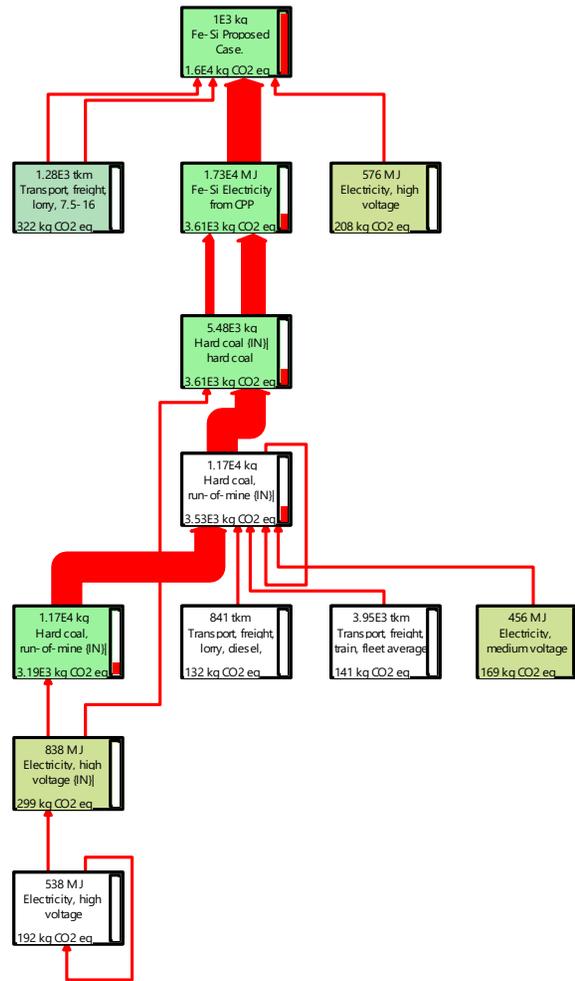
The major contributors to the overall GWP are:

1. Direct emissions from Coal/ Rejected Coal combustion releases a major source of carbon dioxide (CO₂) emissions, a greenhouse gas that contributes to global warming and climate change. Additionally, it releases various air pollutants such as sulfur dioxide (SO₂), nitrogen oxides (NO_x), particulate matter (PM), and mercury (Hg). These pollutants contribute to smog formation, acid rain, respiratory issues, and ecosystem damage.
2. Electricity generation in captive power plants (CPP) using coal and rejected coal leads to high greenhouse gas emissions due to the carbon-intensive nature of the fuels. Rejected coal has lower energy content, which requires burning larger quantities, increasing emissions. Additionally, upstream activities like mining and coal washing add background emissions. Process emissions are also substantial because of combustion inefficiencies and higher pollutants from rejects. Overall, the combination of raw material properties, background emissions, and combustion inefficiencies makes this electricity generation method a significant emitter of greenhouse gases.
3. Electricity from Grid: In 2020, India's electricity generation produced 41.7% more greenhouse gases compared to the global average. This is largely due to the fact that 77% of the country's electricity is derived from fossil fuels. Coal-based power generation alone contributes to 40% of India's total greenhouse gas emissions. The process of power generation, particularly from coal, can release hazardous metals and pollutants into water bodies. For example, coal ash, which is disposed of in millions of tons each year, can contain dangerous contaminants such as mercury, cadmium, and arsenic. Additionally, the construction and upkeep of transmission lines can have detrimental effects on the environment. These activities can lead to the destruction of plant and animal life and disrupt natural habitats.

Table 5-14: Product Life Cycle Stage Wise Results of Fe-Si

Sr. No.	Life Cycle Stages	Global warming (GWP100a)	Human toxicity	Freshwater aquatic ecotox.	Terrestrial ecotoxicity	Acidification	Eutrophication
	Unit	kg CO ₂ eq	kg 1,4-DB eq	kg 1,4-DB eq	kg 1,4-DB eq	kg SO ₂ eq	kg PO ₄ ³⁻ eq
Raw Material Processing & Raw Material Transport							
1	Raw material– Transport	195.83	84.69	52.64	0.66	0.38	0.14
2	Raw material– Transport by sea	7.13	3.16	1.31	0.06	0.17	0.02
3	Reject Coal/ Coal Embodied Energy	3608.34	3035.42	5048.16	5.39	28.62	30.94
Manufacturing Process							
4	Reject Coal/ Coal combustion for the generation of electricity & Process Emission	11864.27	0.06	0.00	0.00	0.76	0.05
5	Electricity from Supply Grid	208.04	110.23	137.69	0.44	0.81	0.74
Downstream Transportation							
6	Product - Downstream Transportation by Road	126.01	54.50	33.88	0.42	0.24	0.09
7	Hazardous Waste Transportation by Road	3.79	1.73	1.19	0.01	0.01	0.00

Figure 5-12 Process Flow for Fe-Si in SimaPro



5.2.4 Pig Iron

The total production capacity is 1,33,500 ton/Annum.

Table 5-15 Mass Balance of the Product Pig Iron Manufacturing Process

	Mass flow	Input in MT			Output	MT
Mass Flow	Coal	0.71	→	Formation of Product Pig Iron proposed case	→ Pig iron	1
	Reject Coal	2.14	→		→ Carbon dioxide(kg)	3666.16
Non-Mass Flow	Electricity from CPP (kWh)	1500	→		→ Methane(kg)	0.39
	Electricity from CSPDC (kWh)	50	→		→ Nitrous Oxide(kg)	0.06
	Electricity from Solar (kWh)	950	→		→	
	Transport Road (upstream) (tkm)	404.1	→		→	
	Transport Sea (upstream) (tkm)	630	→		→	
	Transport (downstream) (tkm)	500	→		→	
	Hazardous (downstream) (tkm)	55	→		→	

Figure 5-13 Impact categories of life cycle of 1ton of Pig Iron

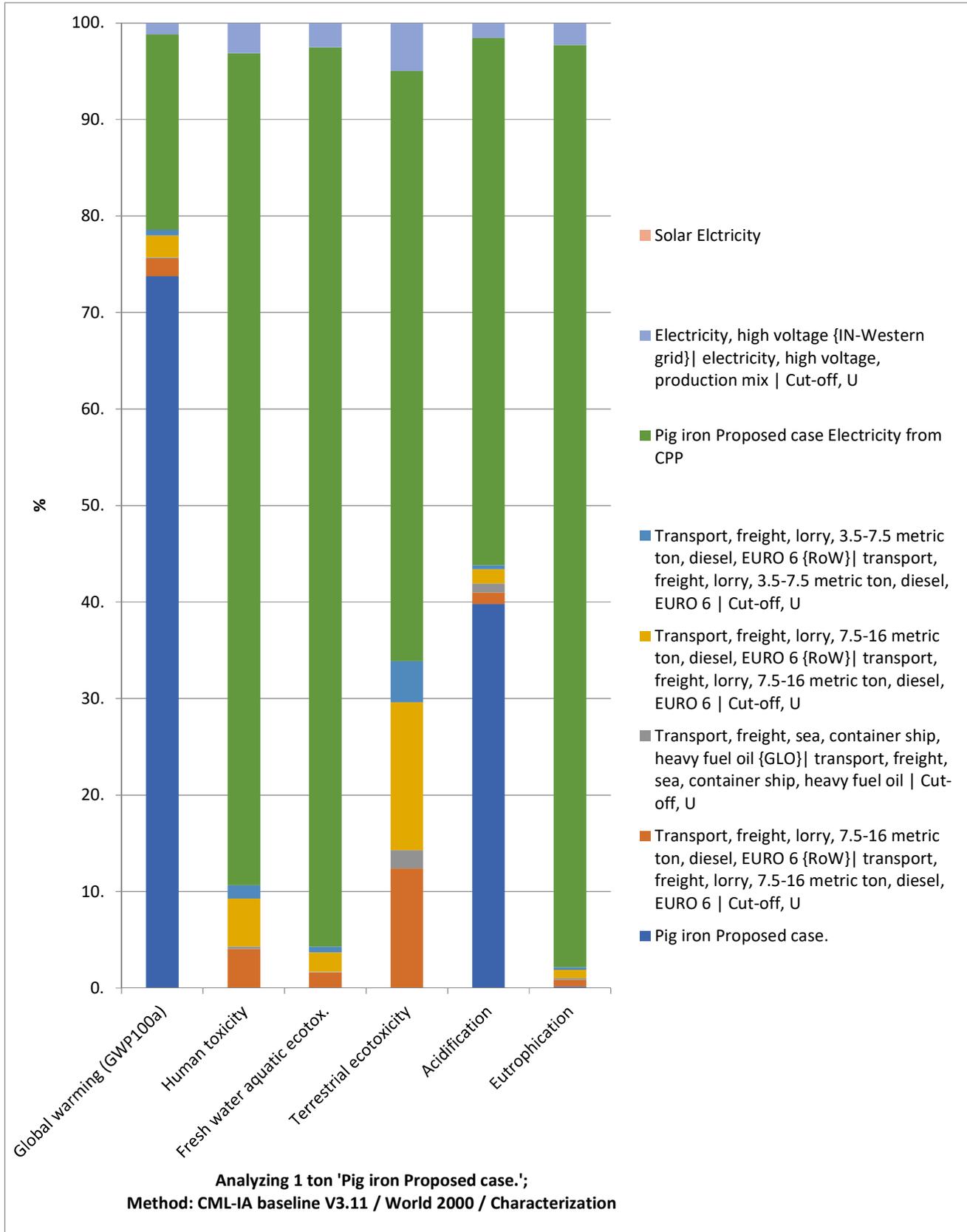


Table 5-16 LCIA Result of 1 ton of Product Pig Iron

Impact category	To be considered in scope (1,2 or 3)	Global warming potential (GWP 100a)	Human Toxicity	Fresh water aquatic ecotoxicity	Terrestrial ecotoxicity	Acidification	Eutrophication
Unit		kg CO ₂ eq	kg 1,4-DB eq	kg 1,4-DB eq	Kg 1,4-DBeq	kg SO ₂ eq	kg PO ₄ ³⁻ eq
Pig Iron proposed case (Direct Emissions from fuel combustion)	1	4105.28	0.52	0.00	0.00	6.52	0.02
Transport Road (upstream) (tkm)	3	101.85	44.05	27.38	0.34	0.20	0.07
Transport Sea (upstream) (tkm)	3	6.42	2.85	1.18	0.05	0.15	0.02
Transport (downstream) (tkm)	3	126.01	54.50	33.88	0.42	0.24	0.09
Hazardous (downstream) (tkm)	3	33.32	15.23	10.48	0.12	0.07	0.02
Electricity from CPP (kWh)	3	1127.60	948.57	1577.55	1.69	8.94	9.67
Electricity from CSPDC (kWh) (Embodied energy of fuel)	2	65.01	34.45	43.03	0.14	0.25	0.23
Electricity from Solar	Savings	0.00	0.00	0.00	0.00	0.00	0.00
Total		5,565.50	1,100.16	1,693.49	2.76	16.37	10.12

Figure 5-14 Carbon footprint Emissions and classifications per for Life Cycle of 1ton of Pig Iron

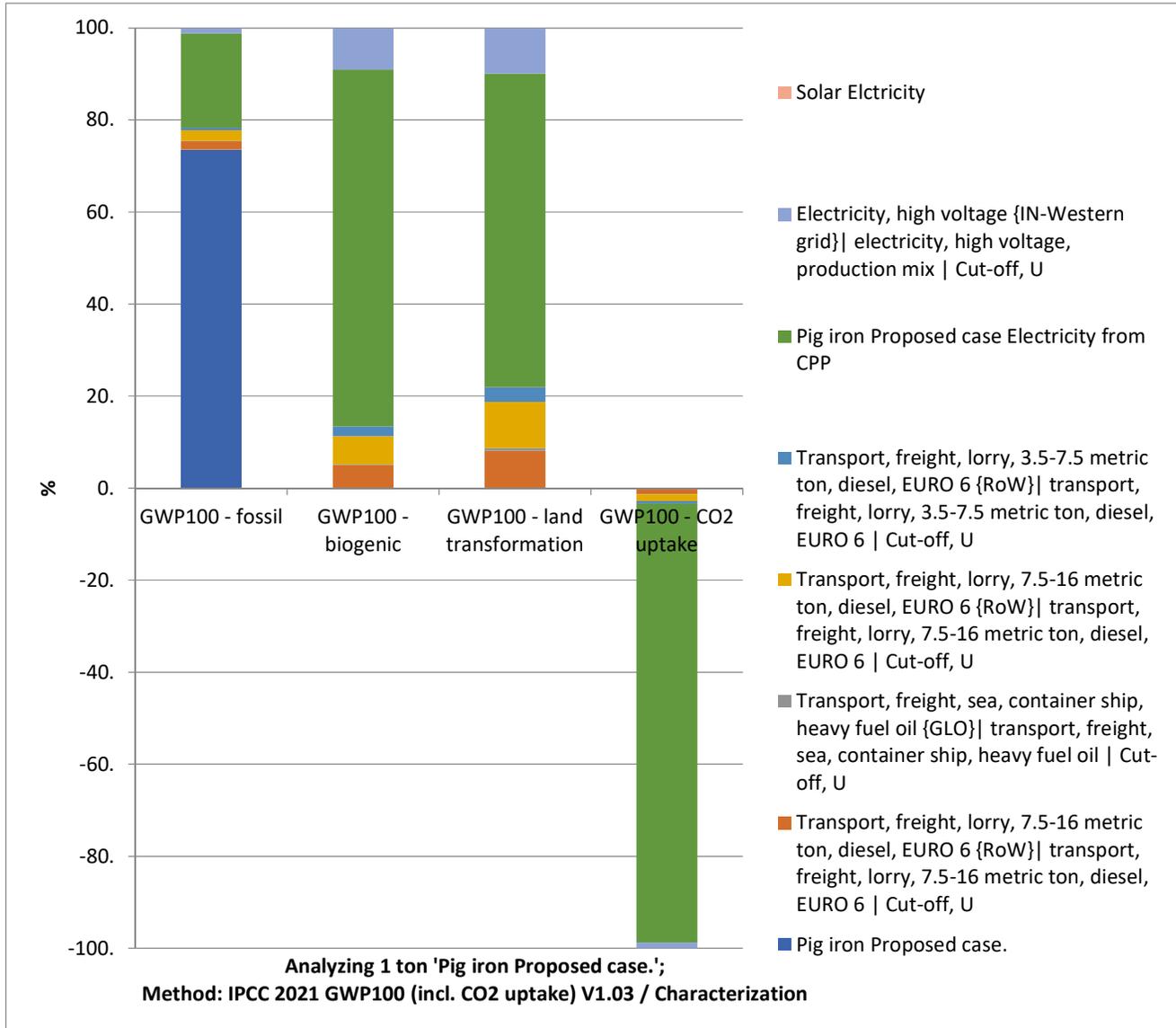


Table 5-17 Scoping of Pig Iron proposed case for 1ton

Scoping	Emissions in kgCO ₂ eq	Percent contribution	Contributing Parameter
Scope 1	4105.28	74%	Reject Coal/ Coal fuel combustion direct emissions for the generation of electricity & Process Emission
Scope 2	65.01	1%	Purchased Electricity from Grid supply
Scope 3	1395.21	25%	Reject Coal/ Coal embodied energy, Upstream and Downstream Transportation.
Total	5,565.50	100%	

Interpretation of Results:

The major contributors to the overall GWP are:

1. Direct emissions from Coal/ Rejected Coal combustion releases a major source of carbon dioxide (CO₂) emissions, a greenhouse gas that contributes to global warming and climate change. Additionally, it releases various air pollutants such as sulfur dioxide (SO₂), nitrogen oxides (NO_x), particulate matter (PM), and mercury (Hg). These pollutants contribute to smog formation, acid rain, respiratory issues, and ecosystem damage.
2. Electricity generation in captive power plants (CPP) using coal and rejected coal leads to high greenhouse gas emissions due to the carbon-intensive nature of the fuels. Rejected coal has lower energy content, which requires burning larger quantities, increasing emissions. Additionally, upstream activities like mining and coal washing add background emissions. Process emissions are also substantial because of combustion inefficiencies and higher pollutants from rejects. Overall, the combination of raw material properties, background emissions, and combustion inefficiencies makes this electricity generation method a significant emitter of greenhouse gases.
3. Transportation: Due to the large quantity of raw materials, transportation emissions are high. The combustion of fossil fuels in vehicles, such as gasoline and diesel, releases carbon dioxide (CO₂) and other greenhouse gases (GHGs) into the atmosphere, contributing to global warming and climate change. Additionally, transportation constitutes a substantial portion of global energy consumption, mainly derived from fossil fuels.

Figure 5-15 Carbon footprint Emissions and classifications per for Life Cycle of 1ton Pig iron Base Case

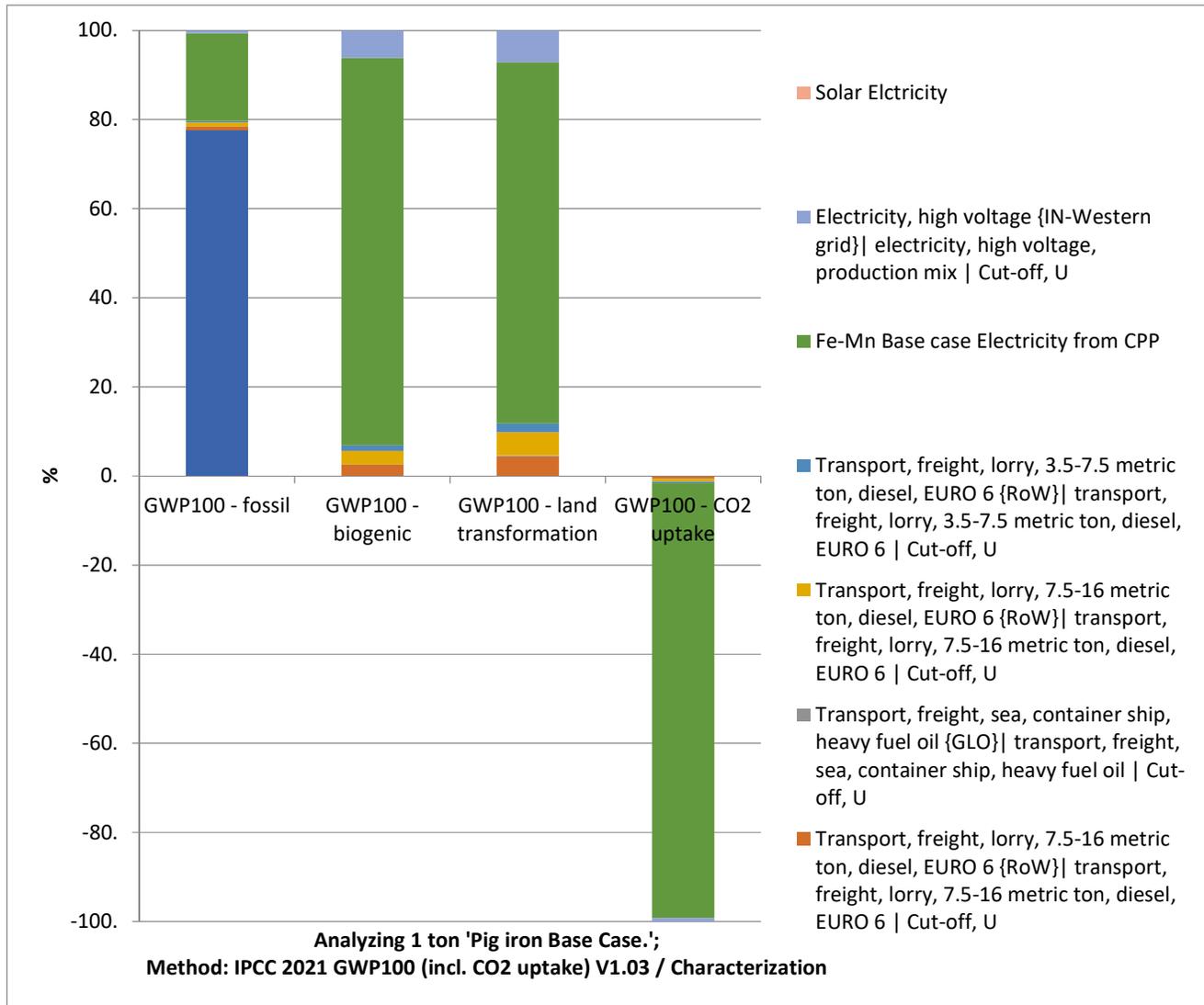


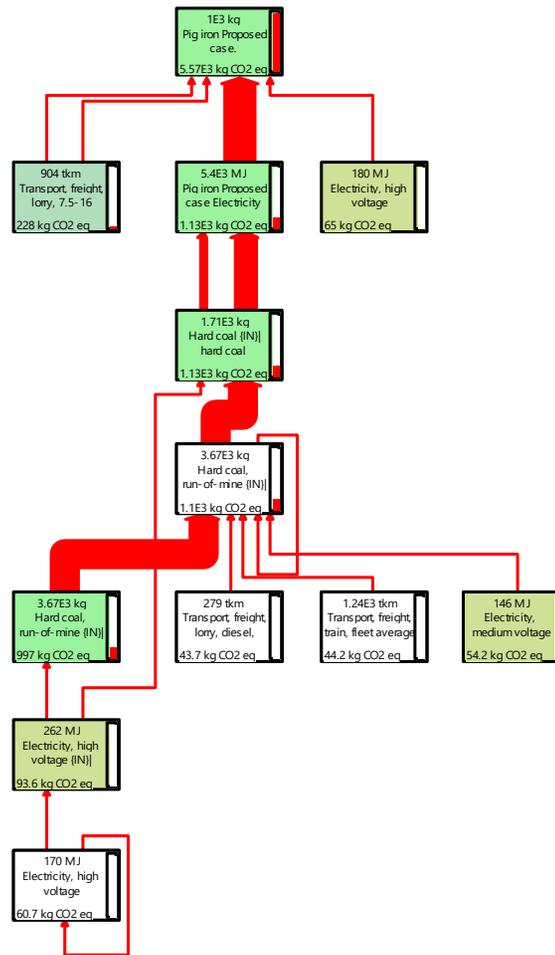
Table 5-18 Scoping of Pig iron Base Case for 1 ton

Scoping	Emissions in kgCO ₂ eq	Percent contribution	Contributing Parameter
Scope 1	10417.60	78%	Reject Coal/ Coal fuel combustion direct emissions for the generation of electricity & Process Emission
Scope 2	89.72	1%	Purchased Electricity from Grid supply
Scope 3	2870.14	21%	Reject Coal/ Coal embodied energy, Upstream and Downstream Transportation.
Total	13,377.45	100%	

Table 5-18: Product Life Cycle Stage Wise Results of Pig Iron

Sr. No.	Life Cycle Stages	Global warming (GWP100a)	Human toxicity	Freshwater aquatic ecotox.	Terrestrial ecotoxicity	Acidification	Eutrophication
	Unit	kg CO ₂ eq	kg 1,4-DB eq	kg 1,4-DB eq	kg 1,4-DB eq	kg SO ₂ eq	kg PO ₄ ³⁻ eq
Raw Material Processing & Raw Material Transport							
1	Raw material–Transport	101.85	44.05	27.38	0.34	0.20	0.07
2	Raw material–Transport by sea	6.42	2.85	1.18	0.05	0.15	0.02
3	Reject Coal/ Coal Embodied Energy	1127.60	948.57	1577.55	1.69	8.94	9.67
Manufacturing Process							
4	Reject Coal/ Coal combustion for the generation of electricity & Process Emission	4105.28	0.52	0.00	0.00	6.52	0.02
5	Electricity from Supply Grid	65.01	34.45	43.03	0.14	0.25	0.23
Downstream Transportation							
6	Product - Downstream Transportation by Road	126.01	54.50	33.88	0.42	0.24	0.09
7	Hazardous Waste Transportation by Road	33.32	15.23	10.48	0.12	0.07	0.02

Figure 5-15 Process Flow for Pig Iron in SimaPro



5.2.5 Ferro Alloys (SiMn/FeMn)

The total production capacity is 9,000 ton/Annum.

Table 5-19 Mass Balance of the Product Ferro Alloys (SiMn/FeMn) Manufacturing Process

	Mass flow	Input in MT			Output	MT	
Mass Flow	Coal	0.23	→	Formation of Product Ferro alloys proposed case	→	Ferro alloys	1
	Rejected Coal	0.68	→		→	Carbon dioxide(kg)	1173.17
Non-Mass Flow	Electricity from CPP (kWh)	480	→		→	Methane(kg)	0.12
	Electricity from CSPDC (kWh)	16	→		→	Nitrous Oxide(kg)	0.02
	Electricity from Solar (kWh)	304	→				
	Transport (upstream) (tkm)	1.03	→				
	Transport (downstream) (tkm)	500	→				
Hazardous (downstream) (tkm)	1.56	→					

Figure 5-16 Impact categories of life cycle of 1ton of Ferro Alloys (SiMn/FeMn)

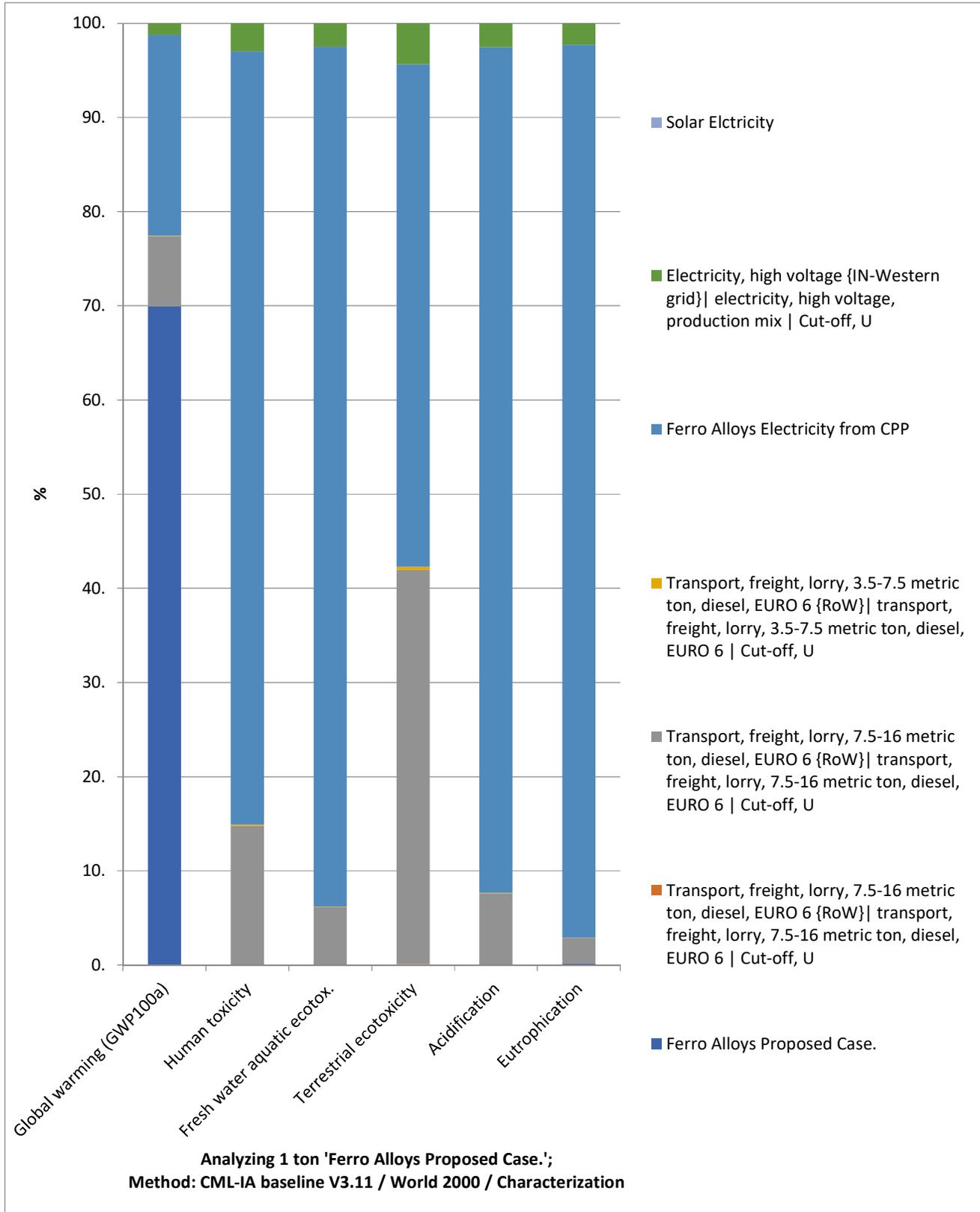


Table 5-20 LCIA Result of 1 ton of Product Ferro Alloys (SiMn/FeMn)

Impact category	To be considered in scope (1,2 or 3)	Global warming potential (GWP 100a)	Human Toxicity	Fresh water aquatic ecotoxicity	Terrestrial ecotoxicity	Acidification	Eutrophication
Unit		kg CO ₂ eq	kg 1,4-DB eq	kg 1,4-DB eq	Kg 1,4-DBeq	kg SO ₂ eq	kg PO ₄ ³⁻ eq
Ferro Alloys (SiMn/FeMn) proposed case (Direct Emissions from fuel combustion)	1	1181.83	0.00	0.00	0.00	0.00	0.01
Transport Road (upstream) (tkm)	3	0.26	0.11	0.07	0.00	0.00	0.00
Transport Road (downstream) (tkm)	3	126.01	54.50	33.88	0.42	0.24	0.09
Hazardous waste transport (downstream) (tkm)	3	0.95	0.43	0.30	0.00	0.00	0.00
Electricity from CPP (kWh)	3	360.04	302.88	503.71	0.54	2.86	3.09
Electricity from CSPDC (kWh) (Embodied energy of fuel)	2	20.80	11.02	13.77	0.04	0.08	0.07
Electricity from Solar	Savings	0.00	0.00	0.00	0.00	0.00	0.00
Total		1,689.90	368.94	551.72	1.01	3.18	3.25

Figure 5-17 Carbon footprint Emissions and classifications per for Life Cycle of 1ton of Ferro Alloys (SiMn/FeMn)

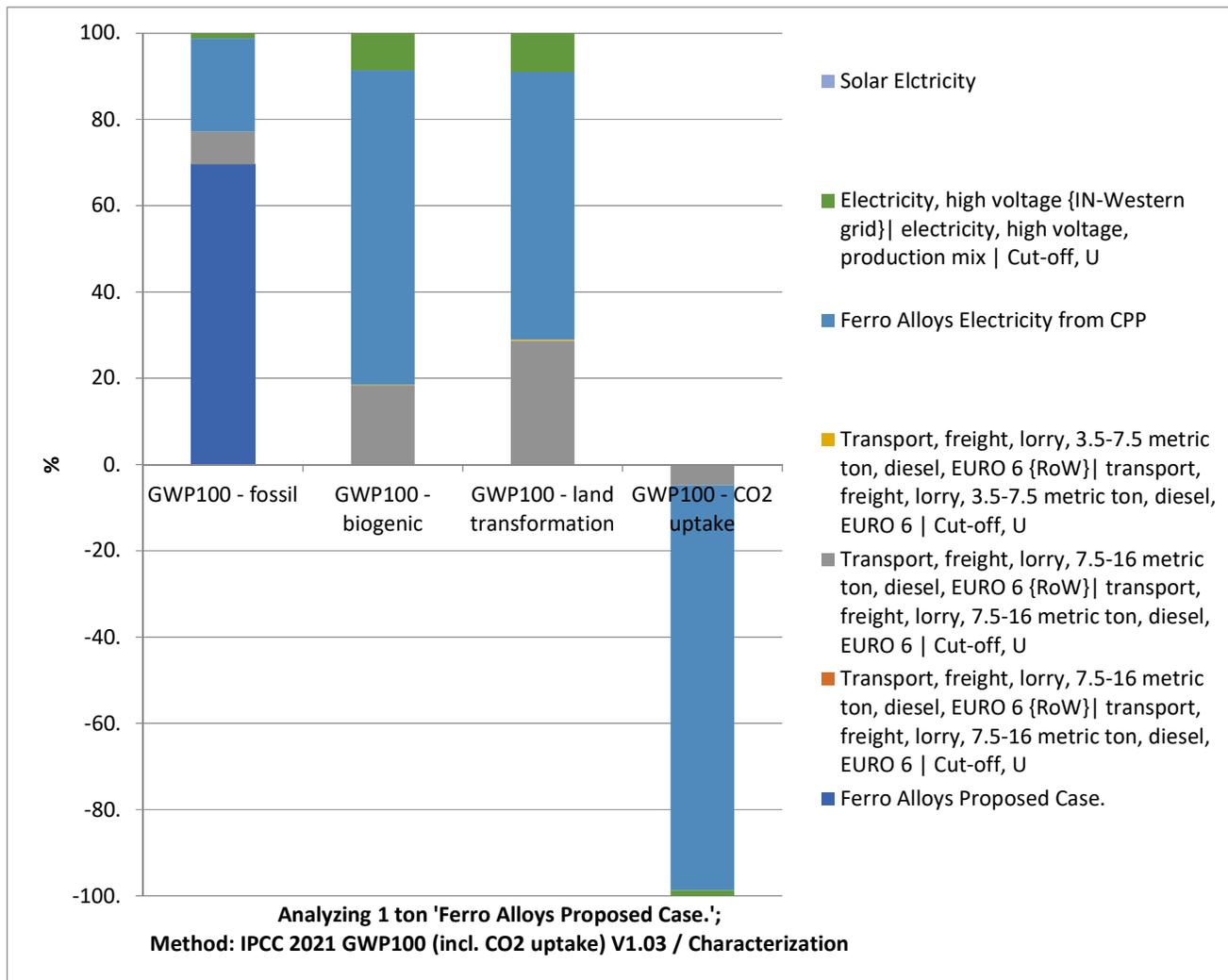


Table 5-21 Scoping of Ferro Alloys (SiMn/FeMn) for 1 ton

Scoping	Emissions in kgCO ₂ eq	Percent contribution	Contributing Parameter
Scope 1	1181.83	70%	Reject Coal/ Coal fuel combustion direct emissions for the generation of electricity & Process Emission
Scope 2	20.80	1%	Purchased Electricity from Grid supply
Scope 3	487.26	29%	Reject Coal/ Coal embodied energy, Upstream and Downstream Transportation.
Total	1,689.90	100%	

Interpretation of Results:

The major contributors to the overall GWP are:

1. Direct emissions from Coal/ Rejected Coal combustion releases a major source of carbon dioxide (CO₂) emissions, a greenhouse gas that contributes to global warming and climate change. Additionally, it releases various air pollutants such as sulfur dioxide (SO₂), nitrogen oxides (NO_x), particulate matter (PM), and mercury (Hg). These pollutants contribute to smog formation, acid rain, respiratory issues, and ecosystem damage.

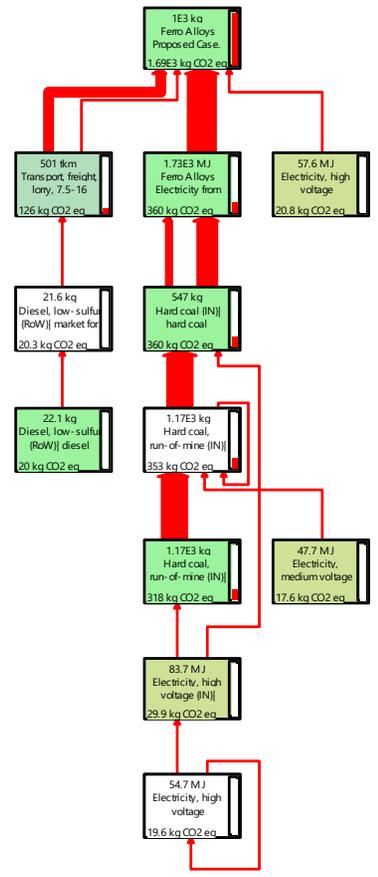
2. Electricity generation in captive power plants (CPP) using coal and rejected coal leads to high greenhouse gas emissions due to the carbon-intensive nature of the fuels. Rejected coal has lower energy content, which requires burning larger quantities, increasing emissions. Additionally, upstream activities like mining and coal washing add background emissions. Process emissions are also substantial because of combustion inefficiencies and higher pollutants from rejects. Overall, the combination of raw material properties, background emissions, and combustion inefficiencies makes this electricity generation method a significant emitter of greenhouse gases.

3. Transportation: Due to the large quantity of raw materials, transportation emissions are high. The combustion of fossil fuels in vehicles, such as gasoline and diesel, releases carbon dioxide (CO₂) and other greenhouse gases (GHGs) into the atmosphere, contributing to global warming and climate change. Additionally, transportation constitutes a substantial portion of global energy consumption, mainly derived from fossil fuels.

Table 5-22: Product Life Cycle Stage Wise Results of Ferro Alloys (SiMn/FeMn)

Sr. No.	Life Cycle Stages	Global warming (GWP100a)	Human toxicity	Freshwater aquatic ecotox.	Terrestrial ecotoxicity	Acidification	Eutrophication
	Unit	kg CO ₂ eq	kg 1,4-DB eq	kg 1,4-DB eq	kg 1,4-DB eq	kg SO ₂ eq	kg PO ₄ ³⁻ eq
Raw Material Processing & Raw Material Transport							
1	Raw material-Transport	0.26	0.11	0.07	0.00	0.00	0.00
2	Reject Coal/ Coal Embodied Energy	360.04	302.88	503.71	0.54	2.86	3.09
Manufacturing Process							
3	Reject Coal/ Coal combustion for the generation of electricity & Process Emission	1181.83	0.00	0.00	0.00	0.00	0.01
4	Electricity from Supply Grid	20.80	11.02	13.77	0.04	0.08	0.07
Downstream Transportation							
5	Product - Downstream Transportation by Road	126.01	54.50	33.88	0.42	0.24	0.09
6	Hazardous Waste Transportation by Road	0.95	0.43	0.30	0.00	0.00	0.00

Figure 5-18 Process Flow for Pig Iron in Ferro Alloys (SiMn/FeMn)



6 Hotspot Analysis

6.1 Hotspot Analysis

Hotspot analysis is conducted subsequent to performing Life Cycle Assessment (LCA) on products, considering their environmental impact stemming from raw material embodied carbon, manufacturing processes, and waste generation.

The resulting output serves to pinpoint potential solutions and prioritize actions, particularly focusing on the most substantial economic, environmental, governance, ethical, and social sustainability impacts or benefits linked to the product.

This analysis helps identify key areas requiring urgent interventions or improvements, enabling a focused and efficient strategy to improve overall sustainability performance. By focusing on critical areas highlighted in the hotspot analysis, organizations can make informed decisions to maximize positive impacts and reduce negative ones, thereby promoting a more sustainable and responsible product.

The hotspot analysis can be utilized as follows:

- i. Prioritize key issues such as waste, water, and materials of concern.
- ii. Direct focus to the appropriate life cycle stage, including material acquisition, manufacturing, use, and end of life.
- iii. Target the relevant stakeholders such as producers, manufacturers, suppliers, retailers, and customers to evaluate, influence, and implement solutions.
- iv. Understand the implications of trade-offs effectively.
- v. Allocate resources like time and money efficiently to actions.

The hotspot analysis of the products are as follows:

Table 6-1 Hotspot Analysis

Sr. No.	Product	LCIA Normalised Highest impact	Hotspot activities or materials
1	Si-Mn	<ol style="list-style-type: none"> 1. Fresh Water aquatic Ecotoxicity 2. Human Toxicity 3. Global Warming Potential 	<ol style="list-style-type: none"> 1. Electricity Generation in CPP 2. Upstream Transportation 3. Process emissions
2	Fe-Mn	<ol style="list-style-type: none"> 1. Human Toxicity 2. Fresh Water aquatic Ecotoxicity 3. Global Warming Potential 	<ol style="list-style-type: none"> 1. Electricity Generation in CPP 2. Upstream Transportation 3. Process emissions
3	Fe-Si	<ol style="list-style-type: none"> 1. Human toxicity 2. Global Warming Potential. 3. Fresh water aquatic ecotox. 	<ol style="list-style-type: none"> 1. Electricity from Grid 2. Electricity Generation in CPP 3. Process emissions
4	Pig Iron	<ol style="list-style-type: none"> 1. Human toxicity 2. Global Warming Potential. 3. Fresh water aquatic ecotox. 	<ol style="list-style-type: none"> 1. Electricity Generation in CPP 2. Downstream Transportation 3. Process emissions

7 Scoping of Proposed and Base Case

The proposed case, which incorporates electricity from CPP and Grid with mitigation measures, is compared to the base case where these measures are not applied. This comparison highlights the effectiveness of mitigation strategies in optimizing energy use and reducing potential impacts. In the proposed case, 50% of electricity is sourced from CPP and 50% from the Grid, with mitigation measures applied, while in the base case, electricity is sourced without considering any mitigation measures.

Table 7-1:Reduction in Scope wise Emissions of Si-Mn for1 ton

Emissions in kgCO ₂ eq	Scope 1	Scope 2	Scope 3	Total
Existing	7968.9	126.12491	4259.47109	12354.5
Proposed Case	6085.15	94.92	2220	8400.07
Percent Reduction (%)	24%	25%	48%	32%
Contributing Parameter	Reject Coal/ Coal fuel combustion direct emissions for the generation of electricity & Process Emission	Purchased Electricity from Grid supply	Reject Coal/ Coal embodied energy, Upstream and Downstream Transportation.	

Table 7-2:Reduction in Scope wise Emissions of Fe-Mn for1 ton

Emissions in kgCO ₂ eq	Scope 1	Scope 2	Scope 3	Total
Existing Case	5738.81	87.12	3139.54	8965.47
Proposed Case	4516.3	67.61	2060.76	6644.67
Percent Reduction (%)	21%	22%	34%	26%
Contributing Parameter	Reject Coal/ Coal fuel combustion direct emissions for the generation of electricity & Process Emission	Purchased Electricity from Grid supply	Reject Coal/ Coal embodied energy, Upstream and Downstream Transportation.	

Table 7-3: Reduction in Scope wise Emissions of Pig iron for 1 ton

Emissions in kgCO₂eq	Scope 1	Scope 2	Scope 3	Total
Existing Case	10417.6	89.72	2870.14	13377.46
Proposed Case	4105.28	65.01	1395.21	5565.5
Percent Reduction (%)	61%	28%	51%	58%
Contributing Parameter	Reject Coal/ Coal fuel combustion direct emissions for the generation of electricity & Process Emission	Purchased Electricity from Grid supply	Reject Coal/ Coal embodied energy, Upstream and Downstream Transportation.	

8 Environmental Cost Benefit Analysis

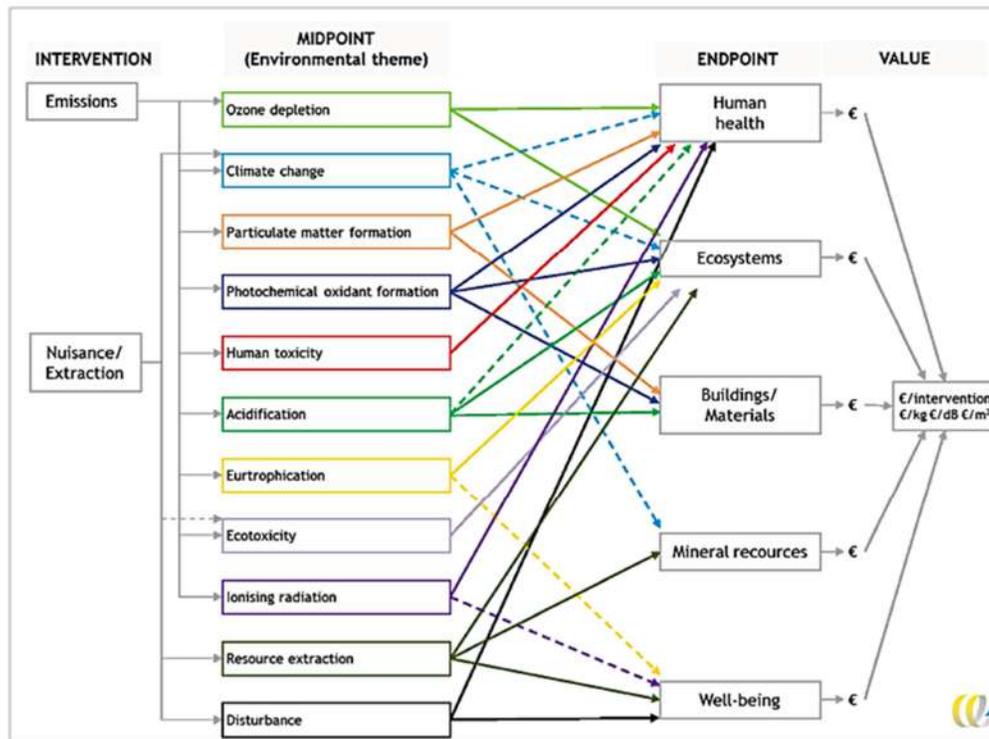
8.1 Environmental Prices

Environmental prices are indices expressing the willingness-to-pay for less environmental pollution in Euros per kilo pollutant. Environmental prices thus indicate the loss of economic welfare that occurs when one additional kilo of the pollutant enters the environment. In many cases they equal external costs. These prices can also be calculated for immaterial forms of pollution like noise nuisance and ionizing radiation, then being expressed in Euros per unit nuisance or exposure. Since a market for environmental quality is lacking, environmental prices cannot be observed directly, i.e. empirically, but must be calculated using the results of studies on human preferences for avoiding the impacts of pollution.

In the damage-cost approach an attempt is made to estimate the 'demand function' for environmental quality. This function hinges on how much people are prepared to pay for environmental quality: how much of their income they are willing to sacrifice for an additional unit of environmental quality. This is referred to as the willingness-to-pay (WTP). An alternative option is to consider how much people are prepared to pay to accept environmental damage: their willingness-to-accept (WTA). The concepts of WTP and WTA are thus both defined in terms of individual preference. Estimation of WTP can be approached in various ways, falling into two basic categories: – revealed preferences, emerging from the choices people actually make; – stated preferences, derived from questionnaires that measure people's WTP for maintaining or improving environmental quality. These methods have already been discussed in detail in the previous section.

Environmental Prices is a method developed by CE Delft for expressing environmental impacts in monetary terms. Environmental prices thus indicate the loss of economic welfare that occurs when one additional kilogram of the pollutant finds its way into the environment. Development of the Environmental Prices consisted of five steps:

- Updating monetary values of the endpoint categories on basis of literature, General SCBA Guidelines and Discount Rate Working Group;
- Updating the impact pathway analyses, which specify the relationship between emissions in the Netherlands and impacts on endpoints;
- Valuation of pollutants on basis of inputs from the previous steps and literature;
- Allocation of those pollutants to midpoint impact categories;
- Deriving weighted average value for damage to midpoint categories in order to calculate the damage cost for each substance characterised and midpoint damage factors.

Figure 8-1: Total Economic Framework Calculation

The environmental costs were converted to the national currency and adjusted for the inflation rate to the present year.

8.1.1 Conversion and adjustment for inflation and currency

€1 in 2015 is equivalent in purchasing power to about €1.20 today, an increase of €0.20 over 8 years. The euro had an average inflation rate of 2.30% per year between 2015 and today, producing a cumulative price increase of 19.98%.

This means that today's prices are 1.20 times as high as average prices since 2015, according to the European Central Bank consumer price index. A euro today only buys 83.33% of what it could buy back then. The inflation rate in 2015 was 0.03%. The current inflation rate compared to last year is now 0.14%. If this number holds, the rate of inflation is so negligible that €1 today will roughly maintain its value.

Conversion Euro to Rupees is 89.68 say Rs.90. Hence the conversion for Euro to Rupees with adjustment for inflation from 2015 is Rs. 108.

8.1.2 Comparative study on application in field

Material recovery, reuse, recycling and use of renewable energy are the mitigation measures considered. Hence by comparison and considering the reduction of impact the cost benefit analysis is worked out.

Based on the assumptions & mitigation measured the products were analysed for the base and proposed case. For the proposed base case the mitigation measures were considered whereas for the base case, it was excluded. The mitigation measures are as follows:

- The Electricity from CPP and Grid
- The Power Consumption Per ton of Product in Existing Case

Table 8-1 Benefits achieved through impact mitigation measures annually

Sr. No.	Product	Global warming (GWP100a) kg CO ₂ eq	Total cost savings annually INR
	Values Euro/kg		0.06
	Values Rs/kg		6.11
1	Si-Mn	3,954.43	24,161.54
2	Fe-Mn	2,320.80	14,180.09
3	Pig iron	7,811.96	47,731.08
	Total	14,087.19	86,072.71

It can be inferred from the above considerations and calculations that the pollution control and mitigation measures taken by the proponent will achieve the above cost benefit in terms of environmental impact abatement.

The above costs were ascertained based on the methodology green pricing for Indian specific scenario. The assumptions for the same are subjective and hence the pricing may differ from case study to case study basis.

This cost saving indicates the benefits of application on the eco system and the environment considering the environmental costing achieved from the expenditure required in terms of health costs, pollution treatment costs, remediation costs, ecological damage costs, compensation costs and cost of remedial measures.

Figure 8-3 Comparative Fe-Mn Base case and Proposed case

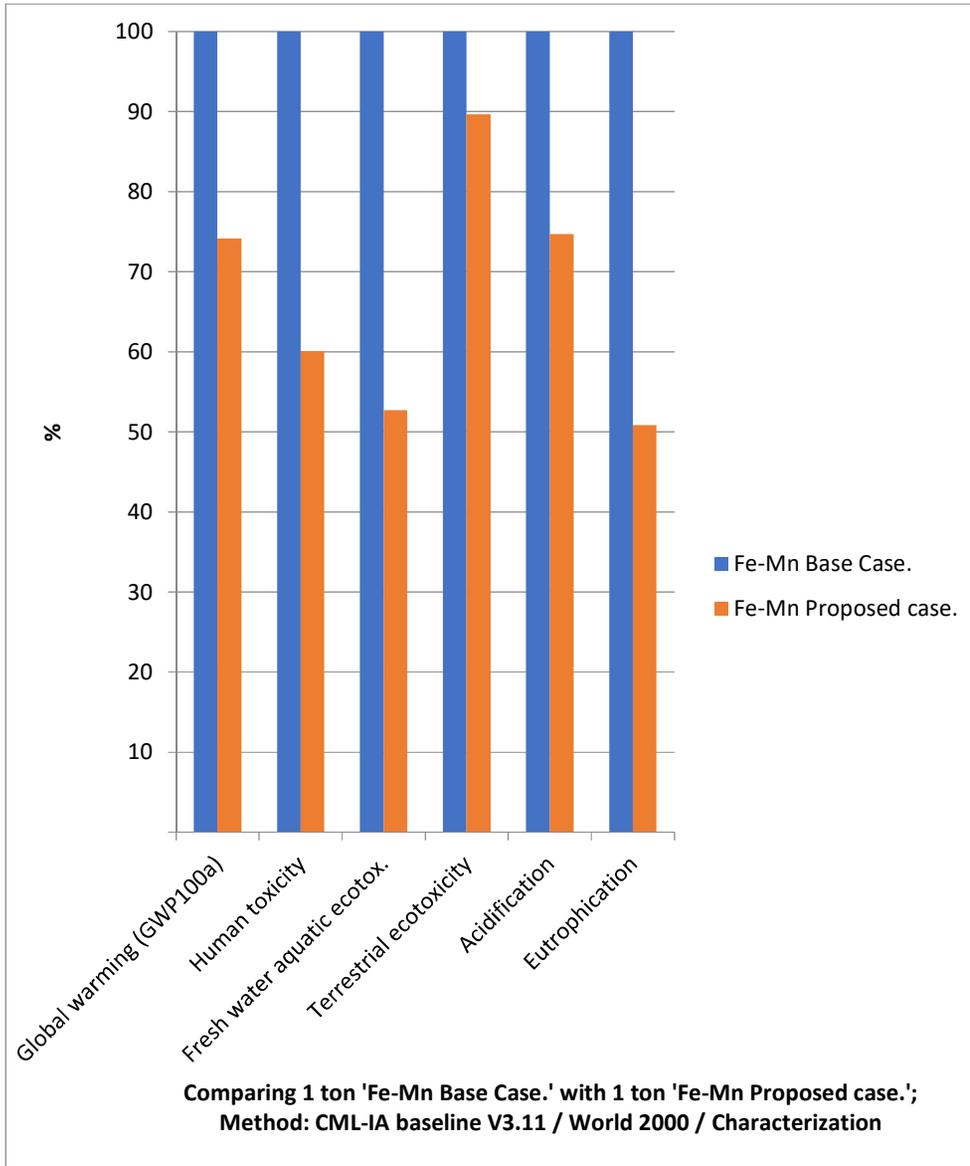


Figure 8-2 Comparative Si-Mn Base case and Proposed case

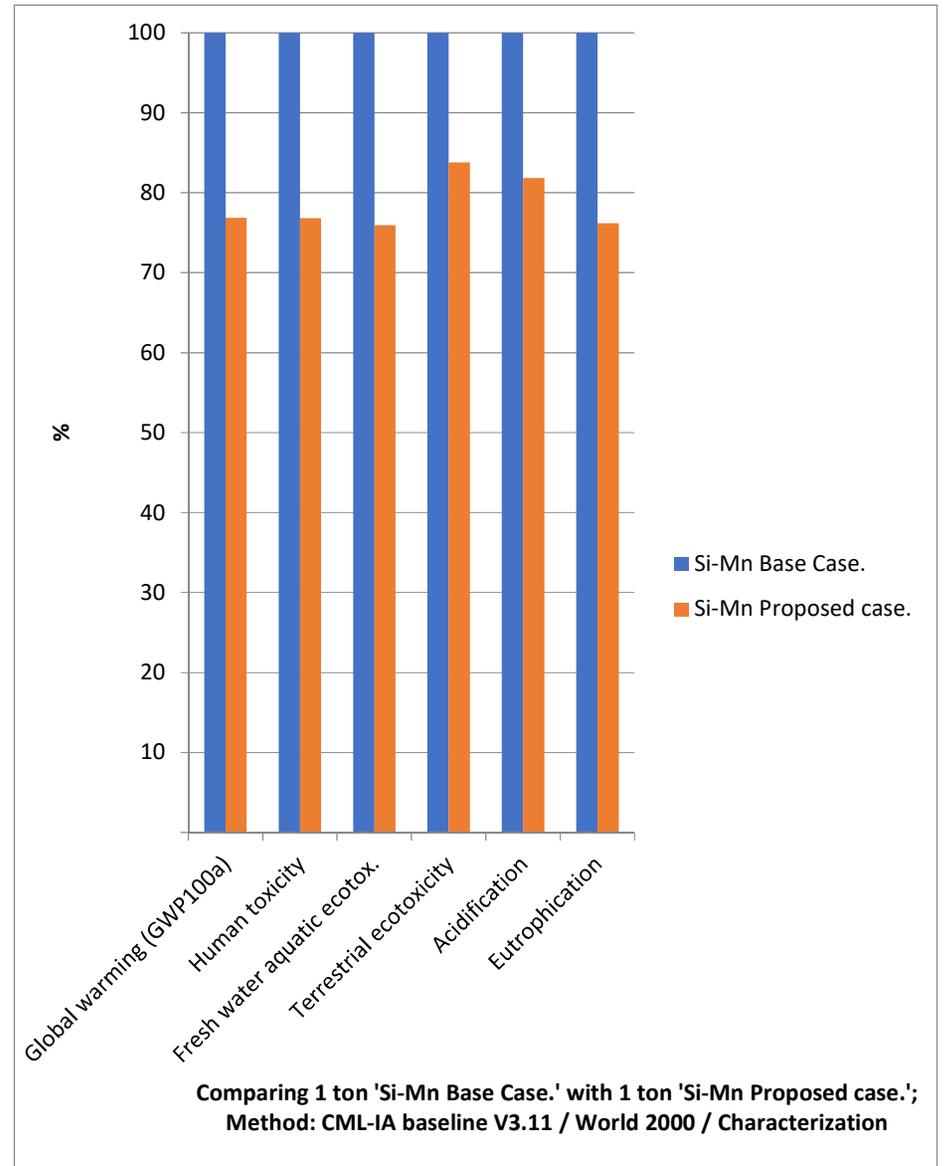
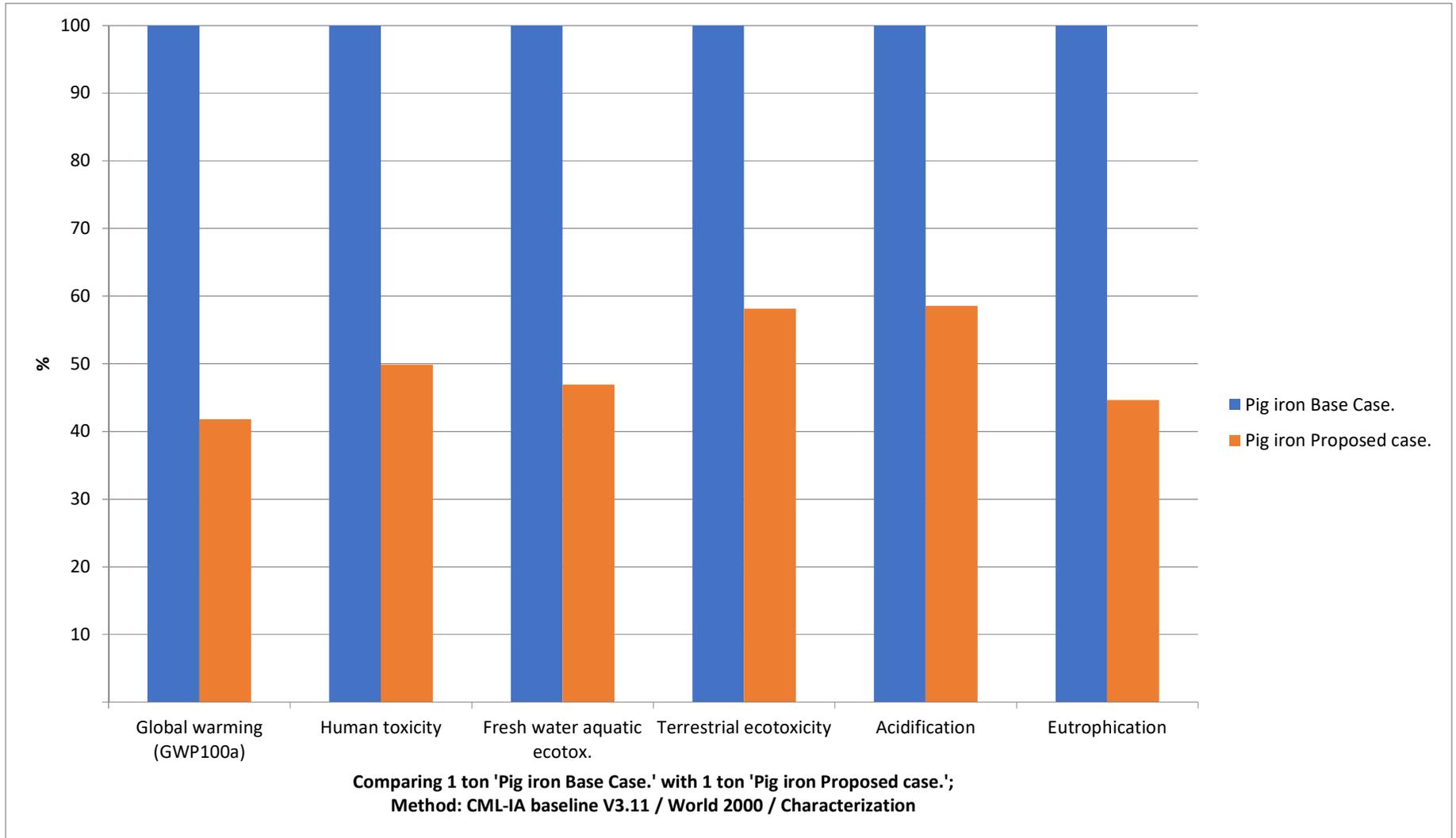


Figure 8-3 Comparative Pig iron Base case and Proposed case



8.1.3 Database

Environmental prices are indices expressing the willingness-to-pay for less environmental pollution in Euros per kilo pollutant. Environmental prices thus indicate the loss of economic welfare that occurs when one additional kilo of the pollutant enters the environment. In many cases they equal external costs. These prices can also be calculated for immaterial forms of pollution like noise nuisance and ionizing radiation, then being expressed in Euros per unit nuisance or exposure. Since a market for environmental quality is lacking, environmental prices cannot be observed directly, i.e. empirically, but must be calculated using the results of studies on human preferences for avoiding the impacts of pollution.

In the damage-cost approach an attempt is made to estimate the 'demand function' for environmental quality. This function hinges on how much people are prepared to pay for environmental quality: how much of their income they are willing to sacrifice for an additional unit of environmental quality. This is referred to as the willingness-to-pay (WTP). An alternative option is to consider how much people are prepared to pay to accept environmental damage: their willingness-to-accept (WTA). The concepts of WTP and WTA are thus both defined in terms of individual preference. Estimation of WTP can be approached in various ways, falling into two basic categories: – revealed preferences, emerging from the choices people actually make; – stated preferences, derived from questionnaires that measure people's WTP for maintaining or improving environmental quality. These methods have already been discussed in detail in the previous section.

The environmental costs were converted to the national currency and adjusted for the inflation rate to the present year.

8.1.4 Conclusion

A positive cost indicates benefit derived from the preferred option with mitigation measures over the base case. This cost saving indicates the benefits of application on the eco system and the environment considering the environmental costing achieved from the expenditure required in terms of health costs, pollution treatment costs, remediation costs, ecological damage costs, compensation costs and cost of remedial measures. So, application of mitigation measures over base case will save an environmental damage worth approximately **Rs. 86,072.71 for 3 products per ton.**

9 Mitigation Measure

9.1 Mitigation Measures

Following is the mitigation measures taken for reduction of GHG emissions.

1. Sequestration through plantation of 7647 No of trees

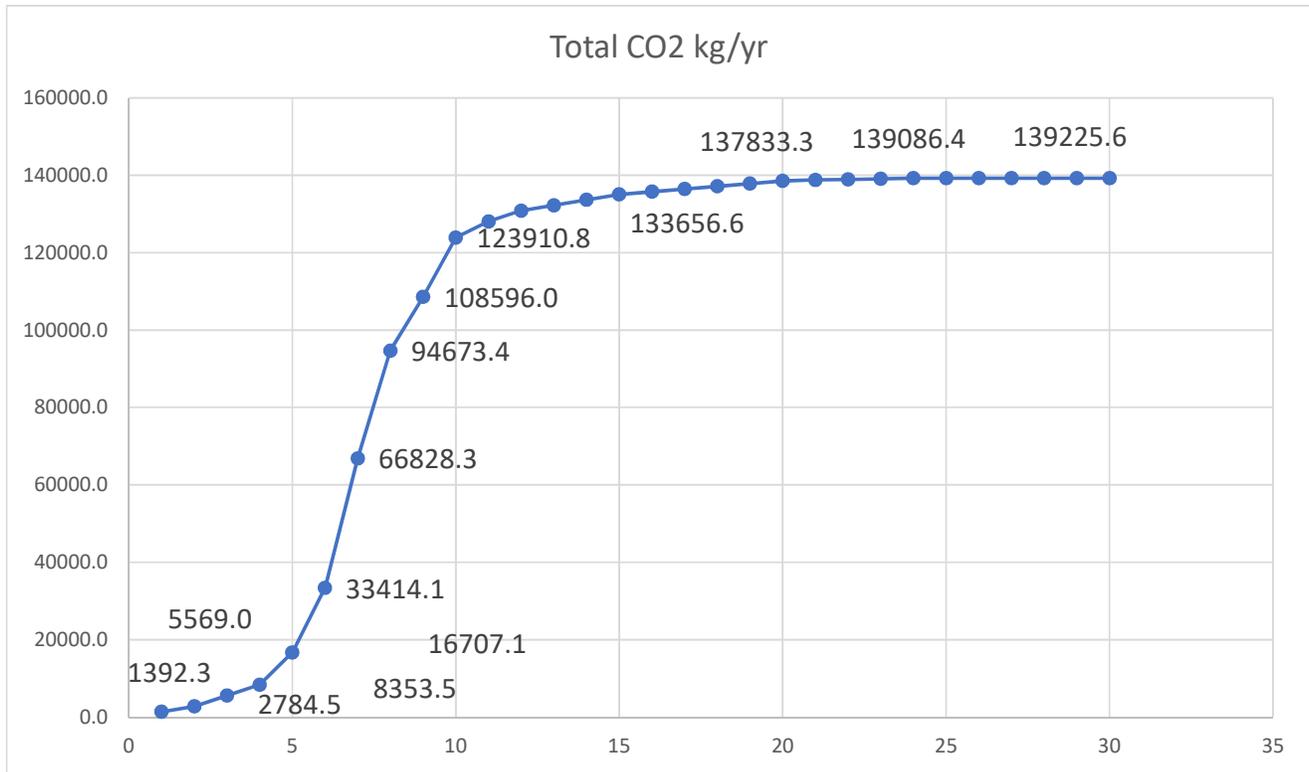
9.1.1 Annual Sequestration Calculations

As per the methodology of IISc Indian institute of Science Bangalore published by Springer in the book Carbon Inventory Methods (Authors: Rabindranath and Ostwald), the year wise carbon sequestration of each species is calculated. For the proposed trees, the year of plantation when the sequestration is negligible to 10 years of age (for average sequestration rate on full growth) the sequestration rate is calculated based on the methodology mentioned.

From 0 to 7-10 years the rate of sequestration per year goes on increasing with increase in biomass, for most of the species the rate of sequestration becomes stable after 10 years. The year-wise increase in height and girth for each species was considered from data published by FRI Dehradun and other Indian publications. For this existing tree data for similar species were collected, every individual plant diameter or girth at breast height (GBH) and height was measured. Wood density as per species was considered. The Above ground and below ground biomass were calculated, from which the carbon content was determined. Considering the age of the tree, annual amount of carbon dioxide sequestered was calculated for fully grown trees.

Similar methodology is followed in CPCB study of "Assessment of Carbon Sequestration Ability of Trees for Adopting in Green Belt of Cement Industries in Karnataka" "Carbon Inventory Methods" methodology: The height and girth at breast height (GBH) of tree are measured. Later, the parameters like Volume, Mass, Wood density, Above and Below ground biomass, Total biomass and Total carbon were calculated as per the standard methods given by Ravindranath and Ostwald. The wood density values were obtained for each of the tree species or in case density was not available, 0.6 was accepted as wood density. Wood density was also referred from data published by FRI.

Figure 9-1:Year Wise Carbon Savings due to carbon sequestration



➤ **Outside Plant Premise Tree List:****Table 9-1: Annual Carbon Sequestration through Plantation at Muktidham - Birgoav**

Sr. No.	Trees		Qty	CO ₂	CO ₂	Total CO ₂
	Botanical Name	Common Name	No.	kg	kg/ yr	kg/yr
1	<i>Conocarpus lancifolius</i>	Conocarpus	200	219.74	21.97	4394.84
2	<i>Ficus religiosa</i>	Pipal	5	276.31	27.63	138.16
3	<i>Terminalia catappa</i>	Badam	25	219.74	21.97	549.35
4	<i>Dalbergia sissoo</i>	Shisam	200	105.95	10.59	2118.94
5	<i>Bauhinia variegata</i>	Kachanar	100	219.74	21.97	2197.42
6	<i>Annona squamosa</i>	Shitaphal	200	10.46	1.05	209.28
7	<i>Neolamarckia cadamba</i>	Kadam	200	257.89	25.79	5157.83
8	<i>Samanea saman</i>	Rain Tree	300	251.13	25.11	7534.01
9	<i>Cassia fistula</i>	Keshiya Shamiya	200	141.70	14.17	2833.97
10	<i>Peltophorum pterocarpum</i>	Pelta Form	200	219.74	21.97	4394.84
11	<i>Psidium guajava</i>	Guava	200	88.29	8.83	1765.78
12	<i>Java plum</i>	Black Berry	100	257.89	25.79	2578.92
13	<i>Phyllanthus emblica</i>	Emblika	200	130.80	13.08	2615.98
Total			2130			36,489.32

Table 9-2: Annual Carbon Sequestration through Plantation inside Plant Premises

Sr. No.	Trees		Qty	CO ₂	CO ₂	Total CO ₂
	Botanical Name	Common Name	No.	kg	kg/ yr	kg/yr
1	<i>Conocarpus lancifolius</i>	Conocarpus	401	219.74	21.97	8811.65
2	<i>Delonix regia</i>	Gulmohar	50	276.31	27.63	1381.56
3	<i>Azadirachta indica</i>	Neem	50	219.74	21.97	1098.71
4	<i>Ficus benghalensis</i>	Bargat	7	390.65	39.07	273.46
5	<i>Ficus religiosa</i>	Pipal	30	276.31	27.63	828.94
6	<i>Millettia pinnata</i>	Karanj	30	219.74	21.97	659.23
7	<i>Cocos nucifera</i>	Nariyal	3	294.73	29.47	88.42
8	<i>Syzygium cumini</i>	Jamun	30	276.31	27.63	828.94
9	<i>Terminalia catappa</i>	Badam	20	219.74	21.97	439.48
10	<i>Alstonia scholaris</i>	Chatim	177	158.27	15.83	2801.32
11	<i>Acalypha wilkesiana</i>	Aclifa	160	5.23	0.52	83.71
13	<i>Mimusops elengi</i>	Maulsari	85	35.32	3.53	300.18
14	<i>Aegle marmelos</i>	Bogan Bel	24	69.76	6.98	167.42
15	<i>Pithecellobium dulce</i>	Gangaimali	20	130.80	13.08	261.60
16	<i>Saraca asoca</i>	Ashok	25	219.74	21.97	549.35
17	<i>Dalbergia sissoo</i>	Shisam	35	105.95	10.59	370.81
18	<i>Bauhinia variegata</i>	Kachanar	26	219.74	21.97	571.33
19	<i>Mangifera indica</i>	Aam	50	235.44	23.54	1177.19
20	<i>Ixora coccinea</i>	Exora	31	21.80	2.18	67.58
21	<i>Nerium oleander</i>	Kaner	25	27.47	2.75	68.67
22	<i>Thuja occidentalis</i>	Vidya	72	214.38	21.44	1543.51
23	<i>Moringa oleifera</i>	Munga	25	276.31	27.63	690.78
24	<i>Annona squamosa</i>	Shitaphal	30	10.46	1.05	31.39
25	<i>Leucaena leucocephala</i>	Subabul	85	158.27	15.83	1345.27
26	<i>Neolamarckia cadamba</i>	Kadam	26	257.89	25.79	670.52
Total			1517			25,111.02

Table 9-3: Annual Carbon Sequestration through Plantation at Urkura - Govt. Land

Sr. No.	Trees		Qty	CO ₂	CO ₂	Total CO ₂
	Botanical Name	Common Name	No.	kg	kg/ yr	kg/yr
1	<i>Conocarpus lancifolius</i>	Conocarpus	800	184.64	18.46	28619.87
2	<i>Delonix regia</i>	Gulmohar	500	276.31	27.63	19701.08
3	<i>Azadirachta indica</i>	Neem	300	219.74	21.97	9558.78
4	<i>Ficus religiosa</i>	Pipal	100	390.65	39.07	9766.31
5	<i>Mimusops elengi</i>	Maulsari	300	276.31	27.63	2901.28
6	<i>Aegle marmelos</i>	Bogan Bel	600	219.74	21.97	549.35
7	<i>Bauhinia variegata</i>	Kachanar	400	294.73	29.47	736.83
8	<i>Terminalia arjuna</i>	Arjuna	200	276.31	27.63	4282.84
9	<i>Albizia lebbeck</i>	Siris	200	219.74	21.97	1318.45
10	<i>Great bougainvillea</i>	Kagaj Phool	400	130.80	13.08	156.96
11	<i>Caesalpinia crista</i>	Gataran	200	5.23	0.52	33.48
Total			4000			77,625.24

10 Reference

- ✓ *LCA Software- SimaPro 10.2*
- ✓ *Databases – Ecoinvent 3.11 V*
- ✓ *GHG Protocol Manuals - Product Inventory*
- ✓ *Environmental Prices CE Delft*
- ✓ *The Economics of Ecosystems and Biodiveristy, UNEP*
- ✓ *Contingent Valuation: A Comprehensive Bibliography and History. Cheltenham: Edward Elgar*
- ✓ <https://usetox.org/>

Annexure IV: Plantation Monitoring Report

PHYSICAL VERIFICATION MONITORING & EVALUATION OF PLANTATION

M/s HIRA FERRO ALLOYS LTD (UNIT - II).

Plot No. 490/1, 491/2, Urla Industrial Area, Urla, Distt - Raipur (C.G.)

Year 2025



EVALUATION & VERIFICATION DONE

by

ARIF ALI

Rtd. Dy. CF. (SFS) CONSULTANT

(ENVIRONMENT AND FOREST) RAIPUR (C.G.)

Arif Ali 6.6.2025

Arif Ali

Rtd. DY. C.F. (SFS)
Consultant Env. & Forest
Raipur (C.G.)

EVALUATION AND VERIFICATION OF GREEN BELT

M/s HIRA FERRO ALLOYS LIMITED (UNIT –II)
PLOT NO. 490/1, 491/2, URLA INDUSTRIAL AREA, URLA RAIPUR (C.G.)

YEAR – 2025



Evaluation & Verification by: -

ARIF ALI

**Rtd. Dy. CF. (SFS) Consultant
(Environment and Forest) Raipur (C.G.)**

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1. EXECUTIVE SUMMARY

M/s Hira Ferro Alloys Ltd (Unit – II). Located at Plot No. 490/1, 491/2, Urla Industrial Area, Dist - Raipur (C.G.) is a production unit of ferro alloy and having 20 MW captive power plant . The permitted land of the factory is 18.73 hectares / 46.294 acres. Company has developed green belt in an area around 18.49 acres / 7.48 hectares of land inside and outside of factory premises which is around 40% of total factory area. The environment clearance is granted by Ministry of Environment Forest and Climate Change and Latest Consent to Operated is granted by CECB Raipur as also direction received from the regional office from time to time require as that plantation should be done by the industrial units within plant premises and nearby areas with local species covering 40% or 1/3rd of area. The green belt helps to capture the fugitive emission and attenuate the noise apart from improving the aesthetics of the region. Trees are also helpful in improving ecological condition as well as bio diversity status of the area. of total area 18.73 hectares / 46.294 acres of the project site 40% area i.e. around 18.49 acres / 7.48 hectares is covered as green belt within the plant premises and Boundary wall and Outside the plant premises . Physical verification and evaluation work has been done by our team in terms of number, girth of trees, height and survival percentage density and quality of plantation on 3rd week of May 2025.

1.1 INTRODUCTION

M/s Hira Ferro Alloys Limited (Unit-II) is existing Ferro Alloys plant (through Submerged Arc Furnace route) & Captive Power Plant at plot No. 490/1, 491/2, Urla Industrial Area Complex Unit-II, Urla, Raipur, Chhattisgarh, 492003. The company was promoted by Shri Narayan Prasad Agrawal who is the Managing Director of Unit Under their active guidance the company has been continuously expanding and diversifying its activities and has recorded substantial growth.

1.2 OCCUPIER & FACTORY MANAGER OF THE UNIT

SHRI AJAY DUBEY (Director)

Hira Ferro Alloys Ltd. (Unit – II)

Plot No. 490/1, 491/2, Urla Industrial Complex, Urla Raipur (C.G.)

Pin code: - 492003

Mail ID: ajay.dubey@hiragroup.com, tarun.kumar@hfal.in

Contact: +91-8770008994, +91- 97555 22009

Phone No.: 0771- 4938401(O), M- +91 97555 22009

Hira Ferro Alloys Limited is a company of Hira Group which is one of the leading business conglomerates in the state of Chhattisgarh. The group is one of the largest

groups of Chhattisgarh with predominant interest in power generation, sponge iron, steel making, steel rolled products, ferro alloys and coal and iron ore mining and cement manufacture. The Group has vast experience in the projects of Ferro Alloys & Steel making among other products. Hira Group of companies operates in eight business sectors viz. Sponge (DRI), Steel, Power, Ferro alloys, Cement, Real Estate, Pellets & Mining. The Group Combines unparalleled experience, across all related products through extensive research for cost effective production. Hira Ferro Alloys Limited is the company registered under Companies Act, 1956 having present ferro alloys production capacity of Ferro Alloys: 50000 metric tonnes per annum or pig iron 70000 metric tonnes per annum along with captive **power** plant of 20 MW in the name of Hira Ferro Alloys Limited (Unit- II) along with ferro alloys production capacity of 10500 metric tonnes per annum in the name of Hira Ferro Alloys Limited (Unit-I) at Urla Industrial Area Raipur. The unit is operational as per the latest Consent to Operate issued by SPCB (CECB) vide Letter No. 8679/TS/CECB/2024 dated 30.12.2024 (valid up to 31.12.2025). The total plant area is 46.294 Acres (18.735 Ha.). The unit has four Submerged Arc Furnaces and 20 MW Captive Power Plant. The site is self-sufficient with all the infrastructural facilities consisting of utilities, environment management, manufacturing area, OHC, full-fledged safety department, warehousing, and site technical management.

1.3. LOCATION OF PLANT AND ACCESSIBILITY

The project site is located at Urla Industrial Area, Accholi Village, Raipur Tehsil and District, Chhattisgarh. The coordinates of the center of site are Latitude: 21°19'8.28"N & Longitude: 81°37'2.15"E. Land use and land cover of the site is Industrial. The existing unit is spread over an area of 46.294 Acres (18.735 Ha.). The proposed expansion is planned within the existing premises only. The site is easily accessible via road and rail networks. The nearest road from the project is NH-30 located 1.4 km towards west direction. NH-30 is further connected to the Birgaon Main Road which will also be the approach road for the plant area. Other highways and roads from the project are NH-53 located 8.15 km towards SW & NH-130B at 7.1 km towards SE direction. The nearest railway station from the project is Urkura Railway Station located 4.12 km towards SE direction. The nearest airport from the project is Raipur Airport located about 20 km away from site towards SE direction. Project being located near the Industrial area, many small to large scale industries are present in the area.

1.4. AREA STATEMENT:

Total plant Area : 18.73 Hectares / 46.294 Acres

Existing Green Belt Area : (A) Within plant Premises 05.56 Acres.

(B) Outside plant Premises 13.00 Acres.

2. PLANTATION SITES

Plantation work has been done along the plant boundary, inside the plant premises, roadside and the nearby hill area and Muktidham. Plantation survey has been carried out by our expert team with the help of M/s Hira Ferro Alloys Limited management and office staff. Following plantation sites have been planted by M/s Hira Ferro Alloys Limited.

Approx. 22,500.5 sqm i.e., 12% of the area is developed as a green area within the premises. Additionally, 52,609 sqm i.e., 28% of the total plot area is developed outside the premises. The outside land has been allotted by Nagar Palika Nigam Birgoav at different locations i.e., Urla Muktidham, Achholi Muktidham, Rawabhata Muktidham and Other Govt. Land Urkura. Approx. 6310 nos. of trees have been planted inside the plant premises and approx. 13350 Nos. of trees have been planted outside the premises.

DISCUSSION WITH MANAGEMENT AND STAFF AS UNDER –

1. Mr. Niket Khandelwal (GM – Corporate Affairs)
2. Mr. Tarun Kumar (Asst. Manager – Corporate Affairs)

2.1. PLANT PREMISES PLANTATION AREA

1. Main gate to Materials gate road both side
2. Materials gate to Dispensary
3. Dispensary to Auto mobiles road both side
4. CHP coal yard boundary wall
5. Solar Plant area
6. Auto mobile front Garden area

2.3. PLANTATION OUTSIDE OF PLANT PREMISES

(PLANTATION WITH CSR ACTIVITIES LAND IS ALLOTTED BY NAGAR NIGAM BIRGAOV)

1. Acholi Muktidham
2. Rawabhata Muktidham
3. Urla Muktidham
4. Urkura Site on Government Land.

3. NEED OF GREEN BELT

Greenbelts are an effective mode of pollution and forming a sink of pollutants. Leaves with their vast area in a tree crown, sorbs pollutants on their surface, thus effectively reduce pollutants concentration in the ambient air, often the absorbed pollutants are incorporated in the metabolic pathway and the air is purified. Plant grown to function as pollution sink are collectively referred as green belts. An important aspect of a greenbelt is that the plants are living organisms with their varied tolerance limit towards the air pollutants. A green belt is effective as a pollutants sink only within the tolerance limit of constituent plants. Planting few, known pollutant sensitive species along with the tolerant species within a green belt however, do carry out an important function of indicator species. Apart from function as pollution sink, green belt would provide the benefit like aesthetic improvement of the area and providing suitable habitats for animal and birds.

3.1 CHOOSING PLANTS FOR GREEN BELTS:

The main limitations for plants to function as scavenger of pollutants are plant interaction to air pollutants, sensitivity to pollutants, climate condition and soil characteristics. While making choice of plant species for cultivation in greenbelts. Due consideration has to be given to the natural factors of bioclimate, Xerophytes plants are not necessary good for greenbelts they with their sunken stomata can withstand pollution by avoidance but are poor absorber of pollutants. Character of plants mainly considered for affecting absorption of pollutants gases and removal of dust particles are as follows.

3.2. FOR ABSORPTION OF GASES:

1. Tolerance towards pollutants in question, of concentration that are not high to be instantaneously lethal.
2. Longer duration of foliage.
3. Freely exposed foliage.
4. Adequate height of crown.

5. Openness of foliage in canopy.
6. Big leaves (long and broad laminar surface).
7. Large number of stomatal apertures.

3.3 FOR REMOVAL OF SUSPENDED PARTICULATE MATTER:

1. Height and spread of crown.
2. Leaves supported on firm petiole.
3. Abundance of surface on bark and foliage.
4. Roughness of bark.
5. Abundance of axillary hairs.
6. Hairs of scales on laminar surface.

MoEFCC (Ministry of Environment Forest and Climate Change) guidelines regarding green belt for industries – The environmental factors related to green belt with economic, social consideration are given below Land acquired shall be sufficiently large to provide shape for appropriate treatment of waste water, the treated waste water left after maximum possible reuse and recycle should be used to raise green belt and to create water body for aesthetic, recreation and if possible for agriculture. No forest land shall be converted into non forest activity for the sustenance or the industries. The green belt between to adjoining large scale industries shall be 1km. The green belt shall be 500 meters wide around the boundary limit of industry, for industry having odour problem it shall be 1 km wide.

In some environmental clearance issued for various types of projects by concerned regulatory authorities of central and state level, conditions reflected to green belt development of industrial projects mention that green belts of adequate width and density shall be provided 38% area to mitigate the effects off fugitive in emission all around the plant with local species in consultation with the DFO as per the CPB guidelines.

Development of green belt consisting of three tier along the periphery of the project with native species is most important. Guideline for any type of industry, green vegetation is beneficial many ways leading to conservation of biodiversity, retention of soil moisture, recharge of ground water and maintaining pleasant climate of the area. Providing possible habitat for birds and animal. Green belt minimizes the builds up pollution level in urban/industrial areas by acting as pollution sinks. The three tier

green belt will absorb pollutant release from industrial activity into atmosphere helps in effective pollution control. The main advantages of green belt in and around the industry are to control air and noise pollution.

Trees helps in trapping particulate matter, removing co2 and other pollutants from air and by release o2 into the air there by improving the air quality. Green belt reduce the intensity or should be reflect, refract or by absorb sound, if will function as barrier between industry and neighbourhood. The intensity reduction depends op on the distance sound has to travel from source and width as the green belt. Green belt also helps in soil erosion control through improvement of soil, quality and binding soil particles. It also contain water run offs and improve ground water infiltration and improving ground water recharge capacity. The green belt species should be selected based on the type/category of the industry and climatic conditions. Setting trees around and industry may not serve the purpose of green belt without considering the above elements.

4. PHYSICAL VERIFICATION AND EVALUATION OF GREEN BELT

For assessing the quality and quantity of green belt developed by M/s Hira Ferro Alloys Ltd (Unit – II). Our team visited the site on 3rd week of May 2025 and conduct all the necessary procedure to evaluate the green belt.

Tree Enumeration – Counting of all the trees and saplings carried out by direct field observation casualties were also recorded to calculate the survival percentage. Assessment of Health of Plantation – Generally health of plantation is assessed by measuring height and grith of trees. Height is measuring approximately and grith is measuring on following basis.

Table (1)

HEALTH	GIRTH
1.Upto 3year old tree	Girth is measuring 50 cm above the ground level
2.Upto 5year old trees	100 cm above the ground level
3.Older than 5 year	150 above the ground level

Survival percentage: The survival percentage of plantation is Calculated on the basis of the formula i.e.

$$\frac{\text{No. of living plants}}{\text{Total no. of plant planted}} \times 100 \qquad \text{Density: - No of trees } \frac{\text{Area}}{\text{Area}}$$

4.1 PLANTED SPECIES AND MEASUREMENTS

Table (2)

M/s Hira Ferro Alloys Limited (Unit –II) (2008-2024)							
s. n.	Species	Average		Maximum		Minimum	
		Girth (cm)	Height (m)	Girth (cm)	Height (m)	Girth (cm)	Height (m)
1.	Peltaphorum	23.65	6.49	1.10	16	2	0.35
2.	Conocarpus	16.42	2.52	28	5	1.20	8
3.	Cashew	5	1.19	10	2.10	4	0.30
4.	Jamun	16.90	4.01	50	12	2	0.40
5.	Kathal	7.2	1.31	10	2.20	2	0.45
6.	Amrood	8.6	1.21	18	3.50	5	1.60
7.	Mango	9.75	1.45	20	5.50	2	0.20
8.	Kadmba	8.33	5.05	65	12.00	4	3
9.	Badam	14.83	1.93	40	5.50	3	0.40
10.	Kachnar	18.6	3.42	35	5.00	6	1.50
11.	Khamar	19.07	3.77	35	6.00	6	1.30
12.	Kaner	13.1	1.67	30	4.50	3	0.50
13.	Gulmohar	9	1.52	14	3.00	4	0.50
14.	Arjun (Kahuwa)	37.25	4.23	85	8	12	2.50
15.	Shisham	19.7	4.45	28	3.50	12	3.00
16.	Pipal	16.07	2.56	30	5.50	6	0.80
17.	Jetrofa	27.7	3.3	55	6.00	6	0.50
18.	Bargad	30.37	3.52	55	6.50	10	0.60
19.	Karanj	17.15	3.43	30	6.00	2	0.40
20.	Neem	16.85	4.10	35	7.50	6	2.00
21.	Sagoun	22.66	2.95	35	4.00	15	1.40
22.	Neelgiri	17.53	9.98	1.80	14	3	1.20
23.	Tecoma	25.66	2.86	48	5.00	6	1.00
24.	Other Misc	21.05	3.01	38.66	4.40	10	1.34

4.2. GRADING OF PLANTATION

A. Grading of project plantation on scale of 1 to 10

Table (3)

Qualitative	Survival	8.25
	Health of plantation	8.35
	Maintenance	8.75
	Sustainability	8.15

B. Grading of project plantation on scale of 1 to 10.

Table (4)

Overall grading of plantation	Excellenet	Very good	Good	Poor
	(8 < 10)	(5<8)	(3-5)	(>3)
		8.45		

5. Enumeration Details of Tree Plantation in Premises of

M/S HIRA FERRO ALLOYS LTD (UNIT – II).

Plot No. 490/1, 491/2, Industrial Area Urla, Distt - Raipur (C.G.)

Year – 2025

1. Total area of the factory: 18.73 Hectares / 46.294Acres
2. Green belt area (Inside + Outside) : 7.48 Hectares / 18.56 Acres
3. Total No. Plants: 19,060 Numbers
4. Survival percentage: 86 %
5. Site suitability: Good
6. Density: 1,027 Trees / acre

5.1 ALL TREES NAME AND QUANTITY

Table (5)

ALL TREES NAME & QUANTITY						
INSIDE PLANT PREMISES			OUTSIDE PLANT PREMISES			
SR. No.	TREE NAME	NO. OF TREE'S	URLA MUKTIDHAM	RAWABHAT A MUKTIDHAM	ACHHOLI MUKTIDHAM	OTHER GOVT. LAND/URLA & URKURA
1	CONOCARPUS	1550	1000	-	1750	1000
2	GULMOHAR	713	250	500	250	500
3	ARJUNA	435	-	500	250	1000
4	GOLDEN BAMBOO	250	-	-	-	-
5	NEEM	105	-	-	-	-
6	BARGAT	25	-	-	-	-
7	PIPAL	25	-	-	-	-
8	KARANJ	155	-	-	-	-
9	BOTTAL PLAM	60	-	-	-	250
10	NARIYAL	12	-	-	-	-
11	JAMUN	64	-	-	-	250
12	BADAM	95	250	-	-	-
13	CHATIM	175	-	-	-	-
14	CYCUS	131	-	-	-	-
15	ANAR	24	-	-	-	-
16	GOLDAN DURENTA	400	-	-	-	-

17	ACLIFA GREEN	600	-	-	-	-
18	ACLIFA BROWN	600	-	-	-	-
19	MAULSARI	70	250	-	-	-
20	MEHANDI	80	-	-	-	-
21	BOGAN BEL	120	-	-	-	-
22	GANGAIMALI	29	-	-	-	-
23	ASHOK	46	-	-	500	-
24	SHISAM	44	-	500	-	-
25	KACHANAR	25	-	500	-	-
26	AAM	55	-	-	-	-
27	EXORA	23	-	-	-	-
28	KANER	34	-	-	-	-
29	VIDYA	15	-	-	-	-
30	MUNGA	10	-	-	500	-
31	CHIKU	15	-	-	-	-
32	KATHAL	24	-	-	-	-
33	JAM	30	-	-	-	-
34	SHITAPHAL	20	-	-	300	-
35	NIMBU	19	-	-	200	-
36	PAPITA	18	-	-	500	-
37	BER	15	-	-	-	-
38	SUBABUL	150	-	-	-	-
39	AVALA	15	-	-	-	-
40	KADAM	19	250	-	-	-
41	BEL	15	-	-	-	-
42	KESHIYA SHAMIYA	0	-	500	-	-
43	DELTA FORM	0	-	500	-	-
44	EMBLICA	0	-	500	-	-
TOTAL (in Nos.)		6310	2000	3500	4250	3000
GRAND TOTAL		19060 Nos.				

SUMMARY OF GREEN BELT DEVELOPMENT

S.N O.	ALLOTTED LAND BY NAGAR NIGAM	TOTAL AREA (IN ACRE)	PLANTED AREA (IN ACRE)	NO. OF SPECIES	No. of Survival	Survival Rate in %
1	PLANT PREMISES	46.294	5.56	6310	5595	88.6 %
GREEN BELT DEVELOPMENT IN FY 2023-24 and FY 2024-2025						
2	URLA MUKTIDHAM	6.356	2	2000	1,780	89 %
3	ACHHOLI MUKTIDHAM	6	4.5	4250	3498	82 %
4	RAWABHATA MUKTIDHAM	6.4	2.5	3500	2796	80 %
5	OTHER GOVT. LAND URKURA	4	4	3,000	2860	95 %

TOTAL	18.56	19060	16529	86.7 %
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% OF AREA GREEN BELT DEVELOPMENT					
S.No.	ALLOTTED LAND BY NAGAR NIGAM	Total Available Land/ Allotted Land by Nagar Nigam (in Acre)	Total Plant Premises Area (in Acre)	Planted/ Green Belt developed Area (IN Acre)	% of Green Belt
1.	PLANT PREMISES	46.294	46.294	5.56	12 %
2.	URLA MUKTIDHAM	6.356		2	4.3 %
3.	ACHHOLI MUKTIDHAM	6		4.5	9.7 %
4.	RAWABHATA MUKTIDHAM	6.4		2.5	5.4 %
5.	OTHER GOVT. LAND URKURA	4		4	8.6 %
TOTAL					18.56

Table: 6 Details of year wise plantation inside plant premises

S.No.	Plantation years	Total planted plants	Total Survival plants	Survival %
1.	FY 2007 - 2008 FY 24-2025	6310	5595	88.6%

Table: 7 Details of year wise outside plantation, Urla muktidham

S. No.	Plantation years	Total planted plants	Total Survival plants	Survival %
1.	FY 2023-24	2000	1780	89 %

Table: 8 Details of year wise outside plantation, Rawabhata muktidham

S.No.	Plantation years	Total planted plants	Total Survival plants	Survival %
1.	2023-24	3500	2796	80 %

Table: 9 Details of year wise outside plantation, Acholi muktidham

S.No.	Plantation years	Total planted plants	Total Survival plants	Survival %
1.	2023-24	4250	3498	82 %

Table: 10 Details of year wise outside plantation, Urkura Government Land

S.No.	Plantation years	Total planted plants	Total Survival plants	Survival %
2.	FY 2023-24 FY 2024-25	3000	2860	95 %

Table: 11 Details of Total planted Plants within Plant premises & outside plantation, Plants Numbers and Percentage:

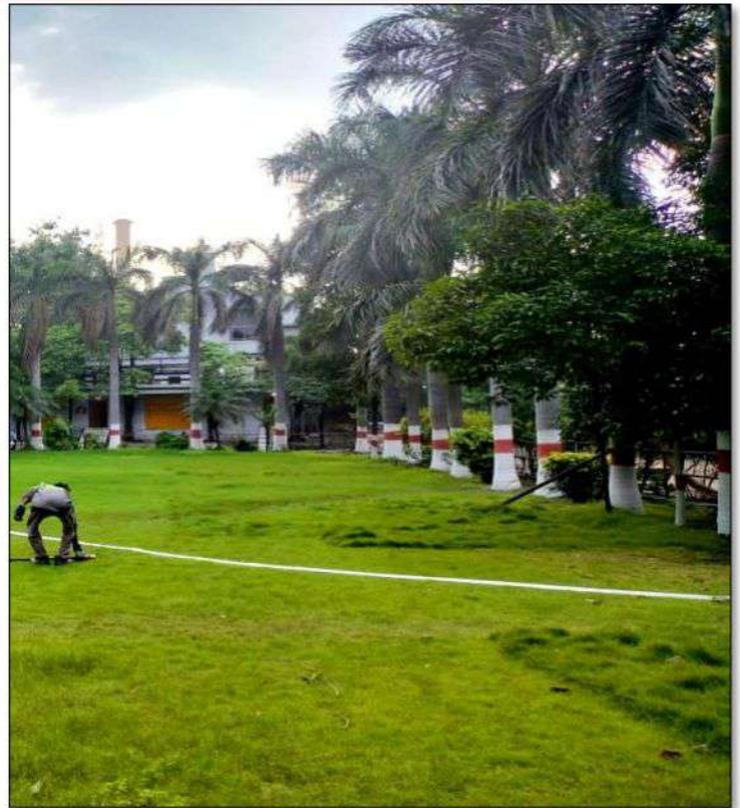
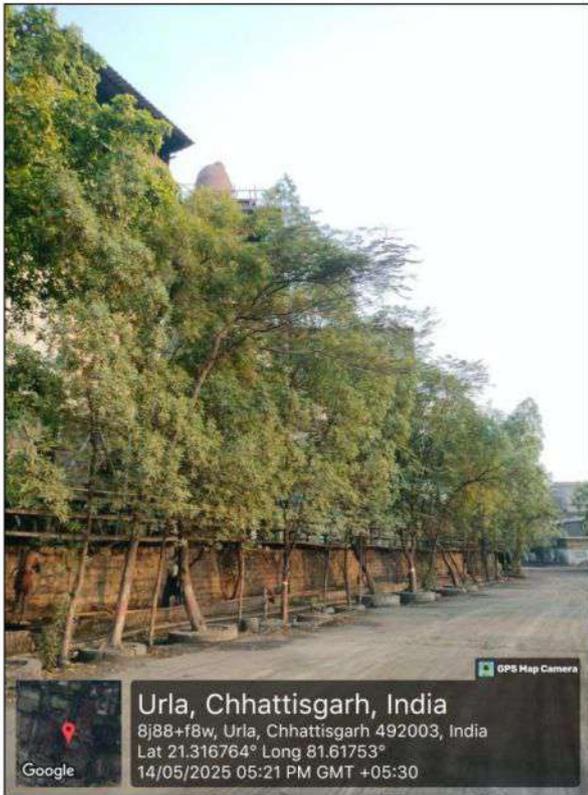
S.No.	Plantation years	Total planted plants	Total Survival plants	Survival %
1.	2008-2025	19060	16529	86.7 %

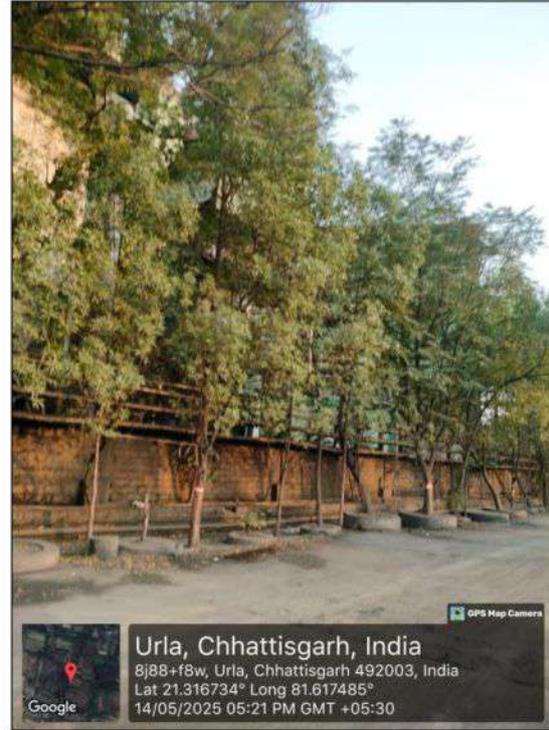
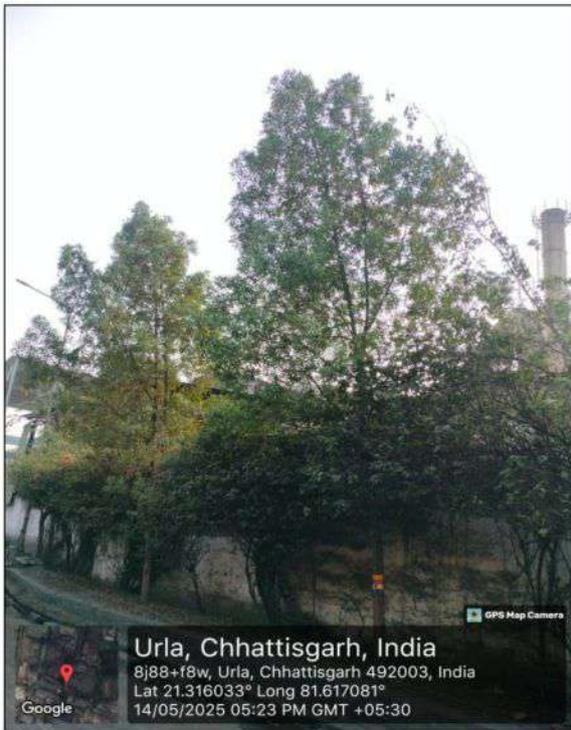
6. Conclusion/Result: M/s Hira Ferro Alloys Limited is working diligently on its tree plantation efforts within and outside the plant premises. Apart from gap filing, a total of 19060 saplings were planted in the year from FY 2007- 2008 to FY 2024-2025, in an area of about 18.56 acres, they have attempted to satisfy the statutory requirement of developing 40 % of the total land area as a green belt.

7. SUGGESTION FOR IMPROVEMENT

- 1) It is advice to adopt some fruit bearing and broad leaf trees.
- 2) The coal dust deposited in the leaves should be removed by washing the plants regularly.
- 3) Plant should be planted after one year age, Minimum 3’ to 4’ height.
- 4) Space between plants 2mx2m, 3mx3m and maximum 4mx4m according to maximum girth of trees after maturity.
- 5) Given priority to broader leaves plants.
- 6) Species – fast growing Species to be planted.
- 7) Manure – Cow dung compost, Vermi compost for good edge Urea, DAP,Enzyme can be used.

8. GREEN BELT DEVELOPMENT PHOTOGRAPHS INSIDE PLANT PREMISES









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कं./ 822 /न.पा.नि./सी.एस.आर./वृक्षा.-2024-25 बीरगांव,दिनांक 29 / 05 / 2024

// प्रमाण-पत्र //

—000—

प्रमाणित किया जाता है कि हीरा फेरो एलॉयस लिमिटेड, उरला इण्डस्ट्रियल कॉम्प्लेक्स, उरला द्वारा मान. एन.जी.टी. के आदेश के परिपालन में पर्यावरण संरक्षण-संवर्धन एवं हरियर छत्तीसगढ़ हेतु CSR मद से उरला मुक्तिधाम रकबा लगभग 6.356 एकड़ क्षेत्र में ऑक्सीजन/वृक्षारोपण कार्य पूर्ण कर समुचित संधारण किया जा रहा है। कार्य संतोषप्रद है।

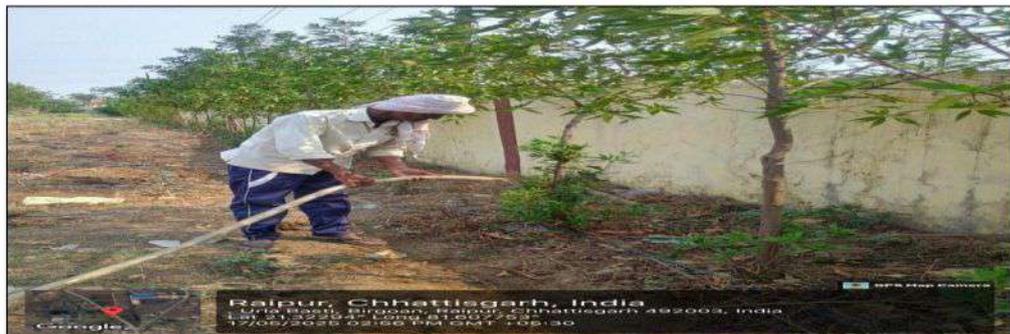
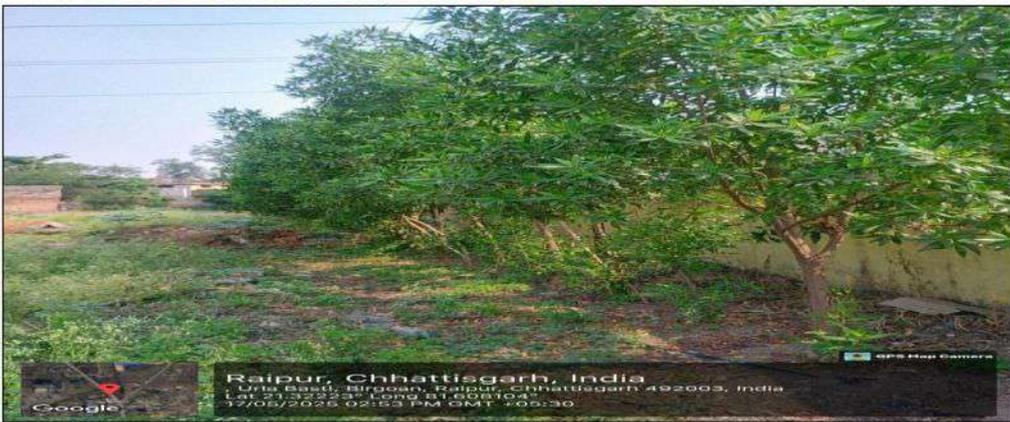
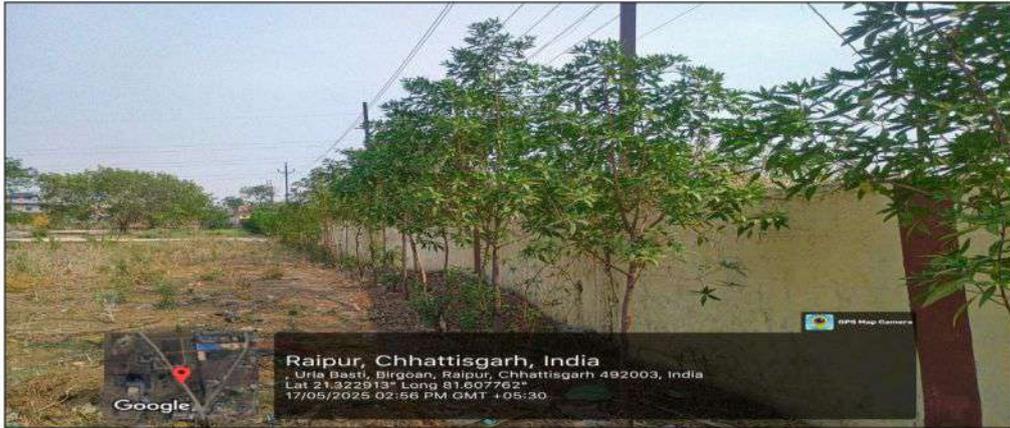
पर्यावरण संरक्षण-संवर्धन हेतु कंपनी के उक्त कार्य की सराहना करते हुये हम कंपनी के उज्ज्वल भविष्य की कामना करते हैं। आशा है आगे भी पर्यावरण संरक्षण-संवर्धन की दिशा में कार्य करते रहेंगे।


आयुक्त
नगर पालिक निगम बीरगांव
जिला-रायपुर (छ.ग.)
जिला-रायपुर (छ.ग.)

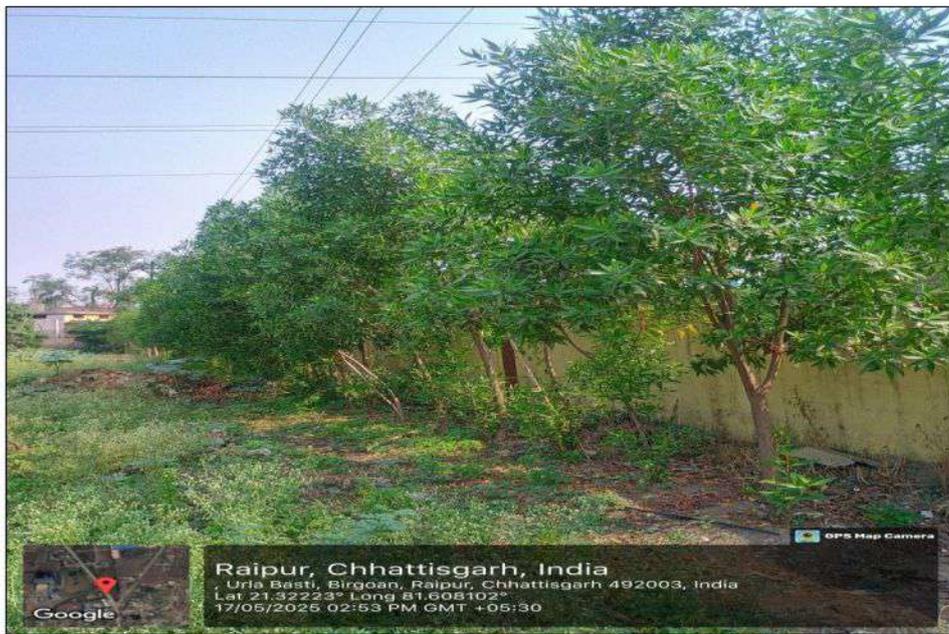
प्रति,

प्रबंध संचालक
हीरा फेरो एलॉयस लिमिटेड
उरला इण्डस्ट्रियल कॉम्प्लेक्स
उरला, रायपुर (छ.ग.)

9. OUTSIDE PLANT PREMISES
LOCATION: URLA MUKTIDHAM



10. OUTSIDE PLANT PREMISES
LOCATION: ACHHOLI MUKTIDHAM



कार्यालय नगर पालिक निगम, बीरगांव जिला-रायपुर (छ.ग.)

Email Id: birgaonmcp@gmail.com

<http://www.nagarnigambirgaon.com>

कं./ 822 /न.पा.नि./सी.एस.आर./वृक्षा.-2024-25 बीरगांव,दिनांक 29 / 05 / 2024

// प्रमाण-पत्र //
—000—

प्रमाणित किया जाता है कि हीरा फेरो एलॉयस लिमिटेड, उरला इण्डस्ट्रियल काम्प्लेक्स, उरला द्वारा मान. एन.जी.टी. के आदेश के परिपालन में पर्यावरण संरक्षण-संवर्धन एवं हरियर छत्तीसगढ़ हेतु CSR मद से उरला मुक्तिधाम रकबा लगभग 6.356 एकड़ क्षेत्र में ऑक्सीजन/वृक्षारोपण कार्य पूर्ण कर समुचित संधारण किया जा रहा है। कार्य संतोषप्रद है।

पर्यावरण संरक्षण-संवर्धन हेतु कंपनी के उक्त कार्य की सराहना करते हुये हम कंपनी के उज्ज्वल भविष्य की कामना करते हैं। आशा है आगे भी पर्यावरण संरक्षण-संवर्धन की दिशा में कार्य करते रहेंगे।


आयुक्त
नगर पालिक निगम, बीरगांव
जिला-रायपुर (छ.ग.)
जिला-रायपुर (छ.ग.)

प्रति,

प्रबंध संचालक
हीरा फेरो एलॉयस लिमिटेड
उरला इण्डस्ट्रियल काम्प्लेक्स
उरला, रायपुर (छ.ग.)

11. OUTSIDE PLANT PREMISES
LOCATION: RAWABHATA MUKTIDHAM





कार्यालय नगर पालिक निगम, बीरगांव जिला-रायपुर (छ.ग.)

Email Id: birgaonmcp@gmail.com

<http://www.nagarnigambirgaon.com>

कं./ 4973 / न.पा.नि./ सी.एस.आर./ वृक्षा.-2024-25 बीरगांव, दिनांक 28/01/2025

// प्रमाण-पत्र //

प्रमाणित किया जाता है कि हीरा फेरो एलॉयस लिमिटेड, उरला इण्डस्ट्रियल कॉम्प्लेक्स, उरला रायपुर द्वारा मान. एन.जी.टी. के आदेश के परिपालन में पर्यावरण संरक्षण-संवर्धन एवं हरियर छत्तीसगढ़ हेतु CSR मद से नगर पालिक निगम बीरगांव क्षेत्रान्तर्गत रांवांभांठा मुक्तिधाम में वृक्षारोपण कार्य पूर्ण कर समुचित संधारण किया जा रहा है। कार्य संतोषप्रद है।

पर्यावरण संरक्षण-संवर्धन हेतु कंपनी के उक्त कार्य की सराहना करते हुये हम कंपनी के उज्ज्वल भविष्य की कामना करते हैं। आशा है आगे भी पर्यावरण संरक्षण-संवर्धन की दिशा में कार्य करते रहेंगे।



आयुक्त

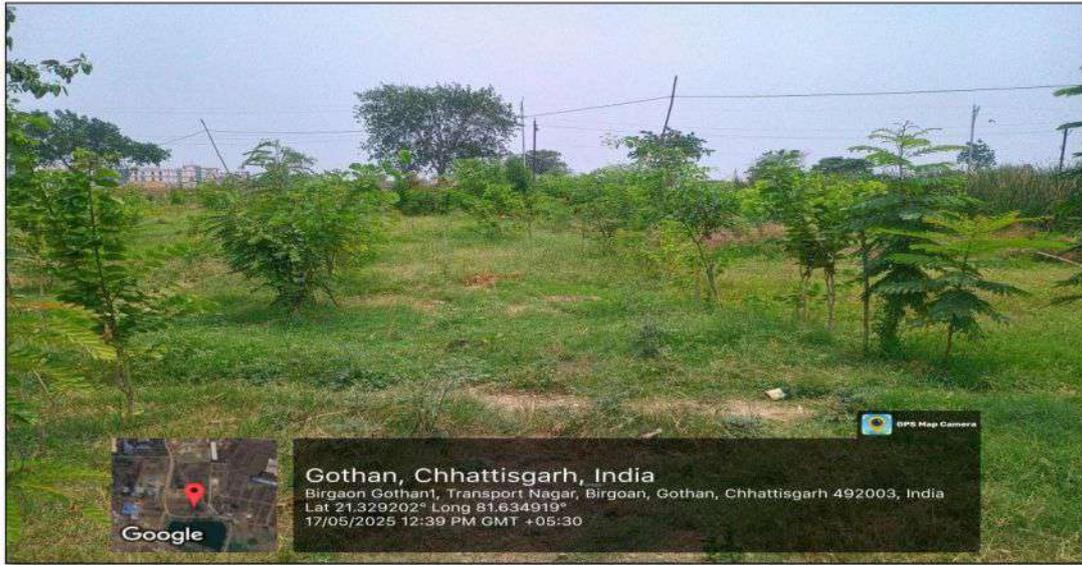
 नगर पालिक निगम बीरगांव
जिला-रायपुर (छ.ग.)
जिला-रायपुर (छ.ग.)

प्रति,

प्रबंध संचालक
हीरा फेरो एलॉयस लिमिटेड
उरला इण्डस्ट्रियल कॉम्प्लेक्स
उरला, रायपुर (छ.ग.)

**PHOTOGRAPHS: 12. OUTSIDE PLANT PREMISES
LOCATION: RAWABHATA MUKTIDHAM**





12. OUTSIDE PLANT PREMISES

**LOCATION: GOVERNMENT LAND AT URKURA ALLOTTED BY NAGAR PALIK NIGAM
BIRGOAV**

कार्यालय नगर पालिक निगम बीरगांव जिला-रायपुर (छ.ग.)

Email Id: birgaonmcp@gmail.com

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कं./ 4972 / न.पा.नि. / सी.एस.आर. / वृक्षा.-2024-25 बीरगांव, दिनांक 28 / 01 / 2025

// प्रमाण-पत्र //

प्रमाणित किया जाता है कि हीरा फेरो एलॉयस लिमिटेड, उरला इण्डस्ट्रियल कॉम्प्लेक्स, उरला रायपुर द्वारा मान. एन.जी.टी. के आदेश के परिपालन में पर्यावरण संरक्षण-संवर्धन एवं हरियर छत्तीसगढ़ हेतु CSR मद से नगर पालिक निगम बीरगांव क्षेत्रान्तर्गत मौजा उरकुरा प.ह.नं. 40 खसरा नं. 341/1 एवं 341/2 का भाग लगभग 4.00 एकड़ क्षेत्र में वृक्षारोपण कार्य पूर्ण कर समुचित संधारण किया जा रहा है। कार्य संतोषप्रद है।

पर्यावरण संरक्षण-संवर्धन हेतु कंपनी के उक्त कार्य की सराहना करते हुये हम कंपनी के उज्ज्वल भविष्य की कामना करते हैं। आशा है आगे भी पर्यावरण संरक्षण-संवर्धन की दिशा में कार्य करते रहेंगे।


आयुक्त
नगर पालिक निगम बीरगांव
जिला-रायपुर (छ.ग.)

प्रति,

प्रबंध संचालक
हीरा फेरो एलॉयस लिमिटेड
उरला इण्डस्ट्रियल कॉम्प्लेक्स
उरला, रायपुर (छ.ग.)

PHOTOGRAPHS AT URKURA LOCATION





ARIF ALI

Consultant Environment and Forest
K-6 Anupam Nagar Raipur Chhattisgarh (492001)

CERTIFICATE

This is to certify that M/s Hira Ferro Alloys Ltd (Unit – II). Located at Plot No. 490/1, 491/2, Industrial Area Urla, Distt - Raipur (C.G.) has established its factory over an area of 18.73 hectares (46.294 acres). As per the environmental guidelines, the company has developed green belt within the plant premises, covering an area of around 5.5 acres (7.48 hectares) in which around 6,310 numbers of trees has been planted. In addition to this 12,750 numbers of trees has been planted at Mukti Dham Village Acholi, and at Village Urkura in an area around 13.00 acres by the permission of Nagar Palika Nigam Birgaon wide order number 4972 & 4973 dated 28/01/2025 and order number 822 dated 29/05/2024. Thus around 19,060 numbers of plants including inside and outside plantation have been planted, which is covering around 40% of the factory land area, with a plantation density of 1,030 trees per acre. The green belt developed by the management is found to be satisfactory and is in compliance with the applicable environmental parameters.

Place: Raipur (C.G.)

Arif Ali 06 06 2025
Arif Ali
Retd. DY. C.F. (SFS)
Consultant Env. & Forest
Raipur (C.G.)

Annexure V: CEMS and CAAQMS

Photographs of CAAQMS and CEMS

OPACITY METER



CONTINUOUS EMISSION MONITORING SYSTEM



AAQMS SYSTEM & DISPLAY BOARD



Annexure VI: Ambient Air Results



Approved: by Occupational Health & Safety Management (ISO45001:2018)

Approved: by National Accreditation Board for Testing and Calibration Laboratories

Registered Office: 63/1, Kailash Vihar, Near Income Tax Office, City Center-II,
Gwalior-474 011, M.P., India
☎ 0751-3566867, 2232177

Email: aelgwalior@gmail.com, aetrlcenter@gmail.com
Web: aetrl.com



TEST REPORT

Report No.:	AETRL/AA-25122025/01	Date:	07/01/2026
Name & Address of Customer	M/s Hira Ferro Alloys Limited (Unit - II) Plot No. 490/1, 491/2, Urla Industrial Area, District – Raipur (C.G.) Pin - 492003		
Sample Collection Date	25/12/2025 to 26/12/2025	Sampling Type	: NA
Sample Receipt Date	: 30/12/2025	Sample ID	: AA-25122025/01
Sampling Location	: Near Main Gate	Sample Description	: Ambient Air
Sample Collected / Submitted by	: Lab Representative	Protocol used for monitoring	: IS 5182 (Part - 14)
Quantity / No. of Sample	: One Ambient Air	Analysis Started On	: 30/12/2025
Packing / Seal	: Temp. Sealed	Analysis Completed On	: 07/01/2026
Meteorological condition during monitoring	Clear sky		

AMBIENT AIR ANALYSIS RESULTS

Sr. No.	Parameter	Result	Unit	Protocol used for Analysis	NAAQS
1	Particulate Matters PM ₁₀	76	µg/m ³	IS 5182 (Part 23) 2022	100(Max.)
2	Particulate Matters PM _{2.5}	32	µg/m ³	IS 5182 (Part 24) 2024	60(Max.)
3	Sulphur Dioxide as SO ₂	11.4	µg/m ³	IS 5182 (Part 2) 2023	80(Max.)
4	Nitrogen Dioxide as NO ₂	22.9	µg/m ³	IS 5182 (Part 6) 2022	80(Max.)
5	Carbon Monoxide as CO	0.27	mg/m ³	IS 5182 (Part 10) 2022	4.0(Max.)

Authorized Signatory

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

Note:

1. This report is not to be reproduced wholly or in part and cannot be used as evidence in the court of law and should not be used in any advertising media without our special permission in writing.
2. The sample will be destroyed after 15 days from the date of issue of test certificate unless otherwise specified.
3. Any discrepancy in test result should be reported within 15days.
4. The above Results are related to the tested Sample Only.



Approved: by Occupational Health & Safety Management (ISO45001:2018)

Approved: by National Accreditation Board for Testing and Calibration Laboratories

Registered Office: 63/1, Kailash Vihar, Near Income Tax Office, City Center-II,

Gwalior-474 011, M.P., India

☎ 0751-3566867, 2232177

Email: aelgwalior@gmail.com, aetrlcenter@gmail.com

Web: aetrl.com



TEST REPORT

Report No.: AETRL/AA-26122025/02	Date:	07/01/2026	
Name & Address of Customer	: M/s Hira Ferro Alloys Limited (Unit - II) Plot No. 490/1, 491/2, Urla Industrial Area, District – Raipur (C.G.) Pin - 492003		
Sample Collection Date	: 26/12/2025 to 27/12/2025	Sampling Type	: NA
Sample Receipt Date	: 30/12/2025	Sample ID	: AA-26122025/02
Sampling Location	: Near Weighbridge	Sample Description	: Ambient Air
Sample Collected / Submitted by	: Lab Representative	Protocol used for monitoring	: IS 5182 (Part - 14)
Quantity / No. of Sample	: One ambient air	Analysis Started On	: 30/12/2025
Packing / Seal	: Temp. Sealed	Analysis Completed On	: 07/01/2026
Meteorological condition during monitoring	Clear sky		

AMBIENT AIR ANALYSIS RESULTS

Sr. No.	Parameter	Result	Unit	Protocol used for Analysis	NAAQS
1	Particulate Matters PM ₁₀	78	µg/m ³	IS 5182 (Part 23) 2022	100(Max.)
2	Particulate Matters PM _{2.5}	33	µg/m ³	IS 5182 (Part 24) 2024	60(Max.)
3	Sulphur Dioxide as SO ₂	11.0	µg/m ³	IS 5182 (Part 2) 2023	80(Max.)
4	Nitrogen Dioxide as NO ₂	21.4	µg/m ³	IS 5182 (Part 6) 2022	80(Max.)
5	Carbon Monoxide as CO	0.34	mg/m ³	IS 5182 (Part 10) 2022	4.0(Max.)

Authorized Signatory

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

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Registered Office: 63/1, Kailash Vihar, Near Income Tax Office, City Center-II,

Gwalior-474 011, M.P., India

☎ 0751-3566867, 2232177

Email: aelgwalior@gmail.com, aetrlcenter@gmail.com

Web: aetri.com



TEST REPORT

Report No.: AETRL/AA-25122025/03	Date:	07/01/2026	
Name & Address of Customer	: M/s Hira Ferro Alloys Limited (Unit - II) Plot No. 490/1, 491/2, Urla Industrial Area, District – Raipur (C.G.) Pin - 492003		
Sample Collection Date	: 25/12/2025 to 26/12/2025	Sampling Type	: NA
Sample Receipt Date	: 30/12/2025	Sample ID	: 25122025/03
Sampling Location	: Hospital Area	Sample Description	: Ambient Air
Sample Collected / Submitted by	: Lab Representative	Protocol used for monitoring	: IS 5182 (Part - 14)
Quantity / No. of Sample	: One ambient air	Analysis Started On	: 30/12/2025
Packing / Seal	: Temp. Sealed	Analysis Completed On	: 07/01/2026
Meteorological condition during monitoring	Clear sky		

AMBIENT AIR ANALYSIS RESULTS

Sr. No.	Parameter	Result	Unit	Protocol used for Analysis	NAAQS
1	Particulate Matters PM ₁₀	71	µg/m ³	IS 5182 (Part 23) 2022	100(Max.)
2	Particulate Matters PM _{2.5}	32.8	µg/m ³	IS 5182 (Part 24) 2024	60(Max.)
3	Sulphur Dioxide as SO ₂	11.1	µg/m ³	IS 5182 (Part 2) 2023	80(Max.)
4	Nitrogen Dioxide as NO ₂	22.4	µg/m ³	IS 5182 (Part 6) 2022	80(Max.)
5	Carbon Monoxide as CO	0.34	mg/m ³	IS 5182 (Part 10) 2022	4.0(Max.)

Authorized Signatory

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

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☎ 0751-3566867, 2232177

Email: aelgwalior@gmail.com, aetrlcenter@gmail.com

Web: aetrl.com



TEST REPORT

Report No.: AETRL/AA-26122025/04	Date:	07/01/2026
Name & Address of Customer	M/s Hira Ferro Alloys Limited (Unit - II) Plot No. 490/1, 491/2, Urla Industrial Area, District – Raipur (C.G.) Pin - 492003	
Sample Collection Date	26/12/2025 to 27/12/2025	Sampling Type : NA
Sample Receipt Date	30/12/2025	Sample ID : AA-26122025/04
Sampling Location	Store Area	Sample Description : Ambient Air
Sample Collected / Submitted by	Lab Representative	Protocol used for monitoring : IS 5182 (Part - 14)
Quantity / No. of Sample	One Ambient Air	Analysis Started On : 30/12/2025
Packing / Seal	Temp. Sealed	Analysis Completed On : 07/01/2026
Meteorological condition during monitoring	Clear sky	

AMBIENT AIR ANALYSIS RESULTS

Sr. No.	Parameter	Result	Unit	Protocol used for Analysis	NAAQS
1	Particulate Matters PM ₁₀	69	µg/m ³	IS 5182 (Part 23) 2022	100(Max.)
2	Particulate Matters PM _{2.5}	29	µg/m ³	IS 5182 (Part 24) 2024	60(Max.)
3	Sulphur Dioxide as SO ₂	10.1	µg/m ³	IS 5182 (Part 2) 2023	80(Max.)
4	Nitrogen Dioxide as NO ₂	20.7	µg/m ³	IS 5182 (Part 6) 2022	80(Max.)
5	Carbon Monoxide as CO	0.36	mg/m ³	IS 5182 (Part 10) 2022	4.0(Max.)

Authorized Signatory

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

Note:

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4. The above Results are related to the tested Sample Only.

Annexure VII: Technical specification of APCS

Technical specification of Air Pollution Control Equipment installed at Ferro Alloys Unit II

Technical Specification of Bag Filters (I)

S. No.	Description	Specification (11 MVA) A	Specification (11 MVA) B
1	Filtering Media	Polyester Needle felt non-woven filter bag	Polyester Needle felt non-woven filter bag
2	No. Of Chamber	18	8
3	No. Of Bag Per Chamber	49	168
4	Total Nos. Of Filter	882	1344
5	Dia Of Filter Bag	200 mm	220 mm
6	Filter Bag Length	5 m	4.5 m
7	Filtering Area Per Bag	3.14 m ²	2.11 m ²
8	Total Filtering Area (Online)	3.14 x 882 m ²	2.11 x 882 m ²
9	Air To Cloth Ratio of Online Bags	1.1	1.0
10	Fan Capacity	2 x 80,000 m ³ /h	2 x 80,000 m ³ /h
Note: Note: Present stack emission is below 50 mg/ Nm ³ (standard limit as per CTO) as and it is proposed to reduced to less than 30 mg/Nm ³ the time commissioning of the project. (Ferro Alloys)			

Technical Specifications of Bag Filters (II)

S. No.	Description	Specification 7.5 MVA	Specification 5 MVA
1	Filtering Media	Polyester Needle felt non-woven filter bag	Polyester Needle felt non-woven filter bag
2	No. Of Chamber	10	6
3	No. Of Bag Per Chamber	70	144
4	Total Nos. Of Filter	700	864
5	Dia Of Filter Bag	200 mm	150 mm
6	Filter Bag Length	5 m	4.2 m
7	Filtering Area Per Bag	2 m ²	1.96 m ²
8	Total Filtering Area (Online)	2 x 700 m ²	1.96 x 864 m ²
9	Air To Cloth Ratio of Online Bags	1.1	0.9
10	Fan Capacity	1,10,000 m ³ /h	80,000 m ³ /h
Note: Present stack emission is below 50 mg/ Nm ³ (standard limit as per CTO) as and it is proposed to reduced to less than 30 mg/Nm ³ the time commissioning of the project. (Ferro Alloys)			

Technical Specifications of ESP

S. No.	Description	UOM	Details
1	Make	-	ACC (Associated Cement Company Ltd.)
2	ESP Size/Model No.	-	1P, 1C, 19GP (15.75" x 33' x 43.8" x 3F (3 x 14.6"))
3	No of ESP in One Unit	Nos	1
4	No of Field in ESP	Nos	3

S. No.	Description	UOM	Details
5	Length of each filed in meter	meter	ESP 1FIELD - 5.166 m
		meter	ESP 2FIELD - 4.936 m
		meter	ESP 3FIELD - 5.166 m
6	Height of collecting plates	meter	10.058
7	Width of Collecting Plated	mm	2240
8	Nos. of Collecting Plates in One ROW of One Plate		8
9	Nos. of ROW in Collecting Eelectrodes	Nos	20
10	Gas Passage Width	Nos	7800
11	Collecting of Area of Each Filed	mm	1700.93
12	Total Collecting Area of Each	sqm	5102.818
13	Specific Collecting Area	sqm	98.51
14	Type of Collecting Electrode	m2/m3/sec	MOC: IS 513 GR. D
15	Type of Discharge/Emitting Electrode		Double Spike MOC IS 513 GR. D.
Process Data / ESP Input Parameters			
1	Gas Volume at ESP Inlet	Am3/hr, wet basis	186480
2	Static (Suction) Pressure at ESP Inlet	mm WC	-256
3	Gas Temperature at ESP Inlet	deg C	130
4	Inlet Dust Concentration	gm/Nm3, wet basis	77.5
5	Outlet Emission Original Design	gm/Nm2, wet basis	75

Annexure VIII: Photographs of Air Pollution Control System

Photographs of Air Pollution Control System



ESP attached with RCC Stack (Power Plant)



FERRO ALLOYS





Urla, Chhattisgarh, India
8J88+F8W, Urla Industrial Complex, Birgoan, Urla, Chhattisgarh 492003, India
Lat 21.317738°
Long 81.617306°
30/01/24 11:41 AM GMT +05:30



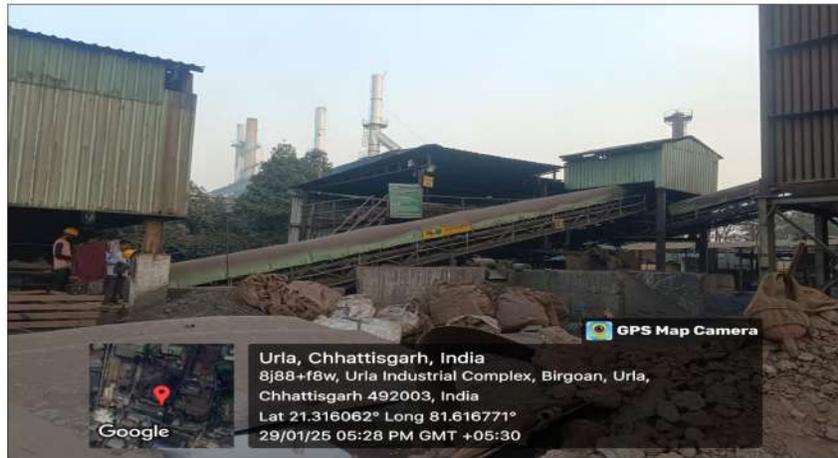
Urla, Chhattisgarh, India
8J88+F8W, Urla Industrial Complex, Birgoan, Urla, Chhattisgarh 492003, India
Lat 21.317708°
Long 81.617467°
30/01/24 11:41 AM GMT +05:30



Annexure IX: Covered Raw Material and Transportation

HIRA FERRO ALLOYS LTD. _UNIT - II

Closed Conveying System



Photographs for Transportation of Raw Material in covered trucks



Annexure X: Bag Filter Performance Report



Approved: by Occupational Health & Safety Management (ISO45001:2018)

Approved: by National Accreditation Board for Testing and Calibration Laboratories

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Gwalior-474 011, M.P., India

☎ 0751-3566867, 2232177

Email: aelgwalior@gmail.com, aetrlcenter@gmail.com

Web: aetrl.com



TESTREPORT

Report No.: AETRL/ BF-27012025/01		Date: 07/01/2026	
Customer Name & Address	:	M/s Hira Ferro Alloys Limited (Unit - II) Plot No. 490/1, 491/2, Urla Industrial Area, Raipur (C.G.) Pin - 492003	
Date of Sample Collection	:	27/01/2025	Sampling Type : Isokinetic
Date of Sample Received	:	30/12/2025	Sample ID : BF-27012025/01
Sampling Location	:	Bag Filter (7.5 MVA Furnace)	Sample Description : Inlet & Outlet side of Bag Filter
Sample Collected / Submitted by	:	Lab Team	Protocol used for Sampling : CPCB Guideline
Plant condition	:	Operating	Analysis Started On : 30/12/2025
Packing / Seal	:	Temp. Sealed	Analysis Completed On : 07/01/2026
Environmental Condition during the test		Clear Sky	

Bag Filter Performance Test

Sr. No.	Parameter	Unit	Desing parameter	Operating Condition	Remarks/Observation
1	Bag Filter Chambers	Nos.	10	10	No deviation
2	Filter Bags per Chamber	Nos.	70	70	No deviation
3	Total Filter Bags	Nos.	700	700	No deviation
4	Filter Bag Material	–	Polyester Needle Felt	Polyester Needle Felt	No deviation
5	Filter Bag Size (Dia × Length)	mm	220 × 5000	220 × 5000	No deviation
6	Cleaning System	–	Reverse Air System	Reverse Air System	Less affective
7	ID Fan Flow Rate	Nm ³ /hr	110000	96880	Flow rate reduced due to one chamber not in operation
8	ID Fan Speed	RPM	980	890	Corresponds to reduced system load
9	Bag Filter Outlet Static Pressure	mmWC	365	320	Lower pressure due to reduced flow
10	Bag Filter Inlet Static Pressure	mmWC	–	78	Low suction pressure observed at bag filter inlet
11	Differential Pressure across Bag Filter	mmWC	120	260	DP on the higher side, indicating partial choking / inefficient cleaning
12	Bag Filter Inlet Temperature	°C	RTD need to provide	132	Design inlet temperature not available at site
13	Bag Filter Outlet Temperature	°C	RTD need to provide	66	False air ingress observed from bag filter top access doors
14	Bag Filter Inlet Dust Concentration	mg/Nm ³	–	38.8	Inlet dust load relatively low
15	Bag Filter Outlet Dust Concentration	mg/Nm ³	50	27.4	Stack emissions well within prescribed limits

Note:

Authorized Signatory

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 Web: aetri.com



TEST REPORT

Report No.: AETRL/ BF-27012025/02		Date:		07/01/2026
Customer Name & Address		M/s Hira Ferro Alloys Limited (Unit - II) Plot No. 490/1, 491/2, Urla Industrial Area, Raipur (C.G.) Pin - 492003		
Date of Sample Collection	: 27/01/2025	Sampling Type	: Isokinetic	
Date of Sample Received	: 30/12/2025	Sample ID	: BF-27012025/02	
Sampling Location	: 11 MVA -A Furnace	Sample Description	: Bag Filter	
Sample Collected / Submitted by	: Lab representative	Protocol used for Sampling	: CPCB Guideline	
Plant condition	: Operating	Analysis Started On	: 30/12/2025	
Packing / Seal	: Temp. Sealed	Analysis Completed On	: 07/01/2026	
Environmental Condition during the test		Clear Sky		

Bag Filter Performance Test

Sr. No.	Parameter	Unit	Design Parameter	Operating Condition	Remarks / Observation
1	Bag Filter Chambers	Nos.	01	01	-
2	Filter Bags per Chamber	Nos.	01	01	-
3	Total Filter Bags	Nos.	882	882	-
4	Filter Bag Material	-	Polyester Needle Felt	Polyester Needle Felt	-
5	Filter Bag Size (Dia × Length)	mm	220 × 5000	220 × 5000	-
6	Cleaning System	-	Reverse air system	Reverse air system	-
7	ID Fan Flow Rate	Nm ³ /hr	145000	137000	-
8	ID Fan Speed	RPM	980	940	-
9	Bag Filter Outlet Static Pressure	mmWC	365	340	Lower than design due to reduced airflow – Acceptable
10	Bag Filter Inlet Static Pressure	mmWC	-	80	Measured value reasonable
11	Differential Pressure across Bag Filter	mmWC	120	210	Low section pressure at bag filter
12	Bag Filter Inlet Temperature	°C	RTD need to install	144	Within polyester bag limit (<180°C) – Safe
13	Bag Filter Outlet Temperature	°C	-	74.2	Indicates effective cooling after filtration
14	Bag Filter Inlet Dust Concentration	mg/Nm ³	-	32.2	Moderate dust loading – Normal
15	Bag Filter Outlet Dust Concentration	mg/Nm ³	50	27.9	Complies with CPCB/SPCB emission limits

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 Web: aetrl.com



TEST REPORT

Report No.: AETRL/ BF-27012025/02		Date: 07/01/2026	
Customer Name & Address		M/s Hira Ferro Alloys Limited (Unit - II) Plot No. 490/1, 491/2, Urla Industrial Area, Raipur (C.G.) Pin - 492003	
Date of Sample Collection	: 27/01/2025	Sampling Type	: Isokinetic
Date of Sample Received	: 30/12/2025	Sample ID	: BF-27012025/02
Sampling Location	: 11MVA-B Furnace	Sample Description	: Bag Filter
Sample Collected / Submitted by	: Lab representative	Protocol used for Sampling	: CPCB Guideline
Plant condition	: Operating	Analysis Started On	: 30/12/2025
Packing / Seal	: Temp. Sealed	Analysis Completed On	: 07/01/2026
Environmental Condition during the test		Clear Sky	

Bag Filter Performance Test

Sr. No.	Parameter	Unit	Desing parameter	Operating Condition	Remarks/Observation
1	Bag Filter Chambers	Nos.	08	08	No deviation
2	Filter Bags per Chamber	Nos.	168	168	No deviation
3	Total Filter Bags	Nos.	1344	1344	No deviation
4	Filter Bag Material	-	Polyester Needle Felt	Polyester Needle Felt	No deviation
5	Filter Bag Size (Dia × Length)	mm	150 × 4800	150 × 4800	No deviation
6	Cleaning System	-	Pulse jet	Pulse Jet	Less affective
7	Solenoid Valve Size	mm	40	40	No deviation
8	Mode of Operation	-	DP	Time	Bag filter operating in timer mode instead of DP
9	Solenoid Valves in Operation	Nos.	96	96	Solenoid valves operating
10	Operating Air Pressure	kg/cm ²	5	5	Moisture/oil filters not installed for solenoid valve
11	ID Fan Flow Rate	Nm ³ /hr	160000	142560	-
12	ID Fan Speed	RPM	980	936	-
13	Bag Filter Outlet Static Pressure	mmWC	365	320	-
14	Bag Filter Inlet Static Pressure	mmWC	-	120	Low pressure
15	Differential Pressure across Bag Filter	mmWC	120	180	DP is high side
16	Bag Filter Inlet Temperature	°C	RTD need to install	144	Within polyester bag limit (<180°C) – Safe
17	Bag Filter Outlet Temperature	°C	-	74.2	-
19	Bag Filter Inlet Dust Concentration	mg/Nm ³	-	32.2	Moderate dust load
19	Bag Filter Outlet Dust Concentration	mg/Nm ³	50	27.9	Complies CPCB/SPCB emission limits

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 Web: aetrl.com



TEST REPORT

Report No.: AETRL/ BF-26012025/01	Date:	07/01/2026
Customer Name & Address	M/s Hira Ferro Alloys Limited (Unit - II) Plot No. 490/1, 491/2, Urla Industrial Area, Raipur (C.G.) Pin - 492003	
Date of Sample Collection	26/01/2025	Sampling Type : Isokinetic
Date of Sample Received	30/12/2025	Sample ID : BF-26012025/01
Sampling Location	Power Plant (ESP)	Sample Description : ESP
Sample Collected / Submitted by	Lab Team	Protocol used for Sampling : CPCB Guideline
Quantity / No. of Sample	1Nos.	Analysis Started On : 30/12/2025
Packing / Seal	Temp. Sealed	Analysis Completed On : 07/01/2026
Environmental Condition during the test	Clear Sky	

ESP Performance Test

Sr. No.	Parameter	Unit	Design Parameter	Operating Condition	Remarks / Observation
1	ESP No of Field	Nos.	03	03	All field are operating
2	Field 1-TR set voltage	KVP	105	48	No spark observed and found ok
3	Field 2-TR set voltage	KVP	105	55	No spark observed and found ok
4	Field 3-TR set voltage	KVP	105	54	No spark observed and found ok
5	Field 1-TR set current	MA	500	62	Current setting OK
6	Field 2-TR set current	MA	700	114	Current setting OK
7	Field 3-TR set current	MA	500	158	Current setting OK
8	Rapping system	Nos.	47	47	Rapping system are operating
9	Rapping operational condition	Yes/No	-	Yes	All rapping lift intensity found ok
10	ESP field spark rate	Nos.	0	0	Zero spark observed in ESP
11	Gas flow	m ³ /hr	225000	224000	NA
12	Fan speed	RPM	980	752	NA
13	ESP inlet concentration	mg/Nm ³	50	44.2	NA

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Web: aetrl.com



TEST REPORT

Report No.: AETRL/ BF-26012025/01	Date:	07/01/2026			
Customer Name & Address	:	M/s Hira Ferro Alloys Limited (Unit - II) Plot No. 490/1, 491/2, Urla Industrial Area, Raipur (C.G.) Pin - 492003			
Date of Sample Collection	:	26/01/2025	Sampling Type	:	Isokinetic
Date of Sample Received	:	30/12/2025	Sample ID	:	BF-26012025/01
Sampling Location	:	Power Plant (ESP)	Sample Description	:	ESP
Sample Collected / Submitted by	:	GECPL Team	Protocol used for Sampling	:	CPCB Guideline
Quantity / No. of Sample	:	1Nos.	Analysis Started On	:	30/12/2025
Packing / Seal	:	Temp. Sealed	Analysis Completed On	:	07/01/2026
Environmental Condition during the test	Clear Sky				

ESP Performance Test

Sr. No.	Parameter	Unit	Design Parameter	Operating Condition	Remarks / Observation
1	ESP Outlet dust concentration	mg/Nm	50	27.8	Dust Emission is well within the Standard
2	Sulphur Dioxide (SO ₂)	mg/Nm	600	176	Dust Emission is well within the Standard
3	Nitrogen Dioxide (NO ₂)	mg/Nm	300	88	Dust Emission is well within the Standard
4	Oxygen	%	-	4.6	-

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TEST REPORT

Report No.: AETRL/ TCLP-25122025/01	Date:	07/01/2026
ULR No.		
Name & Address of Customer	M/s Hira Ferro Alloys Limited (Unit - II) Plot No. 490/1, 491/2, Urla Industrial Area, Raipur (C.G.) Pin - 492003	
Sample Collection Date & Time	28/12/2025	Sampling Type : USEPA METHOD – 1311
Sample Receipt Date	30/12/2025	Sample ID : TCLP-28122025/01
Sampling Location	Silica quartz in dust At SAF Area	Sample Description : Bag filter Dust Particles
Sample Collected / Submitted by	Lab representative	Protocol used for monitoring : NA
Quantity / No. of Sample	250 gm	Analysis Started On : 30/12/2025
Packing / Seal	Seal Pack	Analysis Completed On : 07/01/2025
Environmental Condition during the test	Clear sky	

TEST REPORT OF

SR.NO.	PARAMETER	UNIT	METHOD OF TEST	As per Factory Act	RESULT
1	Particles of Silica quartz in Ferro Dust	mg/m3	USEPA METHOD – 1311	10	1.52

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

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Annexure XI: Action plan 30 mg/Nm³

HIRA FERRO ALLOYS LIMITED

PLOT NO. 490/1, 491/2, URLA INDUSTRIAL AREA, URLA RAIPUR CHHATTISGARH

ACTION PLAN FOR THE POLLUTION CONTROL SYSTEM TO ACHIEVE STACK EMISSIONS BELOW 30 Mg/Nm³

Improving the filtration capacity of a bag house (fabric filter) means gas flow handling without exceeding emission limits or causing high pressure drop. Below is some of the practical, plant-oriented checklist, commonly applied in Ferro-alloy units and other Furnaces.

1. Reduce Air-to-Cloth (A/C) Ratio.

Filtration capacity is directly linked to A/C ratio (Air to Cloth ratio).

Actions:

- A. Increase number of bags
- B. Increase bag length (e.g., 4.5 m → 6 m)
- C. Add additional bag house compartment
- D. Reduce excess air ingress (false air)

Typical thumb rules:

Pulse jet bag house: 1.0 – 1.5 m/min

Reverse air (RABH) : 0.5 – 1.0 m/min

Lower A/C ratio = higher effective capacity & lower emissions

2. Improve Bag Cleaning Efficiency

Poor cleaning causes choking → high DP → low capacity.

Optimize:

Pulse pressure (Compressed Air) : 5–7 kg/cm²

Pulse duration: 100–150 ms

Cleaning sequence (row-wise, online)

Cleaning based on ΔP control, not timer only

Check:

Choked or blinded bags

Solenoid valves & diaphragms

Compressed air Pressure /moisture/oil

3. Upgrade Filter Media (Very Effective)

Older fabric limits capacity.

Upgrade options:

Polyester → PTFE membrane bags

Antistatic bags (for high resistivity dust)

Higher GSM felt (550–600 GSM)

Benefits:

Higher filtration velocity

Lower pressure drop

Better fine dust capture (<30 mg/Nm³)

4. Improve Gas Distribution inside Bag house

Uneven flow reduces usable cloth area.

Actions:

Install / repair existing inlet baffles plates.

Improve diffuser plates

Seal hopper leakage

Eliminate short-circuiting zones

5. Control Gas Temperature & Moisture

Moisture causes bag blinding.

Maintain:

Gas temp 20–25°C above dew point

Avoid cold air ingress inside the bag House.

Insulate ducts, bag house & hopper

6. Reduce Dust Load at Baghouse Inlet

Lower inlet loading = higher capacity.

Methods:

Improve cyclone efficiency upstream

Reduce fuel fines

Optimize combustion / furnace operation

7. Maintain Hopper & Dust Discharge System

Dust accumulation increases re-entrainment.

Ensure:

Rotary valves / screw conveyors working

No hopper choking

Continuous ash evacuation

8. Improve Sealing & Reduce False Air

False air increases volume without filtration.

Check:

Expansion joints

Access doors

Tube sheet leakage

Damper seals

9. Operational & Monitoring Improvements

Continuous ΔP monitoring

Trend bag DP vs. time

**IMPLEMENTATION FOR THE POLLUTION CONTROL SYSTEM TO ACHIEVE EMISSIONS
BELOW 30 Mg/Nm³**

To reduce bag house emissions from ~50 mg/Nm³ to ~30 mg/Nm³ without changing the air-to-cloth ratio, the most effective strategy usually lies in upgrading to more efficient filter media rather than just relying on conventional fabrics. With the same cloth area and airflow, the media type and surface characteristics strongly influence capture efficiency and hence emissions.

Why Media Choice Matters

Standard needle-felt or woven fabrics depend on dust cake buildup for filtration. Fine particles — especially in the sub-10 µm range — are harder to collect on these fabrics, and emissions tend to be higher unless the media is enhanced. Advanced media with finer pore structure or surface membranes can hold dust on the surface rather than in the depth of the fabric, improving efficiency and lowering emissions with the same air-to-cloth ratio.

Recommended Fabric Media for Lower Emissions (≈30 mg/Nm³)

1. PTFE Membrane Laminated Fabrics (Best Upgrade)

How they work: A micro porous PTFE membrane bonded to the base felt provides surface filtration — dust stays on the surface, not inside the felt.

Benefit: Significantly higher fine-particle capture efficiency; many installations report emissions well below 30 mg/Nm³ and can even achieve <10 mg/Nm³ is possible with proper maintenance.

Upgrading existing polyester bags to PTFE membrane versions often yields the largest emission drop without changing system airflow or cloth area.

Improved capture of smaller particles compared to standard polyester.

✓ Cleaning mechanism: Pulsed jet cleaning works best with PTFE membranes due to reduced dust penetration.

Maintenance is critical:

Even the best media won't perform if pulse cleaning, pressure drop, or bag integrity are poor. Ensuring proper pulse timing and periodic inspection improves actual capture efficiency and stabilizes emissions.

Summary – Best Choice for 50 → 30 mg/Nm³

Table 1.1 : Technical Specification of Bag Filters (I)

S. No.	Description	Specification Existing (11 MVA) A	Specification Modified (11 MVA) A	Specification Existing (11 MVA) B	Specification Modified (11 MVA) B
1	Filtering Media	Polyester Needle felt non-woven filter bag	PTFE Membrane Laminated Fabric filter bag	Polyester Needle felt non-woven filter bag	PTFE Membrane Laminated Fabric filter bag
2	No. Of Chamber	18	18	8	8
3	No. Of Bag Per Chamber	49	49	168	168
4	Total Nos. Of Filter	882	882	1344	1344
5	Dia Of Filter Bag	200 mm	200 mm	220 mm	150 mm
6	Filter Bag Length	5 m	5 m	4.5 m	4.5 m
7	Filtering Area Per Bag	3.14 m ²	3.14 m ²	2.11 m ²	2.11 m ²
8	Total Filtering Area (Online)	3.14 x 882 m ²	3.14 x 882 m ²	2.11 x 882 m ²	2.11 x 882 m ²
9	Air To Cloth Ratio of Online Bags	1.1	0.96	1.0	0.936
10	Fan Capacity	2 x 80,000 m ³ /h	2 x 80,000 m ³ /h	2 x 80,000 m ³ /h	2 x 80,000 m ³ /h

Note: Note: Previous stack emission was below 50 mg/ Nm³ (standard limit as per CTO) as and it have reduced to less than 30 mg/Nm³ the time commissioning of the project. (Ferro Alloys)

Table 1.2 : Technical Specifications of Bag Filters (II)

S. No.	Description	Specification Existing 7.5 MVA	Specification Modified 7.5 MVA	Specification Existing 5 MVA	Specification Modified 5 MVA
1	Filtering Media	Polyester Needle felt non-woven filter bag	PTFE Membrane Laminated Fabric filter bag	Polyester Needle felt non-woven filter bag	PTFE Membrane Laminated Fabric filter bag
2	No. Of Chamber	10	8	6	8
3	No. Of Bag Per Chamber	70	188	144	88
4	Total Nos. Of Filter	700	704	864	704
5	Dia Of Filter Bag	200 mm	160 mm	150 mm	160 mm
6	Filter Bag Length	5 m	4.88 m	4.2 m	4.88 m
7	Filtering Area Per Bag	2 m ²	2.45 m ²	1.96 m ²	2.45 m ²
8	Total Filtering Area (Online)	2 x 700 m ²	2.45 x 704 m ²	1.96 x 864 m ²	2.45 x 864 m ²
9	Air To Cloth Ratio of Online Bags	1.1	1.06	0.9	01.06
10	Fan Capacity	1,10,000 m ³ /h	1,10,000 m ³ /h	80,000 m ³ /h	1,10,000 m ³ /h
11	Gas Flow	1,10,000 m ³ /h	1,10,000 m ³ /h	80,000 m ³ /h	80,000 m ³ /h

Note: Previous stack emission was below 50 mg/ Nm³ (standard limit as per CTO) as and it have reduced to less than 30 mg/Nm³ the time commissioning of the project. (Ferro Alloys)

Annexure XII: Coal Monitoring Report



GODAWARI POWER & ISPAT

478/7 Phase-1 Industrial Area Siltara Rainur - 493111 Chhattisgarh India

FUGITIVE EMISSION MONITORING REPORT

M/s HIRA FERRO ALLOYS LIMITED (UNIT-II)

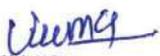
FOR THE MONTH OF SEP-2025

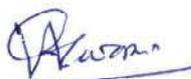
I. SAMPLING DETAILS :

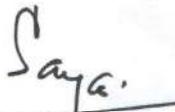
Date of Sampling	03.09.2025
Date of Analysis	04.09.2025
Monitored by	Mr. Feroz Khan & Prakash Dewangan
Analyzed by	Mr. Ugendra Verma

II. WORK ZONE AIR MONITORING RESULTS

Parameter	Prescribed Limit As Per CECB	Location (Power Plant Coal Handling Area)		
		Near Cool Yard	NEAR BC-5 (Belt conveyers)	Near Surge Hopper/near DCF(Drag Chain Feeder)
SPM	2000.00 $\mu\text{g}/\text{m}^3$	1322	1583	1294


CHEMIST


AGM


Head of the Department
Environment Management System



GODAWARI POWER & ISPAT

478/7 Phase-1 Industrial Area, Siltara, Raipur - 493111, Chhattisgarh, India

FUGITIVE EMISSION MONITORING REPORT

M/s HIRA FERRO ALLOYS LIMITED (UNIT-II)

FOR THE MONTH OF OCT-2025

I. SAMPLING DETAILS :

Date of Sampling	06.10.2025
Date of Analysis	07.10.2025
Monitored by	Mr. Feroz Khan & Prakash Dewangan
Analyzed by	Mr. Ugendra Verma

II. WORK ZONE AIR MONITORING RESULTS

Parameter	Prescribed Limit As Per CECB	Location (Power Plant Coal Handling Area)		
		Near Cool Yard	NEAR BC-5 (Belt conveyers)	Near Surge Hopper/near DCF(Drag Chain Feeder)
SPM	2000.00 $\mu\text{g}/\text{m}^3$	1433	1355	1189


CHEMIST


AGM


Head of the Department
Environment Management System



GODAWARI POWER & ISPAT

478/2 Phase-1 Industrial Area Siltara Raipur - 493111 Chhattisgarh India

FUGITIVE EMISSION MONITORING REPORT

M/s HIRA FERRO ALLOYS LIMITED (UNIT-II)

FOR THE MONTH OF NOV-2025

I. SAMPLING DETAILS :

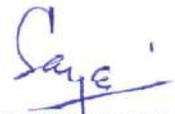
Date of Sampling	10.11.2025
Date of Analysis	11.11.2025
Monitored by	Mr. Feroz Khan & Prakash Dewangan
Analyzed by	Mr. Ugendra Verma

II. WORK ZONE AIR MONITORING RESULTS

Parameter	Prescribed Limit As Per CECB	Location (Power Plant Coal Handling Area)		
		Near Cool Yard	NEAR BC-5 (Belt conveyers)	Near Surge Hopper/near DCF(Drag Chain Feeder)
SPM	2000.00 $\mu\text{g}/\text{m}^3$	1246	1068	1212


CHEMIST


AGM


Head of the Department
Environment Management System



GODAWARI POWER & ISPAT

478/7 Phase-1 Industrial Area Siltara Raipur - 493111 Chhattisgarh India

FUGITIVE EMISSION MONITORING REPORT

M/s ALOK FERRO ALLOYS LIMITED

FOR THE MONTH OF NOV-2025

I. SAMPLING DETAILS :

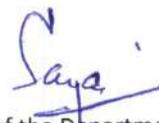
Date of Sampling	07.11.2025
Date of Analysis	07.11.2025
Monitored by	Mr. Feroz Khan & Prakash Dewangan
Analyzed by	Mr. Ugendra Verma

II. WORK ZONE AIR MONITORING RESULTS

Parameter	Prescribed Limit As Per CECB	Location (Power Plant Coal Handling Area)		
		Near Ground Hopper	Near Screen House	Near DCF(Drag Chain Feeder)
SPM	2000.00 $\mu\text{g}/\text{m}^3$	966	1152	1233


CHEMIST


AGM

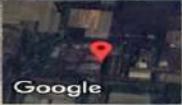

Head of the Department
Environment Management System

Annexure XIII: Water Flowmeter

M/s Hira Ferro Alloys Limited UNIT II
Plot No. – 490/1, 491/2, Urla Industrial Area, Urla Raipur C.G.

PHOTOGRAPHS OF WATER METER





Raipur, Chhattisgarh, India 🇮🇳
, Urla Industrial Complex, Birgoan, Chhattisgarh 492003, India,
Raipur, Chhattisgarh 492003, India
Lat 21.319396° Long 81.616611°
09/09/2025 11:31 AM GMT +05:30

GPS Map Camera

Annexure XIV: Noise Monitoring



Approved: by Occupational Health & Safety Management (ISO45001:2018)
Approved: by National Accreditation Board for Testing and Calibration Laboratories

Registered Office: 63/1, Kailash Vihar, Near Income Tax Office, City Center-II,
 Gwalior-474 011, M.P., India
 ☎ 0751-3566867, 2232177
 Email: aelgwalior@gmail.com, aetrlcenter@gmail.com
 Web: aetrl.com



TEST REPORT

Report No.: AETRL/ N-25122025/01	Date:	07/01/2026	
Name & Address of Customer	:	M/s Hira Ferro Alloys Limited (Unit - II) Plot No. 490/1, 491/2, Urla Industrial Area, Raipur (C.G.) Pin - 492003	
Sample Collection Date	:	25/12/2025 to 26/12/2025	Sampling Type : NA
Sample Receipt Date	:	30/12/2025	Sample ID : N-25122025/01
Sampling Location	:	Furnace Area (Unit II)	Sample Description : Ambient Noise Monitoring
Sample Collected/ Submitted by	:	Lab Representative	Protocol used for monitoring : IS 9989-2023
Analysis Started On	:	30/12/2025	Analysis Completed On : 07/01/2026
Meteorological condition during monitoring	:	Clear Sky	Actual duration of Monitoring, (Hrs.) : 24 Hrs.

Ambient Noise Analysis Results

S. No.	Parameters	Test Method	Test Results		Units
			Day Time (6:00 am to 10:00 pm)	Nighttime (10:00 pm to 6:00 am)	
Discipline: Atmospheric Pollution					
1	Leq max.	IS-9989	61.2	50.9	dB (A)
2	Leq min.	IS-9989	53.1	42.5	dB (A)
3	Leq Day	IS-9989	57.2		dB (A)
4	Leq Night	IS-9989	45.8		dB (A)

Ambient Noise Quality Standards as per Noise Pollution (Regulation and control) Rules, 2000

Area Code	Category of Area/Zone	Limits in dB (A) Leq*	
		Day Time	Nighttime
A	Industrial area	75	70
B	Commercial area	65	55
C	Residential area	55	45
D	Silence zone	50	40

Authorized Signatory

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

Note:

- This report is not to be reproduced wholly or in part and cannot be used as evidence in the court of law and should not be used in any advertising media without our special permission in writing.
- The sample will be destroyed after 15 days from the date of issue of test certificate unless otherwise specified.
- Any discrepancy in test result should be reported within 15days.
- The above Results are related to the tested Sample Only.



Approved: by Occupational Health & Safety Management (ISO45001:2018)
Approved: by National Accreditation Board for Testing and Calibration Laboratories

Registered Office: 63/1, Kailash Vihar, Near Income Tax Office, City Center-II,
 Gwalior-474 011, M.P., India
 ☎ 0751-3566867, 2232177
 Email: aelgwalior@gmail.com, aetrlcenter@gmail.com
 Web: aetrl.com



TEST REPORT

Report No.: AETRL/ N-26122025/02		Date: 07/01/2026	
Name & Address of Customer	M/s Hira Ferro Alloys Limited (Unit - II) Plot No. 490/1, 491/2, Urla Industrial Area, Raipur (C.G.) Pin - 492003		
Sample Collection Date	26/12/2025 to 27/12/2025	Sampling Type	NA
Sample Receipt Date	30/12/2025	Sample ID	N-26122025/02
Sampling Location	Taping yard (11 MVA A & B SAF)	Sample Description	Ambient Noise Monitoring
Sample Collected/ Submitted by	Lab Representative	Protocol used for monitoring	IS 9989-2023
Analysis Started On	30/12/2025	Analysis Completed On	07/01/2026
Meteorological condition during monitoring	Clear Sky	Actual duration of Monitoring, (Hrs.)	24 Hrs.

Ambient Noise Analysis Results

S. No.	Parameters	Test Method	Test Results		Units
			Day Time (6:00 am to 10:00 pm)	Nighttime (10:00 pm to 6:00 am)	
Discipline: Atmospheric Pollution					
1	Leq max.	IS-9989	62.3	44.9	dB (A)
2	Leq min.	IS-9989	52.2	41.6	dB (A)
3	Leq Day	IS-9989	57.2		dB (A)
4	Leq Night	IS-9989	43.6		dB (A)

Ambient Noise Quality Standards as per Noise Pollution (Regulation and control) Rules, 2000

Area Code	Category of Area/Zone	Limits in dB (A) Leq*	
		Day Time	Night Time
A	Industrial area	75	70
B	Commercial area	65	55
	Residential area	55	45
D	Silence zone	50	40

Authorized Signatory

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

Note:

1. This report is not to be reproduced wholly or in part and cannot be used as evidence in the court of law and should not be used in any advertising media without our special permission in writing.
2. The sample will be destroyed after 15 days from the date of issue of test certificate unless otherwise specified.
3. Any discrepancy in test result should be reported within 15 days.
4. The above Results are related to the tested Sample Only.

Annexure XV: E-Waste Agreement (Hira)



SERVICES AGREEMENT(MUD)

THIS SERVICES AGREEMENT (The "Agreement") is entered in to this 14/07/2023, by and between

M/s STAR E PROCESSORS having consent from Chhattisgarh Pollution Control Board as Recycler baring Authorized No,216/ HO/ E-Waste/ CECB/ 2023, having its principal place of business at Kh. No. 1273, Pehchan No. 75/10/22, Mandir Hasaud, Arang, Raipur, Chhattisgarh 492101 baring GST No. 22ADKFS8428B1Z6. Herein, after termed as RECYCLER.

And

M/s HIRA FERRO ALLOYS LIMITED, plot No. 491/1, 492/2,491/2, urla Industrial Area Complex Unit-II, Urla, Raipur, Raipur, Chhattisgarh, 492003 22AAACH5697M2Z6

WHEREAS, the Recycler desires to contract with Seller to sale the recyclable material such as Electronic Waste, in accordance with terms of this Agreement.

NOW THEREFORE, in consideration of the above Recitals, which are hereby incorporated into the below Agreement, and in consideration of the mutual promises made herein,

1. Scope. Recycler agrees to purchase Material from Seller from time to time. Recycler acknowledges that the Services performed under this Agreement will be done using Recycler own equipment at Manufacturer's place of business. There is no compulsion for Recycler to accept the material which is offered to him. The recycler holds the right to reject the material. Recycler agrees to dispose the E-Waste safely as per CECB norms. Recycler will also issue certificate declaring the safe disposal of E-Waste collated from Seller site.

2. Compensation. For supply of every consignment the Recycler shall pay Seller for the material supplied as per the rate mutually agreed at that time. The Seller will submit invoice, which will describe the material supplied pursuant to this Agreement. Invoices will be reviewed by Recycler and make the payment for the same within 15 days from the date of receipt of Invoice. Value of the material will be decided based on market value at the time of sale of material.

3. All components and materials to be transported are packed appropriately:

- (1) Considering the risk, they could pose during transportation to health, safety or the environment.
- (2) To the level of care warranted by its intended use-
- (3) Transporters meet the legal requirements under Motor Vehicles Act-2019 to transport the components and materials

4. Term. The term of this Agreement shall be from 14/07/2023 to 13/07/2027. The Agreement may be terminated through the termination provisions provided herein.

Office Address: 307, Avior, Nirmal Galaxy, LBS Marg, Mulund West, Mumbai - 400080. Ph: +91 22 67255080 / 81 / 82 / 83

Plant Address: Plot No 1273 , Village Baktara. P.O . Godi., Tashil Arang., Dist. Raipur - 492101., Chhattisgarh

Website : www.stareprocessors.com | **Email Id :** stareprocessors@gmail.com | **Toll Free No. :** 1800 891 7656



5. Termination. Recycler and Seller may terminate this Agreement at any time by giving the other party written notice of not less than sixty (60) days.

IN WITNESS WHEREOF, the parties have caused their duly authorized representatives to sign this **SERVICES AGREEMENT** as of the date first written above.

M/s STAR E PROCESSORS

M/s HIRA FERRO ALLOYS LIMITED

By: RISHI TANDON



Partner



Authorized signatory



Annexure XVI: Health Registers

Form 21
[Prescribed under Rule (19)]
Health Register

(In respect of persons employed in occupations declared to be dangerous operations under Section 87)

Name of Worker.....SURENDRA ASURAge/ Sex...22Y/M.....
Name of Company.....HIRA FERROW ALLOYS LTD.....Employee Code.....
Nature of occupation.....BUFER MILEDate.....23/05/25..... Annexure

PRE-EMPLOYMENT & PERIODIC MEDICAL EXAMINATION

(1) GENERAL EXAMINATION:

Height ..153... cm, Weight ...59kg BMI...23.7 Chest
Inspiration...95...cm, Expiration ...90... cm
Throat...NORMAL.... Tongue.....MOIST... Tonsils...N/A.....
Teeth ..NORMAL..... Gums.....NORMAL.....
Thyroid.....NORMAL.....
Lymph nodes.....NORMAL.....
Additional finding.....N/A.....

(2) CARDIO-VASCULAR SYSTEM:

Pulse... 82... mt. Regular/Irregular Peripheral Pulse-felt/not felt
BP....112/74.... min Hg Heart Sound: NORMAL.....
Murmur, If any...NO..... Additional finding (s), if anyNO.....

(3) RESPIRATORY SYSTEM:

Shape of Chest:NORMAL.... Tubular..... Chest movements: **Symmetrical**
..... Trachea..... **Centrally**..... Breath sound **Vesicular**

(4) GASTRO-INTESTINAL SYSTEM:

Liver.....NP..... Spleen.....NP.....
Any abdominal lumps: NO

(5) EXAMINATION OF EYES:

External Exam -NORMAL... Squint: NO.....
Nystagmus: NOFundus L/R
Night Blindness.....NO.....
Colour vision- Normal
Individual colour identification- Normal

Distance vision (without glasses) Right...6/6... Left
...6/6..... (with glasses) Right..... Left

Near-vision (without glasse)Right...N/6....Left...N/6...
(with glasses) Right ... Left.....

(6) EXAMINATION OF EAR NOSE & THROAT:

External Examination:NAD.....

(7) GENITO URINARY SYSTEM:

Hernia - NO..... Hydrocele- NO
Cryptorchidism-NO Phimosis.....NO
Signs of STD.....NO

Varicocele - NO
Varicose veins- NO

Other Examinations for Females:

Menarche..... yr. G. Para..... Menstrual irregularity..... if any

INVESTIGATIONS

(8) Lab Investigations:

Haemogram

Blood Group.....A..... Rh factor.....POSITIVE..... HB.....12.4
gm%
RBC5.10.....Platelet Count.....248
TLC.....6.54..... DLC: -

Renal profile

Blood Urea: ...18... S. Creatinine:.....0.69

Hepatic profile - S G O T...24... S G P T ...15.... Alkaline Phosphat58.....S. Bilirubin ...0.58

Lipid Profile:

Serum Cholesterol163....Triglycerides.....85.....HDL....48....LDL.....98.....

Metabolic

Blood Sugar.....74.....Blood Sugar PP.....S. Uric Acid.....3.2

Urine: Albumin...NIL.....SugarNIL.....Microscopy.....

Stool:

(10) Other Investigation

11) Pulmonary Function Test

	FCV	FEV 1	FEV 1/FVC
PREDICATED	3.77	3.31	82.35
MEASURED	3.21	3.21	100.00
% OF PREDICATED	85.13	97.10	121.43

12) Audiometry examination

PTA	Lt. Ear -11 dB	Rt. Ear-21 dB
Remark	NORMAL	

PTA of both ears at frequency Cycles/sec

13. Details of Other specific medical examination carried out as mentioned in the respective schedules of 107 of C.G. Factory rules 1947.

For, Hira Ferro Alloys Ltd.
 Signature (with date) of
 Factory Medical Officer
 Shyam Kumar Adapa
 (MBBS & AFIH)
 Reg. No. : APMC/FMR/90927

Signature (with date)
Certifying surgeon



RAIPUR INSTITUTE OF MEDICAL SCIENCES

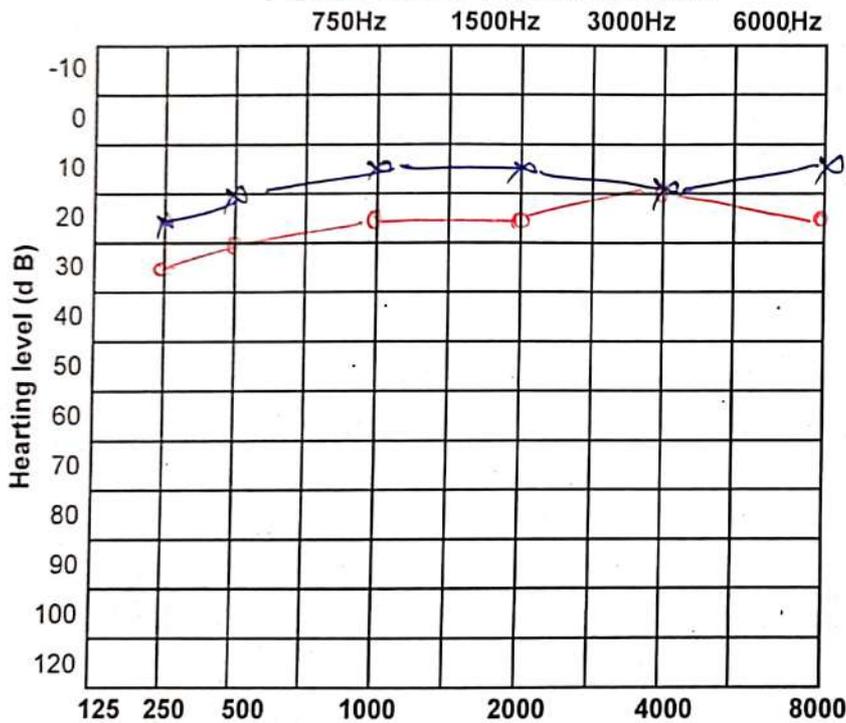
Bhansoj Road, Off. NH-6, Gram-Godhi, Raipur (C.G.)
 Tel.: 91-0771-3053060-87, Fax : 91-0771-3053088-89, www.rimsindia.ac.in
 Department of ENT

AUDIOLOGICAL EVALUATION

OPD No. Date 29/05/25 Audio No.
 Name Mr. Surendra Asu Age / Sex 27/M
 Address Ph. No. 8815104087
 Tested by Audiometer Used Per/Post Treatment

Complaint :-

PURE TONE AUDIOGRAM



KEY OF SYMBOLS

Right	Air Conditions	Left
Unmasked Three Hold		
Masked Three Should		
No Response		
Unmasked Three Hold		
Masked Three Should		
Bone Conducts		
Unmasked Three Hold		
Masked Three Should		
No Response		
Unmasked Three Hold		
Masked Three Should		
Sound Field		
Response		S
No Response		S
Audio Metric		

TEST	RINNE T.F.T.	WEBER T.F.T.	AUDIOMETRIC WEBER		
			500	1000	2000
EAR					
RT.					
LT.					

SPEECH AUDIOMETRY

	PTA (db HL)	SRT (db HL)	SDT (db HL)	SDS %	MCL	UCL
RIGHT EAR	<u>21 dB</u>					
LEFT EAR	<u>11 dB</u>					

TEST CONDITION

PROVISIONAL DIAGNOSIS :

Right Ear :-

Normal hearing sensitivity

Left Ear :-

Normal hearing sensitivity

Recommendation :-

Nitinwre
 DR. NITINWRE ASHOK ZADBAJ
 REG NO-54603
 MBBS ENT
 DEPARTMENT - ENT

AUDIOLOGIST

Case number:

Name: MR SURENDRA ASUM

Gender: Male

Age: 27

Height: 153 cm

Weight: 59 kg

Smoke: No

BDT: No

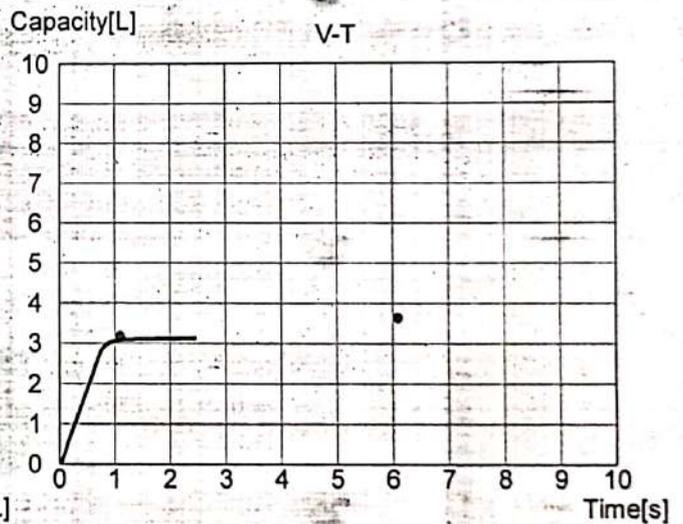
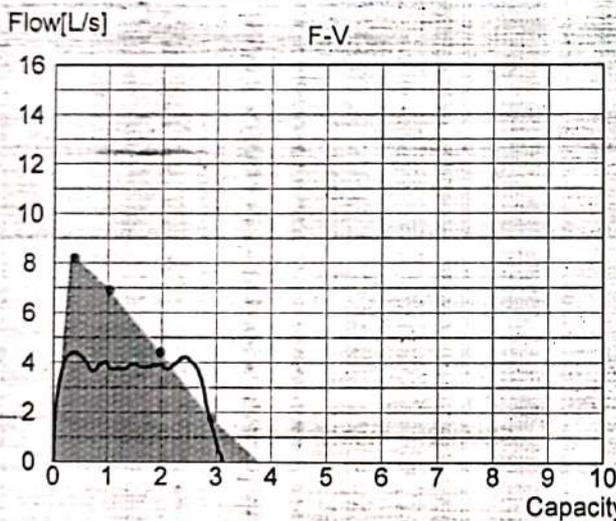
Equation: ECSC

Phone:

Test date: 2025-05-22 18:59:48

Medical history:

Parameter	Unit	MEAS	PRED	PRED%	LLN	BDT diff	BDT rate
FVC	L	3.21	3.77	85.13%	2.77	-	-
FEV1	L	3.21	3.31	97.10%	2.47	-	-
FEV1/FVC	%	100.00	82.35	121.43%	70.56	-	-
PEF	L/s	4.78	8.38	57.02%	6.39	-	-
FEF2575	L/s	3.94	4.51	87.42%	2.80	-	-
FEF25	L/s	3.84	7.10	54.08%	4.29	-	-
FEF50	L/s	4.02	4.61	87.17%	2.44	-	-
FEF75	L/s	4.24	1.95	217.29%	0.67	-	-
EV	ml	51.00(1.59%FVC)	-	-	-	-	-
FET	s	2.47	6.00	41.17%	-	-	-
EOTV	ml	25.00	-	-	-	-	-
PEFT	ms	125.00	-	-	-	-	-



Test result: *spirometry all the parameters are normal*

Operator:

Kambly
 DR. KAMBLEY RAMU WATUJ
 REG NO-NIC-7423/2018
 MBBS, MD
 DEPARTMENT-CHEST & PULMONARY
 Physician:

Reporting date: 2025-05-22

Device ID: PULMO022489



DEPARTMENT OF BIOCHEMISTRY

PATIENT NAME	MR SURENDRA ASUR	AGE/SEX	27Y/M
LAB NO.		PATIENT ID NO.	
REF BY DR.	RIMS	OPD/IPD NO.	
WARD		SAMPLE RECEIVING DATE	23/05/2025
SPECIMEN	BLOOD	REPORT RELEASING DATE	23/05/2025

BLOOD SUGAR FASTING & PP

INVESTIGATION	RESULT	REFERENCE RANGE
Sample Type		
FASTING BLOOD SUGAR	79	70-100 mg/dL
BLOOD SUGAR PP	102	100-140 mg/dL

Clinical Note :

Elevated glucose levels (hyperglycemia) are the most often encountered clinical in the setting of diabetes mellitus but they may also occur with pancreatic neoplasms , hyperthyroidism and adrenocortical dysfunction. Decreased glucose levels (hypoglycemia) may result from endogenous or exogenous insulin excess, prolonged starvation, or liver disease

Fasting glucose	2 hours pp glucose	Diagnosis
<100	<140	Normal
100 to 125	140 to 199	Pre diabetes
>126	>200	Diabetes

A level of 126 mg/dL or above , confirmed by repeating the test on another day , means a person has diabetes IGT (2 hrs post meal), means a person has an increased risk of developing type 2 diabetes but does not have it yet a 2 hour glucose level of 200 mg/dL or above , confirmed by repeating the test on another day , means a person has diabetes

-----End of report -----


Technician
(Reports checked by)


consultant
clinical biochemistry laboratory

NOTE:-These reports are for assisting doctors in their treatment and not for medico-legal purposes and should be correlated clinically



RAIPUR INSTITUTE OF MEDICAL SCIENCE

24 Hour Helpline

Bhansoj Road Off NH -6, Raipur 0771 - 3053060

PATIENT NAME	SURENDRA ASUR	AGE/SEX	27Y/MALE
LAB NO.		PATIENT ID NO.	
REF BY DR.	RIMS	OPD/IPD NO.	
WARD		SAMPLE RECEIVING DATE	23-05-2025
SPECIMEN	SERUM	REPORT RELEASING DATE	23-05-2025

BIOCHEMISTRY REPORT

LIPID PROFILE-

Test Name	Observed Value	Reference Range
Total Cholesterol	163	Desirable <200 mg/dL Borderline High 200- 239 mg/dL High Risk >239 mg/dL
Triglycerides	85	Optimal <150 mg/dL Borderline High 150-199 mg/dL High 200-499 mg/dL Very high > 500 mg/dL
HDL Cholesterol	48	Male: 35-79.5 mg/dL, Female: 42-88 mg/dL
LDL Cholesterol	98	Optimal <100 mg/Dl Above Optimal 100-129 mg/Dl Borderline High 130-159 mg/Dl High 160-189 mg/Dl Very High >190 mg/Dl
Very Low Density Lipoproteins (VLDL)	17	20-40 mg/Dl
CHOL/HDL Ratio	3.39	3.3-4.4
LDL/HDL Ratio	2.04	0.5-3.0

Test done on random sample. kindly correlate clinically...!!



Technician
(Reports Checked By)


Consultant
Clinical biochemistry laboratory

Note: These reports are for assisting Doctors/Physicians in their Treatment and Not for Medico-legal purposes and should be correlated clinically.



RAIPUR INSTITUTE OF MEDICAL SCIENCES

24 Hour Helpline, Health For All 0771 - 3268844,
Bhansoj Road, Off NH -6, Raipur

PATIENT NAME	SURENDRA ASUR	AGE/SEX	27Y/MALE
LAB NO.		PATIENT ID NO.	
REF BY DR.	RIMS	OPD/IPD NO.	
WARD	CAMP	SAMPLE RECEIVING DATE	23/05/2025
SPECIMEN	BLOOD	REPORT RELEASING DATE	24/05/2025

HAEMATOLOGY REPORT

TEST NAME

OBSERVED VALUE

NORMAL VALUE

BLOOD GROUP & RH	"A" POSITIVE	(Slides Method)
------------------	--------------	------------------




ASSITANT PROFESSOR

Note: These reports are for assisting Doctors/Physicians in their Treatment and Not for Medico-legal purposes and should be correlated clinically.

Teaching Hospital and Medical College

Results

Run Date 24/05/2025 11:04:39 AM

Operator ABX

Last Name

Sample ID AUTO_SID0044

First Name SURENDRA ASUR

Department

Gender Male Age 27 Y

Physician

Patient ID AUTO_PID06911

Type Man

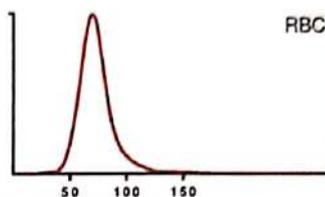
Date of birth

Sample comments

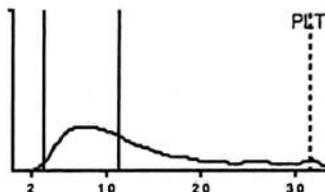
Alarms

Susp. Pathologies
Hypochromia
Macroplatelets

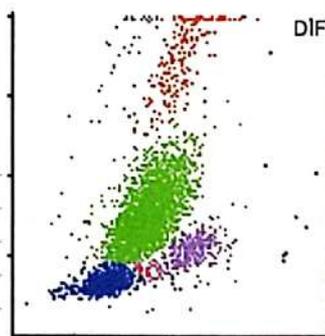
				Range
RBC	5.10	*	10 ⁶ /μL	4.20 - 6.00
HGB	12.4	I	g/dL	13.0 - 17.0
HCT	39.2	*	%	39.0 - 52.0
MCV	76.9	*	μm ³	76.0 - 100.0
MCH	24.3	L	pg	26.0 - 34.0
MCHC	31.6	L	g/dL	32.0 - 35.0
RDW-CV	14.1		%	11.0 - 16.0
RDW-SD	40.3		μm ³	37.0 - 49.0



				Range
PLT	248	*	10 ³ /μL	150 - 400
PCT	0.30		%	0.15 - 0.40
MPV	12.1	H	μm ³	8.0 - 11.0
PDW	19.7		μm ³	11.0 - 22.0
P-LCC	111		10 ³ /μL	44 - 140
P-LCR	44.7		%	18.0 - 50.0



			Range
WBC	6.54		10 ³ /μL 3.50 - 10.00
	#	Range	% Range
NEU	3.97	1.60 - 7.00	60.9 40.0 - 73.0
LYM	1.82	1.00 - 3.00	27.8 15.0 - 45.0
MON	0.33	0.20 - 0.80	5.1 4.0 - 12.0
EOS	0.34	0.00 - 0.50	5.2 0.5 - 7.0
BAS	0.07	0.00 - 0.15	1.0 0.0 - 2.0
LIC	0.01	0.00 - 0.10	0.2 0.0 - 1.0



Slide Review

Neutrophil	Myeloblast	Anisocytosis
Lymphocyte	Promyelocyte	Hypochromia
Monocyte	Myelocyte	Polychromasia
Eosinophil	Metamyelocyte	Polkilocytosis
Basophil	Blast	Microcytosis
Atypical Lymphocyte	Target Cell	Macrocytosis
Other	Sickle Cell	Platelet Clumps

Reviewed on _____ by _____



Signature :



RAIPUR INSTITUTE OF MEDICAL SCIENCES

Bhansoj Road Off NH-06 Village Godhi,
Raipur (C.G.), 492101, India

Tel: 1800-208-1088 , Email - info@rimsindia.ac.in

DEPARTMENT OF PATHOLOGY

URINE REPORT

C.R. No. : 2305251156 /	Lab No : 20250524191	Collected : 24-05-2025
Name : MR. SURENDRAASUN	Age/Sex : 27 Year / M	Received : 24-05-2025
Guardian : S/O KUMAR		Reported : 24-05-2025
Department : General Medicine		

Tests	Result
Physical Examination	
Color	Pale Yellow
Volume	20
Appearance	Clear
Chemical Examination	
Albumin	+
Sugar	NIL
Ketone	-
Microscopic Examination	
Pus Cells	0 - 5
Epithelial Cells	0 - 5
RBC	Absent
Crystals	Absent
Bacteria	Absent
Cast	-
Others	-

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

Technician



Print Date : 24/5/2025

Consultant Pathologist

This is a professional opinion and can not be used for medico legal purposes.





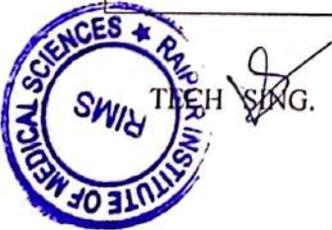
DEPARTMENT OF MICROBIOLOGY

Patient's Name	SURENDRA ASUR	AGE/SEX	27/MALE
Lab No		PATIENT ID	
Ref by Dr.	RIMS	OPD /IPD:	
Ward	CAMP	Sample Receiving Date	23/05/2025
Specimen	Serum	Report Releasing Date	24/05/2025

SEROLOGICAL TEST REPORT

S. No.	TEST	METHOD	RESULT
1.	ASO Titer	Latex Agglutination Test	
2.	CRP	Quantative Test	
3.	RA Factor	Latex Agglutination Test	
4.	Dengue Test	Rapid Card Test	
5.	Widal Test	Slide Agglutination Test	
6.	Direct Coombs Test	Agglutination Test	
7.	In-direct Coombs Test	Agglutination Test	
8.	VDRL Antigen Test	Rapid Card Test	
9.	HbsAg	Rapid Card Test	NON-REACTIVE
10.	Anti-HCV	Rapid Card Test	
11.	HIV 1 &2	Rapid Card Test	

Please Note:-Kindly correlate clinically.



MICROBIOLOGIST



RAIPUR INSTITUTE OF MEDICAL SCIENCES

Bhansoj Road Off NH -6, Raipur 0771 - 3053060

24 Hour Helpline

PATIENT NAME	SURENDRA ASUR	AGE/SEX	27Y/MALE
LAB NO.		PATIENT ID NO.	
REF BY DR.	RIMS	OPD/IPD NO.	
WARD	URLA	SAMPLE RECEIVING DATE	23-05-2025
SPECIMEN	SERUM	REPORT RELEASING DATE	23-05-2025

BIOCHEMISTRY REPORT

LIVER FUNCTION TEST

Test Name	Observed Value	Reference Range
Bilirubin Total	0.58	Upto 1.2 mg/dl
Bilirubin Direct	0.24	Upto 0.4 mg/dL
Bilirubin Indirect	0.34	0.2-0.8 mg/dL
S.G.O.T. (AST)	24	M:Upto 35 & F:Upto 31 IU/L
S.G.P.T. (ALT)	15	M:Upto 45 & F:Upto 34 IU/L
Alkaline Phosphatase	58	53-128 IU/L
S. LDH		2-12yrs: 180-360 & 12-60 yrs: 125-220 IU/L

SERUM PROTEINS

Total Protein		6.0-8.0 g/dL
Serum Albumin		3.5-5.5 g/dL
Serum Globulin		2.5-3.5.g/dL
A:G Ratio		1.2-1.5:1

RENAL FUNCTION TEST

B.Urea	18	15-40 mg/dL
S.Creatinine	0.69	F: 0.6-1.2 & M: 0.7-1.4 mg/dL
Uric Acid	3.2	F: 2.6-6.0 & M: 3.5-7.2 mg/dL

Calcium		9.0-11.0 mg/dL
Phosphorus		2.5-4.5 mg/dL
Magnesium		1.8-2.2 mg/dl

PANCREATIC FUNCTION TEST

S. Lipase		Upto 60 U/L
S. Amylase		Upto 80 U/L

BLOOD GLUCOSE

Blood Glucose, Random	74	70-140 mg/dL
Blood Glucose, Fasting		70-100 mg/dL
Blood Glucose, Post-Prandial		100-140 mg/dL

SERUM ELECTROLYTES

S. Sodium (Na ⁺)		135-145 mmol/L
S. Potassium (K ⁺)		3.5-5.0 mmol/L
S. Ca ⁺⁺		1.3-1.5 mmol/L
Iron		ug/dl

Kindly correlate clinically!!!



Consultant
Clinical biochemistry laboratory

Note: These reports are for assisting Doctors/Physicians in their Treatment and Not for Medico-legal purposes and should be correlated clinically.



RIMS HOSPITAL URLA

(A unit of LORD BUDDHA EDUCATIONAL SOCIETY)

Health For All

PT. NAME : MR.SURENDRA ASUR
PATIENT ID : RIMS/
REF. DR. / DEPT : RIMS HOSPITAL, URLA (OPD)

AGE / SEX: 22Y / M
DATE: 23/05/2025

SONOGRAPHY OF WHOLE ABDOMEN

LIVER: The liver is normal in size, shape and has smooth margins. It is uniformly isoechoic with normal echotexture. No SOL is seen. Intra-hepatic biliary radicals are not dilated.

GALL BLADDER: The gall bladder is well distended. No intra-luminal calculi or mass lesion is seen. Its wall thickness is normal.

COMMON BILE DUCT & PORTAL VEIN: The common bile duct is normal in caliber. No calculi are seen in it. The portal vein is normal in calibre and course.

SPLEEN: The spleen is normal in size and shape. Its echotexture is homogeneous. No evidence of focal lesion is noted.

PANCREAS: The pancreas is normal in size, shape, contours and echotexture. No evidence of solid or cystic mass lesion is noted.

KIDNEYS: Both kidneys have normal cortical echotexture and have smooth margins. Cortico-medullary differentiation is maintained.

Right kidney measures ~ 10.4x3.9 cms. No calculus or hydronephrosis seen in right kidney.

Left kidney measures ~ 10.1x4.3 cms. No calculus or hydronephrosis seen in left kidney.

URINARY BLADDER: The urinary bladder is empty

PROSTATE: The prostate is not visualized.

No free fluid is seen in the peritoneal cavity at the time of examination.

PROVISIONAL IMPRESSION :

- No significant abnormality detected.

ADVISED: Clinical correlation.

DR.KASHINATH SARKAR
MBBS, MD RADIODIAGNOSIS



RIMS Rural Health & Training Center (RH&TC) Industrial Corporation Building,
Near Axis Bank, Urla, Dist.-Raipur, Pin – 492003, Contact Number – 91091-90902

Medical College (Main Campus) – Raipur Institute Of Medical Sciences (750 Bedded
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Mob. No.-9109190914, 9303081217 Fax : 0771-3053089, www.rimsindia.ac.in





RIMS HOSPITAL URLA

(A unit of LORD BUDDHA EDUCATIONAL SOCIETY)

Health For All

PT. NAME : MR. SURENDRA ASUR
PATIENT ID : RIMS/
REF. DR. / DEPT : RIMS HOSPITAL, URLA (OPD)

AGE / SEX: 22 Y/M
DATE: 23-05-2025

X RAY CHEST (PA VIEW)

- Trachea is central.
- Lung fields are clear bilaterally.
- No evidence of consolidation, collapse, or effusion.
- Cardiac silhouette is normal in size and contour.
- Mediastinal contours are normal.
- Diaphragmatic domes are normal in position and outline.
- Costophrenic angles are sharp.
- Bony thorax appears intact, no fractures seen.

ADVISED: Clinical correlation.


DR. KASHINATH SARKAR
REG NO. C. G. M. C. 3357/2011
MBBS
DEPARTMENT - RADIOLOGY

RESIDENT DOCTOR

RIMS Rural Health & Training Center (RH&TC) Industrial Corporation Building,
Near Axis Bank, Urla, Dist.-Raipur, Pin – 492003, Contact Number – 91091-90902

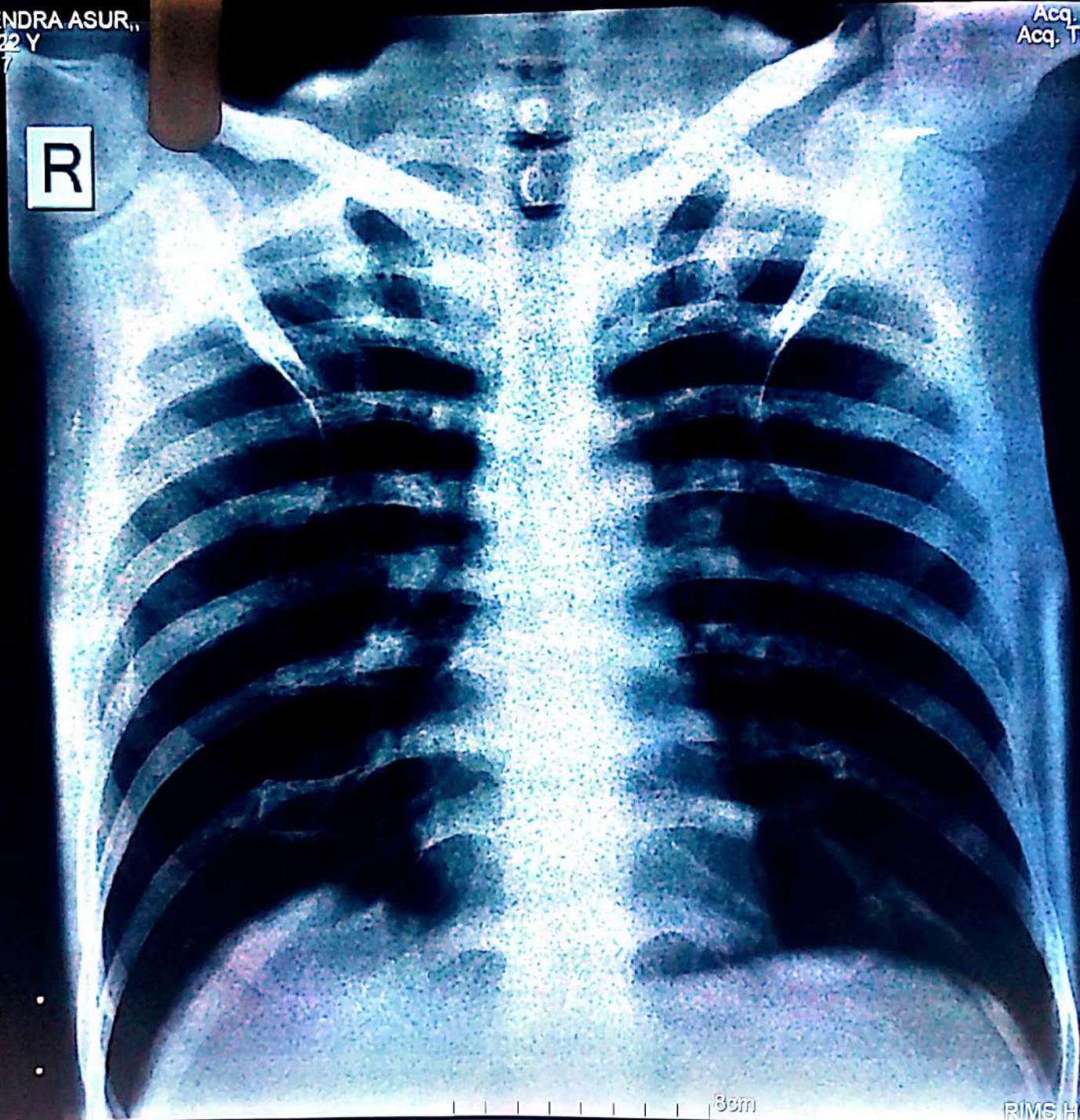
Medical College (Main Campus) – Raipur Institute Of Medical Sciences (750 Bedded
Hospital & Medical College) at Bhansoj Road . Off, NH-06, Village-Godhi, Raipur (C.G.),
Mob. No.-9109190914, 9303081217 Fax : 0771-3053089, www.rimsindia.ac.in



MR. SURENDRA ASUR.,
Sex: Male 22 Y
PAT030637

Acq. D: 11/2025
Acq. T: :44 AM
Index: 929

R



8cm

8cm

AP
CHEST

SELF
RIMS HOSPITAL, GODHI

U2017-II

OK
27/9/20

Form 21
[Prescribed under Rule (19)]
Health Register

(In respect of persons employed in occupations declared to be dangerous operations under Section 87)

Name of Worker.....FAGESHWAR PALAge/ Sex...32Y/M.....
Name of Compan.....HIRA FERROW ALLOYS LTDEmployee Code.....402172.....
Nature of occupation.....FORK LIFT.....Date.....2/5/25... Annexure

PRE-EMPLOYMENT & PERIODIC MEDICAL EXAMINATION

(1) GENERAL EXAMINATION:

Height 165 cm, Weight 62kg BMI... 22.8 Chest
Inspiration..100....cm, Expiration 95 cm
Throat...NORMAL.... Tongue.....MOIST...Tonsils...N/A.....
Teeth ..NORMAL..... Gums.....NORMAL.....
Thyroid.....NORMAL.....
Lymph nodes.....NORMAL.....
Additional finding.....N/A.....

(2) CARDIO-VASCULAR SYSTEM:

Pulse 80 mt. Regular/Irregular Peripheral Pulse-felt/not felt
BP.130/80..... min Hg Heart Sound: NORMAL.....
Murmur, If any...NO..... Additional finding (s), if anyNO.....

(3) RESPIRATORY SYSTEM:

Shape of Chest:NORMAL.... Tubular..... Chest movements: Symmetrical
..... Trachea..... Centrally..... Breath sound Vesicular

(4) GASTRO-INTESTINAL SYSTEM:

Liver.....NP..... Spleen.....NP.....
Any abdominal lumps: NO

(5) EXAMINATION OF EYES:

External Exam -NORMAL... Squint: NO.....
Nystagmus: NO Fundus L/R
Night Blindness.....NO.....
Colour vision- Normal
Individual colour identification- Normal
Distance vision (without glasses) Right..6/9.... Left
...6/9..... (with glasses) Right..... Left
Near-vision (without glasses) Right...N/6.....
Left...N/6..... (with glasses) Right ... Left.....

(6) EXAMINATION OF EAR NOSE & THROAT:

External Examination:NAD.....

(7) GENITO URINARY SYSTEM:

Hernia - NO..... Hydrocele- NO
Cryptorchidism-NO Phimosis.....NO
Signs of STD.....NO

Varicocele - NO
Varicose veins- NO

Other Examinations for Females:

Menarche..... yr. G. Para..... Menstrual irregularity..... if any

INVESTIGATIONS

(8) Lab Investigations:

Haemogram

Blood Group.....A+..... Rh factor..... Hb..... 15.4

gm%

RBC4.87.....Platelet Count.....368B

TLC.....7.37..... DLC: -

N-59.6 L-31.6 E 1.9 M. 5.9

Renal profile

Blood Urea: ...24... S. Creatinine:0.96

13-0.07

Hepatic profile - S G O T...20. S G P T ...24. Alkaline Phosphat 102 S. Bilirubin 0.78

Lipid Profile:

Serum Cholesterol171.....Triglycerides.....145.....HDL....43.....LDL.....98...

Metabolic

Blood Sugar.....104.....Blood Sugar PP11.7...S. Uric Acid.3.8

Urine: Albumin...NIL.....Sugar ...NIL.....Microscopy.....

Stool:

(10) Other Investigation

11) Pulmonary Function Test

	FCV	FEV 1	FEV 1/ FVC
PREDICATED	5.00	4.33	115.42%
MEASURED	4.92	3.68	133.80%
% OF PREDICATED	98.40	81.45	120.81%

12) Audiometry examination

PTA	Lt. Ear -18dB	Rt. Ear-15 dB
Remark	NORMAL	

PTA of both ears at frequency Cycles/sec

13. Details of Other specific medical examination carried out as mentioned in the respective schedules of 107 of C.G. Factory rules 1962-

For, Hira Ferro Alloys Ltd.

Signature (with date) of
Factory Medical Officer
Dr Shyam Kumar Adapa

(MB5324FIH)

Signature (with date)
Certifying surgeon

No. : APMC/FMR/90920



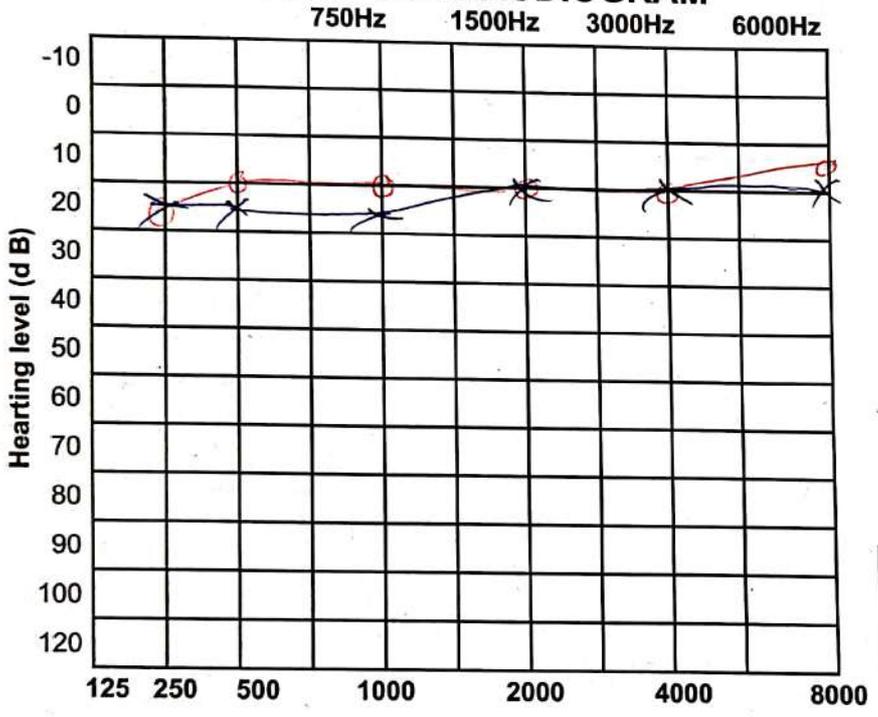
RAIPUR INSTITUTE OF MEDICAL SCIENCES

Bhansoj Road, Off. NH-6, Gram-Godhi, Raipur (C.G.)
 Tel.: 91-0771-3053060-87, Fax : 91-0771-3053088-89, www.rimsindia.ac.in
 Department of ENT

AUDIOLOGICAL EVALUATION

OPD No. Date 02/03/25 Audio No.
 Name Mr. Phageshwar pal Age / Sex 32Y/M
 Address Ph. No. 9343513992
 Tested by Audiometer Used Per/Post Treatment
 Complaint :-

PURE TONE AUDIOGRAM



KEY OF SYMBOLS

Right	Air Conditions	Left
○	Unmasked Three Hold	○
×	Masked Three Should	×
□	No Response	□
○	Unmasked Three Hold	○
×	Masked Three Should	×
□	Bone Conducts	□
○	Unmasked Three Hold	○
×	Masked Three Should	×
□	No Response	□
○	Unmasked Three Hold	○
×	Masked Three Should	×
□	Sound Field	□
○	Response	S
×	No Response	S
□	Audio Metric	□

TEST	RINNE	WEBER	AUDIOMETRIC WEBER		
	T.F.T.	T.F.T.	500	1000	2000
EAR					
RT.					
LT.					

SPEECH AUDIOMETRY

	PTA (db HL)	SRT (db HL)	SDT (db HL)	SDS %	MCL	UCL
RIGHT EAR	<u>15 dB</u>					
LEFT EAR	<u>18 dB</u>					

TEST CONDITION

PROVISIONAL DIAGNOSIS :

Right Ear :- Normal hearing sensitivity
 Left Ear :- Normal hearing sensitivity

Recommendation :-

Dr. Nitinwre

DR. NITINWRE ASHOK ZADBAJI
 REG NO-54603
 MBBS ENT
 DEPARTMENT - ENT
 AUDIOLOGIST

Case number:

Name: MR FAGESHWAR PAL

Gender: Male

Age: 32

Height: 165 cm

Weight: 62 kg

Smoke: No

BDT: No

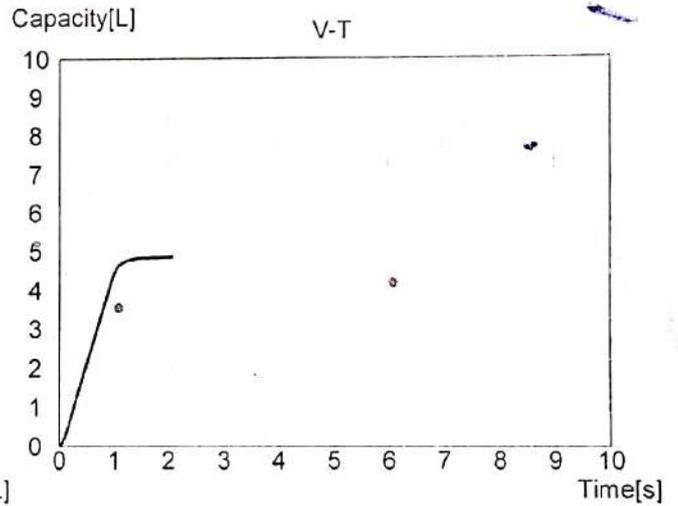
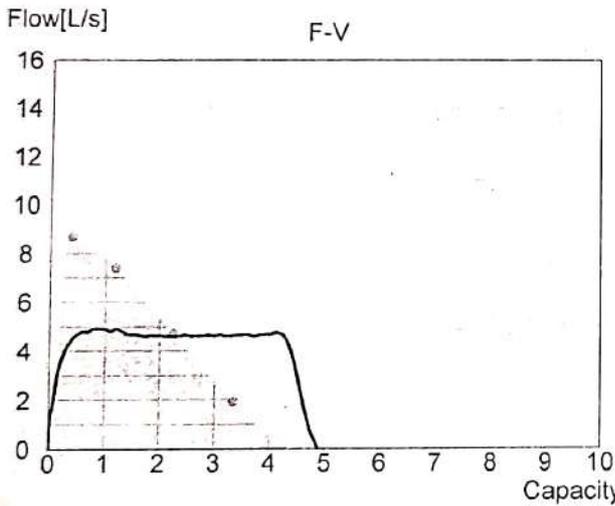
Equation: ECSC

Phone:

Test date: 2025-05-02 14:34:59

Medical history:

Parameter	Unit	MEAS	PRED	PRED%	LLN	BDT diff	BDT rate
FVC	L	5.00	4.33	115.42%	3.33	-	-
FEV1	L	4.92	3.68	133.80%	2.84	-	-
FEV1/FVC	%	98.40	81.45	120.81%	69.66	-	-
PEF	L/s	5.32	8.90	59.74%	6.91	-	-
FEF2575	L/s	4.77	4.53	105.41%	2.81	-	-
FEF25	L/s	5.01	7.61	65.83%	4.80	-	-
FEF50	L/s	4.77	4.91	97.12%	2.74	-	-
FEF75	L/s	4.74	2.13	222.07%	0.85	-	-
EV	ml	115.00(2.30%FVC)	-	-	-	-	-
FET	s	2.10	6.00	35.00%	-	-	-
EOTV	ml	243.00	-	-	-	-	-
PEFT	ms	238.00	-	-	-	-	-



Test result: *parameters all the parameters are normal*

Dr. Kambly

Operator: _____ Physician: _____

Reporting date: 2025-04-29

Device ID: PULMO022489



RIMS HOSPITAL URLA

(A unit of LORD BUDDHA EDUCATIONAL SOCIETY)

Health For All

PT. NAME : MR.FAGESHWAR PAL
PATIENT ID : RIMS/
REF. DR. / DEPT : RIMS HOSPITAL, URLA (OPD)

AGE / SEX: 32Y / M
DATE: 23-05-2025

X RAY CHEST (PA VIEW)

- Trachea is central.
- Lung fields are clear bilaterally.
- No evidence of consolidation, collapse, or effusion.
- Cardiac silhouette is normal in size and contour.
- Mediastinal contours are normal.
- Diaphragmatic domes are normal in position and outline.
- Costophrenic angles are sharp.
- Bony thorax appears intact, no fractures seen.

ADVISED: Clinical correlation.

Dr. Kashi Nath

RESIDENT DOCTOR

DR. KASHI NATH SARKAR
REG NO.-C G M.C 3357/2011
MBBS
DEPARTMENT - RADIOLOGY

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RAIPUR INSTITUTE OF MEDICAL SCIENCE

24 Hour Helpline

Bhansoj Road Off NH -6, Raipur 0771 - 3053060

PATIENT NAME	FAGESHWAR PAL	AGE/SEX	32Y/MALE
LAB NO.		PATIENT ID NO.	
REF BY DR.	RIMS	OPD/IPD NO.	
WARD	URLA PATIENT	SAMPLE RECEIVING DATE	02-05-2025
SPECIMEN	SERUM	REPORT RELEASING DATE	03-05-2025

BIOCHEMISTRY REPORT

LIPID PROFILE-

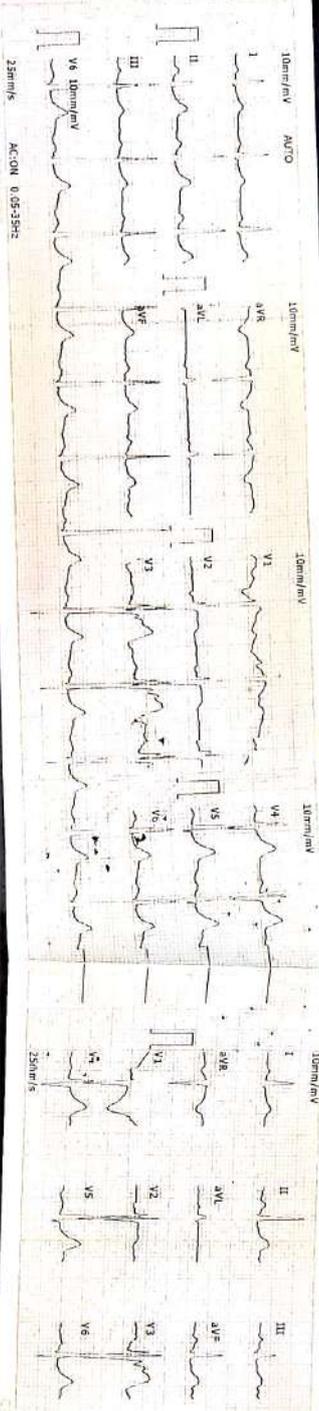
Test Name	Observed Value	Reference Range
Total Cholesterol	171	Desirable <200 mg/dL Borderline High 200- 239 mg/dL High Risk >239 mg/dL
Triglycerides	145	Optimal <150 mg/dL Borderline High 150-199 mg/dL High 200-499 mg/dL Very high > 500 mg/dL
HDL Cholesterol	43.3	Male: 35-79.5 mg/dL, Female: 42-88 mg/dL
LDL Cholesterol	98	Optimal <100 mg/Dl Above Optimal 100-129 mg/Dl Borderline High 130-159 mg/Dl High 160-189 mg/Dl Very High >190 mg/Dl
Very Low Density Lipoproteins (VLDL)	29	20-40 mg/Dl
CHOL/HDL Ratio	3.94	3.3-4.4
LDL/HDL Ratio	2.26	0.5-3.0

Test done on random sample. kindly correlate clinically...!!




Consultant
Clinical biochemistry laboratory

Note: These reports are for assisting Doctors/Physicians in their Treatment and Not for Medico-legal purposes and should be correlated clinically.



2023-04-17 17:19 ID: 000028219

ID Card: **402172**

Name: **Agasthavel Pal** Gender: **male**

Age: **52** Height(cm): **165**

Weight(kg): **62** BP(mmHg): **150/80**

HR: **72** bpm

PR: **136** ms

Q-R-S: **156** ms

QT/QTc: **373/440** ms

P/QRS/T AXES: **deg 93/48/93**

R/S/STV1: **mV 2.23/1.07**

R/S/STV1: **mV 1.30**

*The result must be confirmed by doctor!

Report Confirmed By:

Dr. Ravi Gopal Reddy
 MD Medicine
 Reg. No. CGMC-45372005
 Raju Institute of Medical Sciences



DEPARTMENT OF BIOCHEMISTRY

PATIENT NAME	MR FAGESHWAR PAL	AGE/SEX	32Y/M
LAB NO.		PATIENT ID NO.	
REF BY DR.	RIMS	OPD NO.	
WARD		SAMPLE RECEIVING DATE	02/052025
SPECIMEN	BLOOD	REPORT RECEIVING DATE	02/05/2025

BLOOD SUGAR FASTING & PP

INVESTIGATION	RESULT	REFERENCE RANGE
Sample Type		
FASTING BLOOD SUGAR	92	70-100 mg/dL
BLOOD SUGAR PP	117	100-140 mg/dL

Clinical Note :

Elevated glucose levels (hyperglycemia) are the most often encountered clinical in the setting of diabetes mellitus but they may also occur with pancreatic neoplasms, hyperthyroidism and adrenocortical dysfunction. Decreased glucose levels (hypoglycemia) may result from endogenous or exogenous insulin excess, prolonged starvation, or liver disease

Fasting glucose	2 hours pp glucose	Diagnosis
<100	<140	Normal
100 to 125	140 to 199	Pre-diabetes
>126	>200	Diabetes

A level of 126 mg/dL or above, confirmed by repeating the test on another day, means a person has diabetes IGT (2 hrs post meal), means a person has an increased risk of developing type 2 diabetes but does not have it yet a 2 hour glucose level of 200 mg/dL or above, confirmed by repeating the test on another day, means a person has diabetes

-----End of report-----


Technician
(Reports checked by)


consultant
clinical biochemistry laboratory

NOTE-These reports are for assisting doctors in their treatment and are for non-legal purposes and should be correlated clinically



RAIPUR INSTITUTE OF MEDICAL SCIENCES

Bhansoj Road Off NH-6, Raipur 0771 - 3053060

24 Hour Helpline

PATIENT NAME	FAGESHWAR PAL	AGE/SEX	32Y/MALE
LAB NO.		PATIENT ID NO.	
REF BY DR.	RIMS	OPD/IPD NO.	
WARD		SAMPLE RECEIVING DATE	02-05-2025
SPECIMEN	SERUM	REPORT RELEASING DATE	02-05-2025

BIOCHEMISTRY REPORT

LIVER FUNCTION TEST

Test Name	Observed Value	Reference Range
Bilirubin Total	0.78	Upto 1.2 mg/dl
Bilirubin Direct	0.24	Upto 0.4 mg/dL
Bilirubin Indirect	0.54	0.2-0.8 mg/dL
S.G.O.T. (AST)	20	M:Upto 35 & F:Upto 31 IU/L
S.G.P.T. (ALT)	24	M:Upto 45 & F:Upto 34 IU/L
Alkaline Phosphatase	102	53-128 IU/L
S. LDH		2-12yrs: 180-360 & 12-60 yrs: 125-220 IU/L

SERUM PROTEINS

Total Protein		6.0-8.0 g/dL
Serum Albumin		3.5-5.5 g/dL
Serum Globulin		2.5-3.5.g/dL
A:G Ratio		1.2-1.5:1

RENAL FUNCTION TEST

B.Urea	24	15-40 mg/dL
S.Creatinine	0.96	F: 0.6-1.2 & M: 0.7-1.4 mg/dL
Uric Acid	3.8	F: 2.6-6.0 & M: 3.5-7.2 mg/dL

Calcium		9.0-11.0 mg/dL
Phosphorus		2.5-4.5 mg/dL
Magnesium	2.0	1.8-2.2 mg/dl

PANCREATIC FUNCTION TEST

S. Lipase		Upto 60 U/L
S. Amylase		Upto 80 U/L

BLOOD GLUCOSE

Blood Glucose, Random	104	70-140 mg/dL
Blood Glucose, Fasting		70-100 mg/dL
Blood Glucose, Post-Prandial		100-140 mg/dL

SERUM ELECTROLYTES

S. Sodium (Na ⁺)		135-145 mmol/L
S. Potassium (K ⁺)		3.5-5.0 mmol/L
S. Ca ⁺⁺		1.3-1.5 mmol/L
Iron		ug/dl

Kindly correlate clinically



Consultant
Clinical biochemistry laboratory

Note: These reports are for assisting Doctors/Physicians in their Treatment and Not for Medico-legal purposes and should be correlated clinically.



DEPARTMENT OF MICROBIOLOGY

Patient's Name	FAGESHWAR PAL	AGE/SEX	32Y/MALE
Lab No		PATIENT ID	
Ref by Dr.	RIMS	OPD /IPD:	
Ward	CAMP URLA	Sample Receiving Date	12/04/2025
Specimen	Serum	Report Releasing Date	12/04/2025

SEROLOGICAL TEST REPORT

S. No.	TEST	METHOD	RESULT
31.	ASO Titer	Latex Agglutination Test	
2.	CRP	Quantative Test	
3.	RA Factor	Latex Agglutination Test	
4	Dengue Test	Rapid Card Test	
5.	Widal Test	Slide Agglutination Test	
6.	Direct Coombs Test	Agglutination Test	
7.	In-direct Coombs Test	Agglutination Test	
8.	VDRL Antigen Test	Rapid Card Test	
9.	HbsAg	Rapid Card Test	NON-REACTIVE
10.	Anti-HCV	Rapid Card Test	
11.	HIV 1 &2	Rapid Card Test	

Please Note:-Kindly correlate clinically.



MICROBIOLOGIST



RAIPUR INSTITUTE OF MEDICAL SCIENCES

Bhansoj Road Off NH-06 Village Godhi,
Raipur (C.G.), 492101, India

Tel: 1800-208-1088 ,Email - info@rimsindia.ac.in , http://rimsindia.ac.in

DEPARTMENT OF PATHOLOGY HAEMATOLOGY REPORT

C.R. No. : 020525112/	Lab No : 20250502738	Collected : : 03-05-2025
Name : MR. FAGESHWAR PAL	Age/Sex : 32 year / M	Received : : 03-05-2025
Guardian : S/O PAL		Reported : : 03-05-2025
Department : General Medicine	Select	/

Tests	Result	Units	Ref. Interval
CBC(Complete Haemogram)			
HB (Hemoglobin) SLS	15.4	gm/dl	13.0 - 17.0
TLC (Total Leucocytes Count) Electrical Impedance/ Flow Cytometry	7.37	10 ³ /μL	3.5 - 10
DLC (Differential Leucocytes Count) Flow Cytometry	-	-	-
Neutrophils Flow Cytometry/DC Detection	59.6	%	40 - 75
Lymphocytes Flow Cytometry/DC Detection	31.6	%	20 - 40
Eosinophils Flow Cytometry/DC Detection	1.9	%	01 - 06
Monocytes Flow Cytometry/DC Detection	5.9	%	02 - 10
Basophils Flow Cytometry/DC Detection	0.07	%	00 - 01
MCV Calculated	94.0	fl	80 - 100
MCHC Calculated	33.6	g/dl	31 - 37
RDW-CV Hydro Dynamic Focussing / DC Detection	14.2	%	11.6 - 14.0
Platelet Count Hydro Dynamic Focussing / DC Detection	368	10 ³ /μL	150 - 400
HCT Flow Cytometry/DC Detection	45.7	%	40 - 51
MCH Calculated	31.6	pg	26 - 34
RBC Count Hydro Dynamic Focussing / DC Detection	4.87	million/mm ³	4.0 - 5.2



[Signature]
Pathologist

--- END OF REPORT ---



RAIPUR INSTITUTE OF MEDICAL SCIENCES

24 Hour Helpline, Health For All 0771 - 3268844,
Bhansoj Road, Off NH -6, Raipur

PATIENT NAME	FAGESHWAR <i>FAL</i>	AGE/SEX	32Y/MALE
LAB NO.	02738	PATIENT ID NO.	
REF BY DR.	RIMS	OPD/IPD NO.	
WARD		SAMPLE RECEIVING DATE	02/05/2025
SPECIMEN	BLOOD	REPORT RELEASING DATE	02/05/2025

HAEMATOLOGY REPORT

TEST NAME OBSERVED VALUE NORMAL VALUE

BLOOD GROUP & RH	"A" POSITIVE	(Slides Method)
------------------	--------------	------------------



Fal
ASSITANT PROFESSOR

Note: These reports are for assisting Doctors/Physicians in their Treatment and Not for Medico-legal purposes and should be correlated clinically.

Teaching Hospital and Medical College



RAIPUR INSTITUTE OF MEDICAL SCIENCES

Bhansoj Road Off NH-06 Village Godhi,
Raipur (C.G.), 492101, India

Tel: 1800-208-1088 ,Email - info@rimsindia.ac.in

DEPARTMENT OF PATHOLOGY

URINE REPORT

C.R. No. : 0205251126 /	Lab No : 20250502738	Collected : 03-05-2025
Name : MR. FAGESHWAR PAL	Age/Sex : 32 year / M	Received : 03-05-2025
Guardian : S/O PAL		Reported : 03-05-2025
Department : General Medicine		

Tests	Result
Physical Examination	
Color	Pale Yellow
Volume	20
Appearance	Clear
Chemical Examination	
Albumin	NIL
Sugar	NIL
Ketone	-
Microscopic Examination	
Pus Cells	0 - 5
Epithelial Cells	0 - 5
RBC	Absent
Crystals	Absent
Bacteria	Absent
Cast	-
Others	-

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



Print Date : 3/5/2025

Ferd
Consultant Pathologist

This is a professional opinion and can not be used for medico legal purposes.



DEPARTMENT OF BIOCHEMISTRY

PATIENT NAME	FAGESHWAR PAL	AGE/SEX	32Y/M
NO.		PATIENT ID NO.	
BY DR.	RIMS	OPD/IPD NO.	
RD		SAMPLE RECEIVING DATE	2/5/2025
CIMEN	BLOOD	REPORT RELEASING DATE	3/5/2025

MANGANESE , BLOOD

INVESTIGATION	RESULT	REFERENCE VALUE	UNIT
Sample Type	Blood(2ml)	TAT : 24 Hrs (Normal : 24-48 Hrs)	
Manganese KPM	9.17	NORMAL 4.20-16.50	ug/l

Note :

1. Blood manganese levels exceeding 20 micrograms per liter (ug/l) suggest manganese retention.
2. Inductively coupled plasma mass spectrometry (ICPMS) is a technique employed to quantify heavy and trace metals in biological tissues.
3. To evaluate occupational exposure , samples should be collected at the end of a work shift on the last day of the workweek.

Comments :

Manganese is an essential element that acts as a co-factor in numerous enzymatic reactions. It is primarily obtained through dietary sources , including foods , vegetables , the germinal parts of grains , fruits , nuts , tea and certain spices . Manganese is also utilized in various industrial processes , such as the production of steel alloys , dry cell batteries , electrical coils , ceramics , matches , glass tiles , welding rods , animal food additives , and fertilizers . Workers exposed to high levels of manganese dust in industrial settings face a significantly increased risk of respiratory diseases , up to 30 times more than the general population.

Manganese exposure can lead to abnormal electrocardiograms and hinder myocardial contraction.

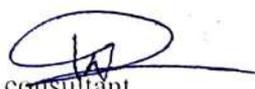
High Levels :

- Acute hepatitis
- Industrial exposure
- Myocardial infarction

Low Levels :

- Seizures
- Phenylketonuria


Technician
(Reports checked by)


consultant
clinical biochemistry laboratory

NOTE-These reports are for assisting doctors in their treatment and not for medico-legal purposes and should be correlated clinically



RIMS HOSPITAL URLA

(A unit of LORD BUDDHA EDUCATIONAL SOCIETY)

Health For All

PT. NAME : MR. FAGESHWAR PAL
PATIENT ID : RIMS/
REF. DR. / DEPT : RIMS HOSPITAL, URLA (OPD)

AGE / SEX: 32Y / M
DATE: 23.05.2025

SONOGRAPHY OF WHOLE ABDOMEN

LIVER: The liver is normal in size, shape and has smooth margins. It is uniformly isoechoic with normal echotexture. No SOL is seen. Intra-hepatic biliary radicals are not dilated.

GALL BLADDER: The gall bladder is well distended. No intra-luminal calculi or mass lesion is seen. Its wall thickness is normal.

COMMON BILE DUCT & PORTAL VEIN: The common bile duct is normal in caliber. No calculi are seen in it. The portal vein is normal in calibre and course.

SPLEEN: The spleen is normal in size and shape. Its echotexture is homogeneous. No evidence of focal lesion is noted.

PANCREAS: The pancreas is normal in size, shape, contours and echotexture. No evidence of solid or cystic mass lesion is noted.

KIDNEYS: Both kidneys have normal cortical echotexture and have smooth margins. Cortico-medullary differentiation is maintained.

Right kidney measures ~ 9.1 x 3.8 cms. No calculus or hydronephrosis seen in right kidney.

Left kidney measures ~ 10.1 x 4.2 cms. No calculus or hydronephrosis seen in left kidney.

URINARY BLADDER: The urinary bladder is well distended. It shows uniformly thin walls and sharp mucosa. No intra-luminal calculus or diverticulum is seen.

PROSTATE: The prostate is normal in size and measures ~ 11 cc in volume. No focal lesion seen.

No free fluid is seen in the peritoneal cavity at the time of examination.

PROVISIONAL IMPRESSION :

- No significant abnormality detected.

ADVISED: Clinical correlation.

DR. KASHI KUMAR SARKAR
REG NO-C.G.M.C 3357/2011
MBBS
DEPARTMENT - RADIOLOGY

RESIDENT DOCTOR

RIMS Rural Health & Training Center (RH&TC) Industrial Corporation Building,
Near Axis Bank, Urla, Dist.-Raipur, Pin - 492003, Contact Number - 91091-90902

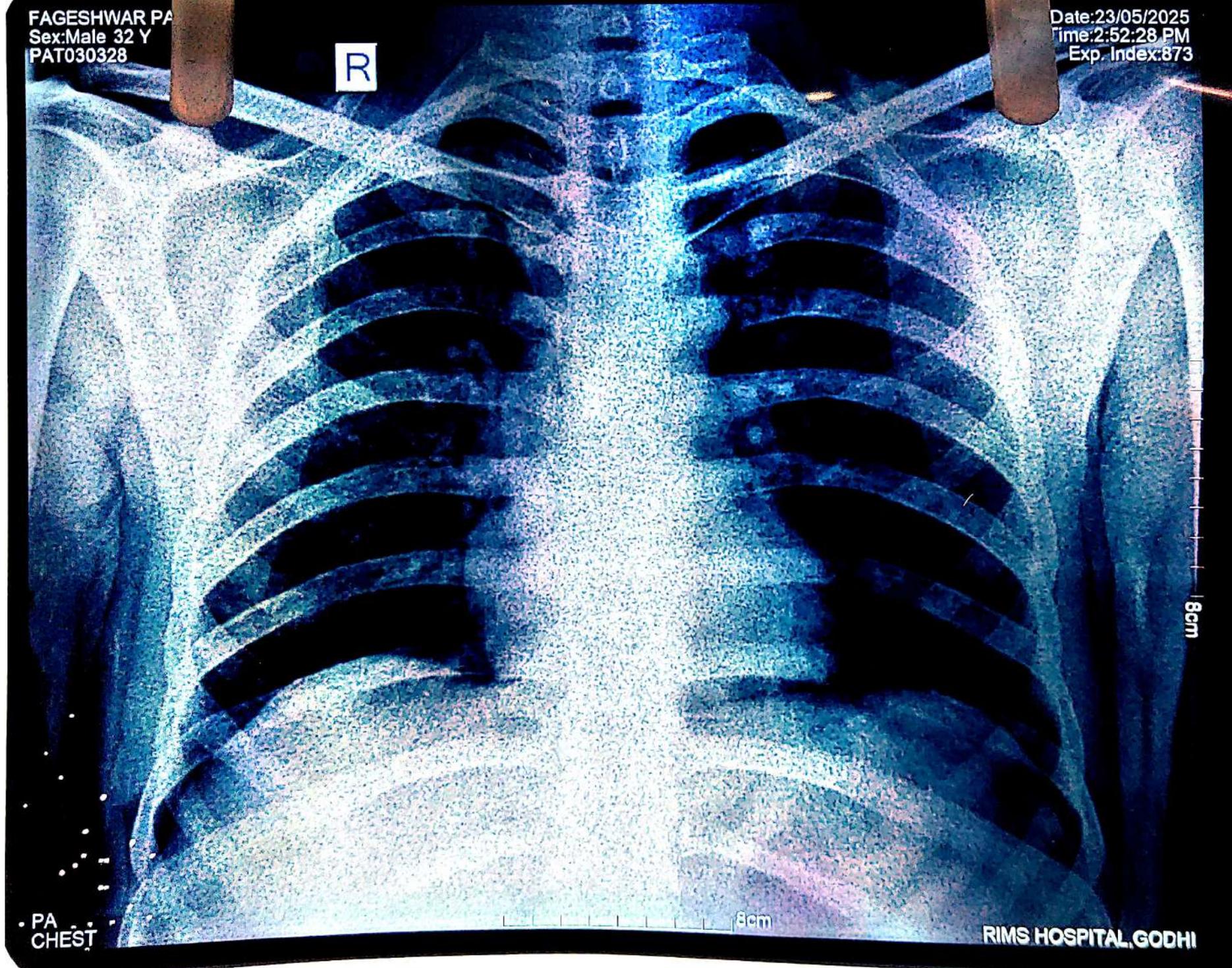
Medical College (Main Campus) - Raipur Institute Of Medical Sciences (750 Bedded
Hospital & Medical College) at Bhansoj Road . Off, NH-06, Village-Godhi, Raipur (C.G.),
Mob. No.-9109190914, 9303081217 Fax : 0771-3053089, www.rimsindia.ac.in



FAGESHWAR PA
Sex: Male 32 Y
PAT030328

Date: 23/05/2025
Time: 2:52:28 PM
Exp. Index: 873

R



8cm

8cm

PA
CHEST

RIMS HOSPITAL, GODHI

Form 21
[Prescribed under Rule (19)]
Health Register

In respect of persons employed in occupations declared to be dangerous operations under Section 87)

Name of Worker.....DHANSHYAM PALAge/ Sex...18Y/M.....
Name of Company.....HIRA. FERROW ALLOYS LTD.....Employee Code...402171
Nature of occupation.....FORK LIFT.....Date.....02/05/2025... Annexure

PRE-EMPLOYMENT & PERIODIC MEDICAL EXAMINATION

(1) GENERAL EXAMINATION:

Height 166 cm, Weight 55 kg BMI... 21.9
Chest Inspiration..90....cm, Expiration 86 cm
Throat...NORMAL.... Tongue.....MOIST...Tonsils...N/A.....
Teeth ..NORMAL..... Gums.....NORMAL.....
Thyroid.....NORMAL.....
Lymph nodes.....NORMAL.....
Additional finding.....N/A.....

(2) CARDIO-VASCULAR SYSTEM:

Pulse 85 mt. Regular/Irregular Peripheral Pulse-felt/not felt
BP.120/80..... min Hg Heart Sound: NORMAL.....
Murmur, If any...NO..... Additional finding (s), if anyNO.....

(3) RESPIRATORY SYSTEM:

Shape of Chest:NORMAL.... Tubular..... Chest movements: **Symmetrical**
..... Trachea..... **Centrally**..... Breath sound **Vesicular**

(4) GASTRO-INTESTINAL SYSTEM:

Liver.....NP..... Spleen.....NP.....
Any abdominal lumps: NO

(5) EXAMINATION OF EYES:

External Exam -NORMAL... Squint: NO.....
Nystagmus: NOFundus L/R
Night Blindness.....NO.....
Colour vision- Normal
Individual colour identification- Normal

Distance vision (without glasses) Right..6/6.... Left
...6/6..... (with glasses) Right..... Left

Near-vision (without glasses) Right...N/6.....
Left...N/6..... (with glasses) Right ... Left.....

(6) EXAMINATION OF EAR NOSE & THROAT:

External Examination:NAD.....



(7) GENITO URINARY SYSTEM:

Hernia - NO..... Hydrocele- NO
Cryptorchidism-NO Phimosis.....NO
Signs of STD.....NO

Varicocele - NO
Varicose veins- NO

Other Examinations for Females:

Menarche..... yr. G. Para..... Menstrual irregularity if any

INVESTIGATIONS

(8) Lab Investigations:

Haemogram

Blood Group.....O+..... Rh factor.....POSITIVE..... Hb 12.3
gm%
RBC5.92.....Platelet Count.....217
TLC.....6.18..... DLC: -

N - 45.2 L - 39.3 E 3.3 M - 10.6 B 0.10

Renal profile

Blood Urea: ...15.....S. Creatinine:0.68

Hepatic profile - S G O T.....20. S G P T ...16 Alkaline Phosphat 58..... S. Bilirubin0.56

Lipid Profile:

Serum Cholesterol195...Triglycerides.....174.....HDL.....36.....LDL.....125....

Metabolic

Blood Sugar.....106.....Blood Sugar PP. 129 S. Uric Acid....3.4

Urine: Albumin.....NIL.....SugarNIL.....Microscopy.....
Stool:

(10) Other Investigation

11) Pulmonary Function Test

	FCV	FEV 1	FEV 1/ FVC
PREDICATED	4.75	4.13	83.97
MEASURED	4.62	3.65	79.00
% OF PREDICATED	97.19	88.46	94.09

12) Audiometry examination

PTA	Lt. Ear -16 dB	Rt. Ear-15dB
Remark	NORMAL	

PTA of both ears at frequency Cycles/sec

13. Details of Other specific medical examination carried out as mentioned in the respective schedules of 107 of C.G. Factory rules 1962-

Signature
For Ferro Alloys Ltd.
Signature (with date) of
Factory Medical Officer
Dr. Shyam Kumar Adapa
(MBBS & AFIH)
Reg. No. : APMC/FMR/90920

Signature (with date)
Certifying surgeon



Health For All

RAIPUR INSTITUTE OF MEDICAL SCIENCES

Bhansoj Road, Off. NH-6, Gram-Godhi, Raipur (C.G.)

Tel.: 91-0771-3053060-87, Fax : 91-0771-3053088-89, www.rimsindia.ac.in

Department of ENT

AUDIOLOGICAL EVALUATION

OPD No. Date 02/05/25 Audio No.

Name Mr. Dhanslyam Pal Age/Sex 18/M

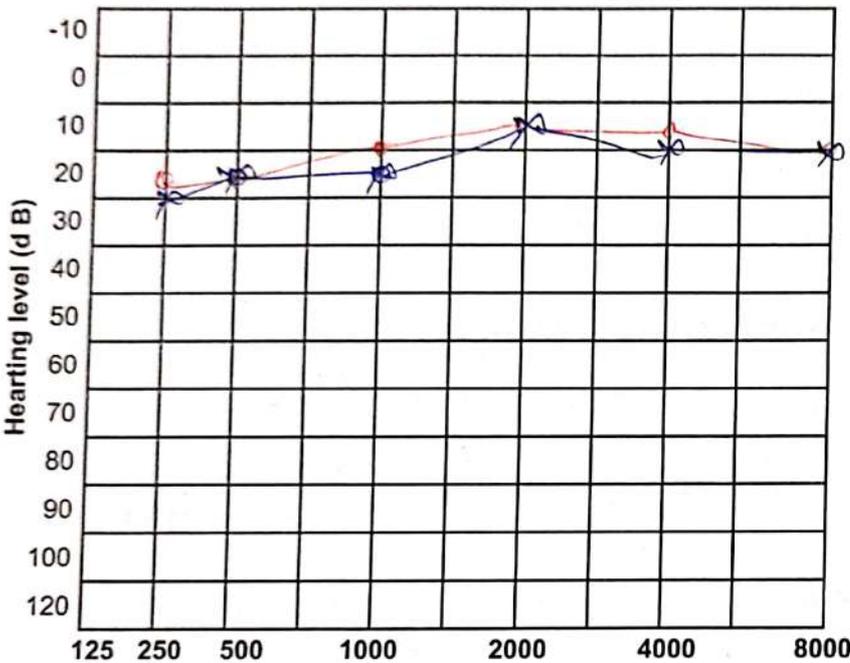
Address Ph. No. 6268680321

Tested by Audiometer Used Per/Post Treatment

Complaint :-

PURE TONE AUDIOGRAM

750Hz 1500Hz 3000Hz 6000Hz



KEY OF SYMBOLS

Right	Air Conditions	Left
○	Unmasked Three Hold Masked Three Should	○
No Response		
○	Unmasked Three Hold Masked Three Should	○
Bone Conducts		
○	Unmasked Three Hold Masked Three Should	○
No Response		
○	Unmasked Three Hold Masked Three Should	○
Sound Field		
Response	S	
No Response	S	
Audio Metric		

TEST	RINNE	WEBER	AUDIOMETRIC WEBER		
	T.F.T.	T.F.T.	500	1000	2000
EAR					
RT.					
LT.					

SPEECH AUDIOMETRY

	PTA (db HL)	SRT (db HL)	SDT (db HL)	SDS %	MCL	UCL
RIGHT EAR	<u>15 dB</u>					
LEFT EAR	<u>16 dB</u>					

TEST CONDITION

PROVISIONAL DIAGNOSIS :

Right Ear :- Normal hearing sensitivity

Left Ear :- Normal hearing sensitivity

Recommendation :-

Dr. Nitinwre
DR. NITINWRE ASHOK ZADBAJI
 REG NO-54603
 MBBS ENT
 DEPARTMENT - ENT

AUDIOLOGIST



RIMS HOSPITAL URLA

(A unit of LORD BUDDHA EDUCATIONAL SOCIETY)

Health For All

PT. NAME : MR.DHANSHYAM PAL AGE / SEX: 18Y / M
 PATIENT ID : RIMS/ DATE: 10.05.2025
 REF. DR. / DEPT : RIMS HOSPITAL, URLA (OPD)

SONOGRAPHY OF WHOLE ABDOMEN

LIVER: The liver is normal in size, shape and has smooth margins. It is uniformly isoechoic with normal echotexture. No SOL is seen. Intra-hepatic biliary radicals are not dilated.

GALL BLADDER: The gall bladder is well distended. No intra-luminal calculi or mass lesion is seen. Its wall thickness is normal.

COMMON BILE DUCT & PORTAL VEIN: The common bile duct is normal in caliber. No calculi are seen in it. The portal vein is normal in calibre and course.

SPLEEN: The spleen is normal in size and shape. Its echotexture is homogeneous. No evidence of focal lesion is noted.

PANCREAS: The pancreas is normal in size, shape, contours and echotexture. No evidence of solid or cystic mass lesion is noted.

KIDNEYS: Both kidneys have normal cortical echotexture and have smooth margins. Cortico-medullary differentiation is maintained.

Right kidney measures ~ 8.9X4.7 cms. No calculus or hydronephrosis seen in right kidney.

Left kidney measures ~ 8.7X3.4 cms. No calculus or hydronephrosis seen in left kidney.

URINARY BLADDER: The urinary bladder is well distended. It shows uniformly thin walls and sharp mucosa. No intra-luminal calculus or diverticulum is seen.

PROSTATE: The prostate is normal in size and measures ~ 15cc in volume. No focal lesion seen.

No free fluid is seen in the peritoneal cavity at the time of examination.

PROVISIONAL IMPRESSION :

- No significant abnormality detected.

ADVISED: Clinical correlation.

DR.KASHINATH SARKAR,
MBBS, MD RADIODIAGNOSIS

Dr. Kashinath
DR. KASH.
 REG NO-C.G.M. 55112
 MBBS
 DEPARTMENT - RADIOLOGIA

RIMS Rural Health & Training Center (RH&TC) Industrial Corporation Building,
Near Axis Bank, Urla, Dist.-Raipur, Pin - 492003, Contact Number - 91091-90902

Medical College (Main Campus) - Raipur Institute Of Medical Sciences (750 Bedded Hospital & Medical College) at Bhansoj Road . Off, NH-06, Village-Godhi, Raipur (C.G.),
Mob. No.-9109190914, 9303081217 Fax : 0771-3053089, www.rimsindia.ac.in

Case number:

Name: MR DHANSHYAM PAL

Gender: Male

Age: 18

Height: 166 cm

Weight: 55 kg

Smoke: Yes

BDT: No

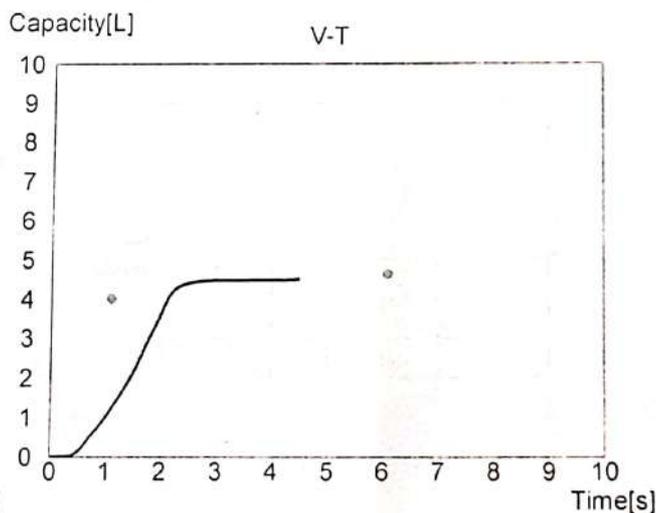
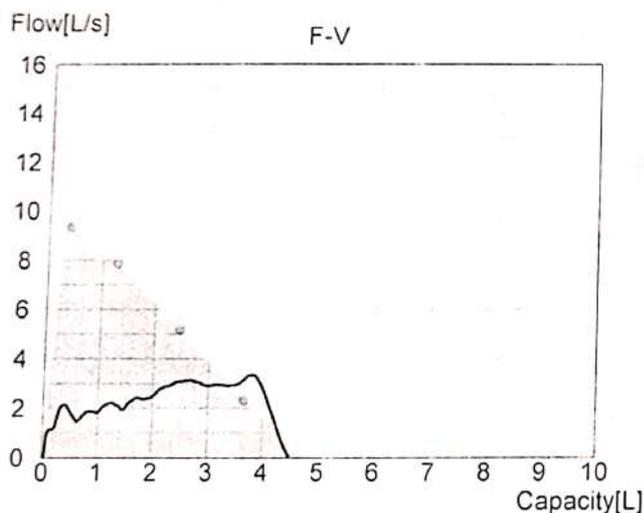
Equation: ECSC

Phone:

Test date: 2025-05-02 18:02:43

Medical history:

Parameter	Unit	MEAS	PRED	PRED%	LLN	BDT diff	BDT rate
FVC	L	4.62	4.75	97.19%	3.57	-	-
FEV1	L	3.65	4.13	88.46%	3.08	-	-
FEV1/FVC	%	79.00	83.97	94.09%	70.92	-	-
PEF	L/s	3.62	9.57	37.83%	7.28	-	-
FEF2575	L/s	2.68	5.15	52.08%	3.13	-	-
FEF25	L/s	2.20	8.07	27.26%	5.06	-	-
FEF50	L/s	2.95	5.38	54.80%	3.00	-	-
FEF75	L/s	2.98	2.52	118.04%	1.06	-	-
EV	ml	885.00(19.16%FVC)	-	-	-	-	-
FET	s	4.52	6.00	75.33%	-	-	-
EOTV	ml	25.00	-	-	-	-	-
PEFT	ms	2050.00	-	-	-	-	-



Test result:

spirometry all the ~~normal~~ parameters are Normal

Dr. Kamble
DR. KAMBLEY RAMU WATUJI
 REG NO-MC-7823/2018
 MBBS, MD
 DEPARTMENT-CHEST & PULMONARY

Operator:

Physician:

Reporting date: 2025-04-29

Device ID: PULMO022489



24 Hour Helpline

RAIPUR INSTITUTE OF MEDICAL SCIENCE

Bhansoj Road Off NH -6, Raipur 0771 - 3053060

PATIENT NAME	DHANSHYAM PAL	AGE/SEX	18Y/MALE
LAB NO.		PATIENT ID NO.	
REF BY DR.	RIMS	OPD/IPD NO.	
WARD		SAMPLE RECEIVING DATE	02-05-2025
SPECIMEN	SERUM	REPORT RELEASING DATE	02-05-2025

BIOCHEMISTRY REPORT

LIPID PROFILE-

Test Name	Observed Value	Reference Range
Total Cholesterol	195	Desirable <200 mg/dL Borderline High 200- 239 mg/dL High Risk >239 mg/dL
Triglycerides	174	Optimal <150 mg/dL Borderline High 150-199 mg/dL High 200-499 mg/dL Very high > 500 mg/dL
HDL Cholesterol	36	Male: 35-79.5 mg/dL, Female: 42-88 mg/dL
LDL Cholesterol	125	Optimal <100 mg/Dl Above Optimal 100-129 mg/Dl Borderline High 130-159 mg/Dl High 160-189 mg/Dl Very High >190 mg/Dl
Very Low Density Lipoproteins (VLDL)	34	20-40 mg/Dl
CHOL/HDL Ratio	5.41	3.3-4.4
LDL/HDL Ratio	3.47	0.5-3.0

Test done on random sample. kindly correlate clinically...!!



Consultant
Clinical biochemistry laboratory

Note: These reports are for assisting Doctors/Physicians in their Treatment and Not for Medico-legal purposes and should be correlated clinically.



RAIPUR INSTITUTE OF MEDICAL SCIENCES

Bhansoj Road Off NH -6, Raipur 0771 - 3053060

24 Hour Helpline

PATIENT NAME	DHANSHYAM PAL	AGE/SEX	18Y/MALE
LAB NO.		PATIENT ID NO.	
REF BY DR.	RIMS	OPD/IPD NO.	
WARD		SAMPLE RECEIVING DATE	02-05-2025
SPECIMEN	SERUM	REPORT RELEASING DATE	02-05-2025

BIOCHEMISTRY REPORT

LIVER FUNCTION TEST

Test Name	Observed Value	Reference Range
Bilirubin Total	0.56	Upto 1.2 mg/dl
Bilirubin Direct	0.21	Upto 0.4 mg/dL
Bilirubin Indirect	0.35	0.2-0.8 mg/dL
S.G.O.T. (AST)	20	M:Upto 35 & F:Upto 31 IU/L
S.G.P.T. (ALT)	16	M:Upto 45 & F:Upto 34 IU/L
Alkaline Phosphatase	58	53-128 IU/L
S. LDH		2-12yrs: 180-360 & 12-60 yrs: 125-220 IU/L

SERUM PROTEINS

Total Protein		6.0-8.0 g/dL
Serum Albumin		3.5-5.5 g/dL
Serum Globulin		2.5-3.5.g/dL
A:G Ratio		1.2-1.5:1

RENAL FUNCTION TEST

B.Urea	15	15-40 mg/dL
S.Creatinine	0.68	F: 0.6-1.2 & M: 0.7-1.4 mg/dL
Uric Acid	3.4	F: 2.6-6.0 & M: 3.5-7.2 mg/dL

Calcium		9.0-11.0 mg/dL
Phosphorus		2.5-4.5 mg/dL
Magnesium	1.8	1.8-2.2 mg/dl

PANCREATIC FUNCTION TEST

S. Lipase		Upto 60 U/L
S. Amylase		Upto 80 U/L

BLOOD GLUCOSE

Blood Glucose, Random	106	70-140 mg/dL
Blood Glucose, Fasting		70-100 mg/dL
Blood Glucose, Post-Prandial		100-140 mg/dL

SERUM ELECTROLYTES

S. Sodium (Na+)		135-145 mmol/L
S. Potassium (K+)		3.5-5.0 mmol/L
S. Ca++		1.3-1.5 mmol/L
Iron		ug/dl

Kindly correlate clinically...



Consultant
Clinical biochemistry laboratory

Note: These reports are for assisting Doctors/Physicians in their Treatment and Not for Medico-legal purposes and should be correlated clinically.



DEPARTMENT OF MICROBIOLOGY

Patient's Name	GHANSHYAM PAL	AGE/SEX	18Y/MALE
Lab No		PATIENT ID	
Ref by Dr.	RIMS	OPD /IPD:	
Ward	CAMP URLA	Sample Receiving Date	02/05/2025
Specimen	Serum	Report Releasing Date	03/05/2025

SEROLOGICAL TEST REPORT

S. No.	TEST	METHOD	RESULT
31.	ASO Titer	Latex Agglutination Test	
2.	CRP	Quantative Test	
3.	RA Factor	Latex Agglutination Test	
4	Dengue Test	Rapid Card Test	
5.	Widal Test	Slide Agglutination Test	
6.	Direct Coombs Test	Agglutination Test	
7.	In-direct Coombs Test	Agglutination Test	
8.	VDRL Antigen Test	Rapid Card Test	
9.	HbsAg	Rapid Card Test	NON-REACTIVE
10.	Anti-HCV	Rapid Card Test	
11.	HIV 1 &2	Rapid Card Test	

Please Note:-Kindly correlate clinically.



MICROBIOLOGIST



RAIPUR INSTITUTE OF MEDICAL SCIENCES

Bhansoj Road Off NH-06 Village Godhi,
Raipur (C.G.), 492101, India

Tel: 1800-208-1088 ,Email - info@rimsindia.ac.in , http://rimsindia.ac.in

DEPARTMENT OF PATHOLOGY HAEMATOLOGY REPORT

C.R. No. : 020525116/	Lab No : 202505035	Collected : 03-05-2025
Name : MR. DHANSHYAM PAL	Age/Sex : 18 Year / M	Received : 03-05-2025
Guardian : S/O PAL		Reported : 03-05-2025
Department : General Medicine	Select	/

Tests	Result	Units	Ref. Interval
CBC(Complete Haemogram)			
HB (Hemoglobin) SLS	12.3	gm/dl	13.0 - 17.0
TLC (Total Leucocytes Count) Electrical Impedance/ Flow Cytometry	6.18	10 ³ /μL	3.5 - 10
DLC (Differential Leucocytes Count) Flow Cytometry	-	-	-
Neutrophils Flow Cytometry/DC Detection	45.2	%	40 - 75
Lymphocytes Flow Cytometry/DC Detection	39.3	%	20 - 40
Eosinophils Flow Cytometry/DC Detection	3.3	%	01 - 06
Monocytes Flow Cytometry/DC Detection	10.6	%	02 - 10
Basophils Flow Cytometry/DC Detection	0.10	%	00 - 01
MCV Calculated	65.1	fl	80 - 100
MCHC Calculated	31.8	g/dl	31 - 37
RDW-CV Hydro Dynamic Focussing / DC Detection	17.6	%	11.6 - 14.0
Platelet Count Hydro Dynamic Focussing / DC Detection	217	10 ³ /μL	150 - 400
HCT Flow Cytometry/DC Detection	38.6	%	40 - 51
MCH Calculated	20.7	pg	26 - 34
RBC Count Hydro Dynamic Focussing / DC Detection	5.92	million/mm ³	4.0 - 5.2



Technician

Pathologist

-- END OF REPORT --





DEPARTMENT OF BIOCHEMISTRY

PATIENT NAME	DHANSHYAM PAL	AGE/SEX	18Y/M
LAB NO.		PATIENT ID NO.	
REF BY DR.	RIMS	OPD/IPD NO.	
WARD		SAMPLE RECEIVING DATE	2/5/2025
SPECIMEN	BLOOD	REPORT RELEASING DATE	3/5/2025

MANGANESE , BLOOD

INVESTIGATION	RESULT	REFERENCE VALUE	UNIT
Sample Type	Blood(2ml)	TAT : 24 Hrs (Normal : 24-48 Hrs)	
Manganese KPM	13.21	NORMAL 4 .20-16.50	ug/l

Note :

1. Blood manganese levels exceeding 20 micrograms per liter (ug/l) suggest manganese retention.
2. Inductively coupled plasma mass spectrometry (ICPMS) is a technique employed to quantify heavy and trace metals in biological tissues.
3. To evaluate occupational exposure , samples should be collected at the end of a work shift on the last day of the workweek.

Comments :

Manganese is an essential element that acts as a co-factor in numerous enzymatic reactions. It is primarily obtained through dietary sources , including foods , vegetables , the germinal parts of grains , fruits , nuts , tea and certain spices . Manganese is also utilized in various industrial processes , such as the production of steel alloys , dry cell batteries , electrical coils , ceramics , matches , glass tiles , welding rods , animal food additives , and fertilizers . Workers exposed to high levels of manganese dust in industrial settings face a significantly increased risk of respiratory diseases , up to 30 times more than the general population.

Manganese exposure can lead to abnormal electrocardiograms and hinder myocardial contraction.

High Levels :

- Acute hepatitis
- Industrial exposure
- Myocardial infarction

Low Levels ;

- Seizures
- Phenylketonuria



Technician
(Reports checked by

consultant
clinical biochemistry laboratory

NOTE-These reports are for assisting doctors in their treatment and not for medico-legal purposes and should be correlated clinically



DEPARTMENT OF BIOCHEMISTRY

PATIENT NAME	MR DHANSHYAM PAL	AGE/SEX	18Y/M
LAB NO.		PATIENT ID NO.	
REF BY DR.	RIMS	OPD/IPD NO.	
WARD		SAMPLE RECEIVING DATE	02/05/2025
SPECIMEN	BLOOD	REPORT RELEASING DATE	02/05/2025

BLOOD SUGAR FASTING & PP

INVESTIGATION	RESULT	REFERENCE RANGE
Sample Type		
FASTING BLOOD SUGAR	95	70-100 mg/dL
BLOOD SUGAR PP	129	100-140 mg/dL

Clinical Note :

Elevated glucose levels (hyperglycemia) are the most often encountered clinical in the setting of diabetes mellitus but they may also occur with pancreatic neoplasms , hyperthyroidism and adrenocortical dysfunction. Decreased glucose levels (hypoglycemia) may result from endogenous or exogenous insulin excess, prolonged starvation, or liver disease

Fasting glucose	2 hours pp glucose	Diagnosis
<100	<140	Normal
100 to 125	140 to 199	Pre diabetes
>126	>200	Diabetes

A level of 126 mg/dL or above , confirmed by repeating the test on another day , means a person has diabetes IGT (2 hrs post meal), means a person has an increased risk of developing type 2 diabetes but does not have it yet a 2 hour glucose level of 200 mg/dL or above , confirmed by repeating the test on another day , means a person has diabetes

-----End of report -----


Technician
(Reports checked by)


consultant
clinical biochemistry laboratory

NOTE-These reports are for assisting doctors in their treatment and not for medico-legal purposes and should be correlated clinically



RAIPUR INSTITUTE OF MEDICAL SCIENCES

24 Hour Helpline, Health For All 0771 - 3268844,
Bhansoj Road, Off NH -6, Raipur

PATIENT NAME	DHANSHYAM PAL	AGE/SEX	18Y/MALE
LAB NO.	035	PATIENT ID NO.	
REF BY DR.	RIMS	OPD/IPD NO.	
WARD		SAMPLE RECEIVING DATE	02/05/2025
SPECIMEN	BLOOD	REPORT RELEASING DATE	02/05/2025

HAEMATOLOGY REPORT

TEST NAME

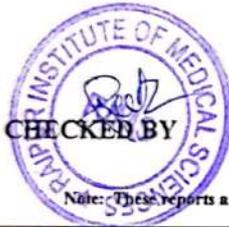
OBSERVED VALUE

NORMAL VALUE

BLOOD GROUP & RH

"O" POSITIVE

(Slides Method)




ASSITANT PROFESSOR

Note: These reports are for assisting Doctors/Physicians in their Treatment and Not for Medico-legal purposes and should be correlated clinically.

Teaching Hospital and Medical College





RAIPUR INSTITUTE OF MEDICAL SCIENCES

Bhansoj Road Off NH-06 Village Godhi,
Raipur (C.G.), 492101, India

Tel: 1800-208-1088 ,Email - info@rimsindia.ac.in

DEPARTMENT OF PATHOLOGY

URINE REPORT

G.R. No. : 0205251168 /	Lab No : 202505035	Collected : 03-05-2025
Name : MR. DHANSHYAM PAL	Age/Sex : 18 Year / M	Received : 03-05-2025
Guardian : S/O PAL		Reported : 03-05-2025
Department : General Medicine		

Tests

Result

Physical Examination

Color		Pale Yellow
Volume		20
Appearance		Clear

Chemical Examination

Albumin		NIL
Sugar		NIL
Ketone		-

Microscopic Examination

Pus Cells	0 - 5	0-1
Epithelial Cells	0 - 5	0-1
RBC		Absent
Crystals		Absent
Bacteria		Absent
Cast		-
Others		-

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



Print Date : 3/5/2025


Consultant Pathologist

This is a professional opinion and can not be used for medico legal purposes.



RIMS HOSPITAL URLA

(A unit of LORD BUDDHA EDUCATIONAL SOCIETY)

Health For All

PT. NAME : MR. DHANSHYAM PAL
PATIENT ID : RIMS/
REF. DR. / DEPT : RIMS HOSPITAL, URLA (OPD)

AGE / SEX: '18Y / M
DATE: 10-05-2025

X RAY CHEST (PA VIEW)

- Trachea is central.
- Lung fields are clear bilaterally.
- No evidence of consolidation, collapse, or effusion.
- Cardiac silhouette is normal in size and contour.
- Mediastinal contours are normal.
- Diaphragmatic domes are normal in position and outline.
- Costophrenic angles are sharp.
- Bony thorax appears intact, no fractures seen.

ADVISED: Clinical correlation.

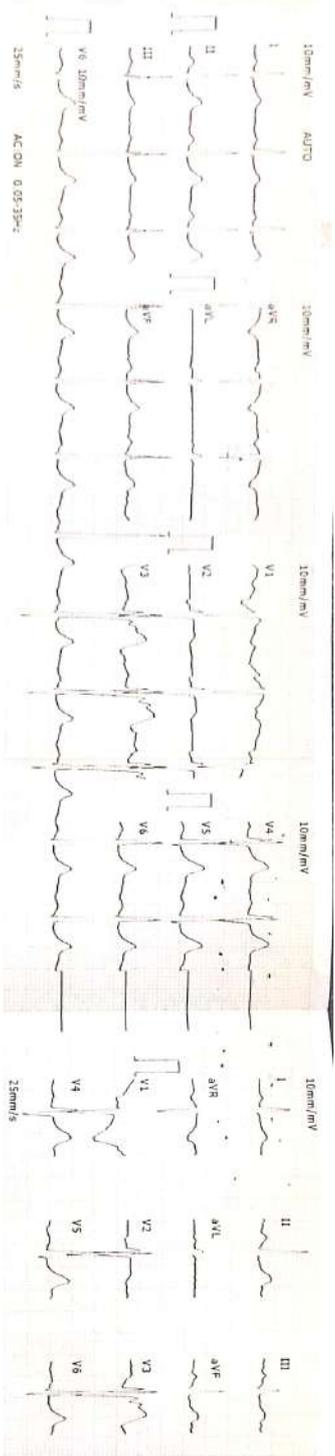
RESIDENT DOCTOR

Dr. Kashi Nath
DR. KASHI NATH SARKAR
REG NO-C.G.M.C 3357/2011
MBBS
DEPARTMENT - RADIOLOGY

RIMS Rural Health & Training Center (RH&TC) Industrial Corporation Building,
Near Axis Bank, Urla, Dist.-Raipur, Pin - 492003, Contact Number - 91091-90902

Medical College (Main Campus) - Raipur Institute Of Medical Sciences (750 Bedded
Hospital & Medical College) at Bhansoj Road . Off, NH-06, Village-Godhi, Raipur (C.G.),
Mob. No.-9109190914, 9303081217 Fax : 0771-3053089, www.rimsindia.ac.in



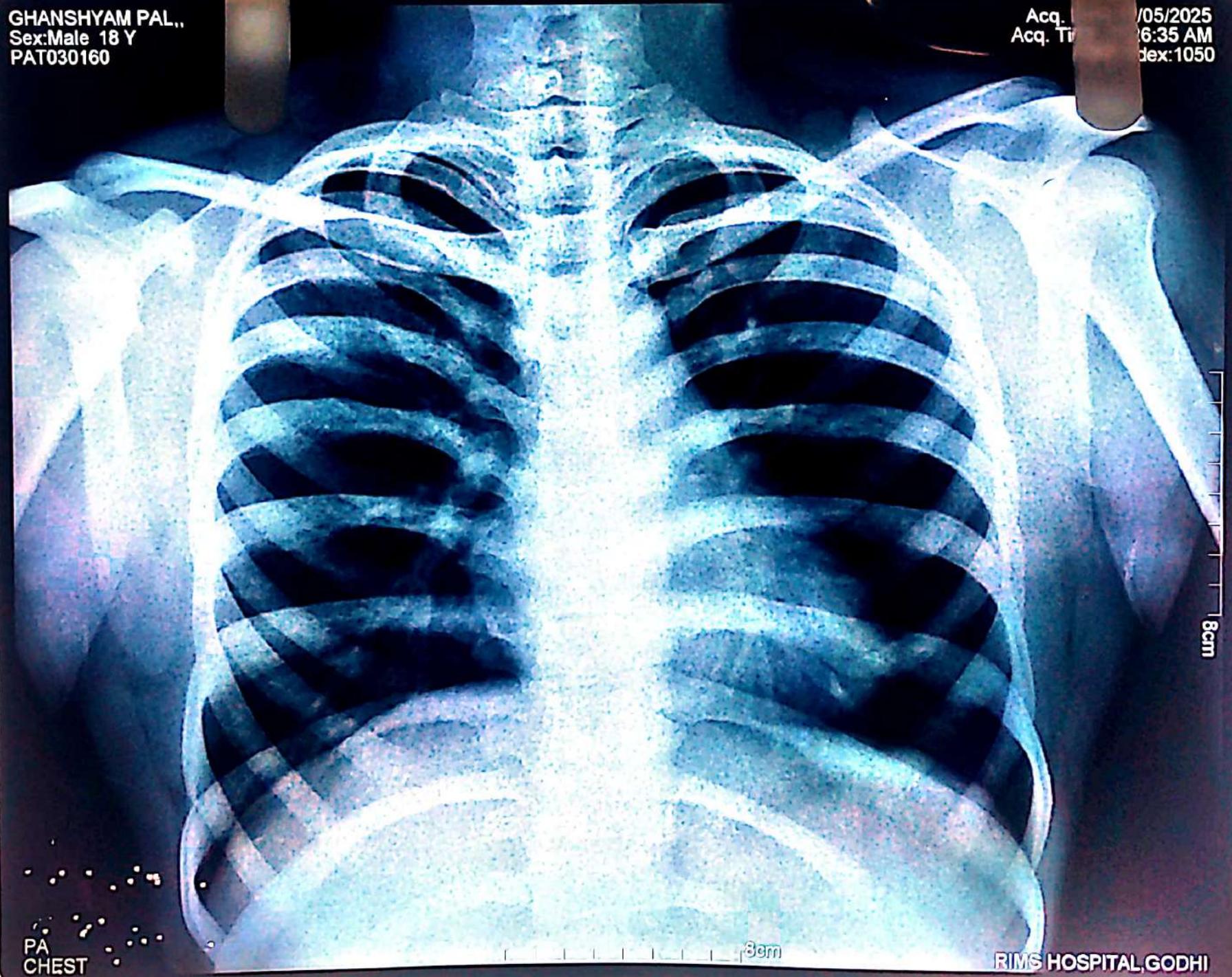


2015-07-14 10:18
 ID Card
 Name: **Dr. Ramgopal** Gender: **Male**
 Age: **84** Height: **166**
 Weight: **84** (kg) B.P. (mmHg): **116**
 P-R-T: P-R 164 326 Q-TS 336
 QTQT: 373-440 Avg 156
 PRST AXES: P-R-T 440 434/463
 R/S/V1: 2.23/1.07
 R/S/V6: 1.30

*The result must be confirmed by doctor!
 Report Confirmed By: _____
 Dr. Ramgopal
 M.D. Medicine
 Regd. No. -CGMC-1631/2005
 Jawahar Institute of Medical Sciences

GHANSHYAM PAL.,
Sex:Male 18 Y
PAT030160

Acq. /05/2025
Acq. T 6:35 AM
Index:1050



PA
CHEST

RIMS HOSPITAL,GODHI

Form 21
[Prescribed under Rule (19)]
Health Register

(In respect of persons employed in occupations declared to be dangerous operations under Section 87)

Name of Worker.....KRISHNA BHARTIAge/ Sex...29Y/M.....
Name of Company... *Mitra Textiles Ltd.*Employee Code.....
Nature of occupation.....WORKSHOP.....Date.....23/05/25.....Annexure

PRE-EMPLOYMENT & PERIODIC MEDICAL EXAMINATION

(1) GENERAL EXAMINATION:

Height 160 cm, Weight 55 kg BMI... 21.7 Chest
Inspiration..91...cm, Expiration 86 cm
Throat...NORMAL.... Tongue.....MOST...Tonsils...N/A.....
Teeth ..NORMAL..... Gums.....NORMAL.....
Thyroid.....NORMAL.....
Lymph nodes.....NORMAL.....
Additional finding.....N/A.....

(2) CARDIO-VASCULAR SYSTEM:

Pulse 79 mt. Regular/Irregular Peripheral Pulse-felt/not felt
BP.138/74..... min Hg Heart Sound: NORMAL.....
Murmur, If any...NO..... Additional finding (s), if anyNO.....

(3) RESPIRATORY SYSTEM:

Shape of Chest:NORMAL.... Tubular..... Chest movements: **Symmetrical**
..... Trachea..... **Centrally**..... Breath sound **Vesicular**

(4) GASTRO-INTESTINAL SYSTEM:

Liver.....NP..... Spleen.....NP.....
Any abdominal lumps: NO

(5) EXAMINATION OF EYES:

External Exam -NORMAL... Squint: NO.....
Nystagmus: NOFundus L/R
Night Blindness.....NO.....
Colour vision- Normal
Individual colour identification- Normal

Distance vision (without glasses) Right..6/6.... Left
...6/6..... (with glasses) Right..... Left
.....

Near-vision (without glasses) Right...N/6.....
Left...N/6..... (with glasses) Right ... Left.....

(6) EXAMINATION OF EAR NOSE & THROAT:

External Examination:NAD.....

(7) GENITO URINARY SYSTEM:

Hernia - NO..... Hydrocele- NO
Cryptorchidism-NO Phimosi.....NO
Signs of STD.....NO

Varicocele - NO
Varicose veins- NO

Other Examinations for Females:

Menarche..... yr. G. Para..... Menstrual irregularity if any

INVESTIGATIONS

(8) Lab Investigations:

Haemogram

Blood Group.....AB+..... Rh factor..... Hb..... 14.6 gm%
RBC4.47.....Platelet Count.....290
TLC.....6.05..... DLC: -

Renal profile

Blood Urea: ...18... S. Creatinine:0.88

Hepatic profile - S G O T...28. S G P T ...34. Alkaline Phosphat.. 82..... S. Bilirubin1.07

Lipid Profile:

Serum Cholesterol158.....Triglycerides.....147.....HDL.....39.....LDL.....86.....

Metabolic

Blood Sugar.....99.....Blood Sugar PP.....S. Uric Acid.....5.1

Urine: Albumin...NIL.....Sugar+.....Microscopy.....
Stool:

(10) Other Investigation

11) Pulmonary Function Test

	FCV	FEV 1	FEV 1/FVC
PREDICATED	4.12	3.55	81.99
MEASURED	3.90	3.82	97.95
% OF PREDICATED	94.61	107.64	119.46

12) Audiometry examination

PTA	Lt. Ear -15 dB	Rt. Ear-20 dB
Remark	NORMAL	

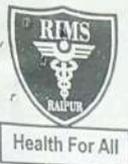
PTA of both ears at frequency Cycles/sec

13. Details of other specific medical examination carried out as mentioned in the respective schedules of 107 of C.G. Factory rules 1947-

For, Hira Petro Alloys Ltd.
 Factory Medical Officer
 Dr. Shyam Kumar Adapa
 (MBBS & AFIH)
 No. MC/FMR/90929

Signature (with date) of
Factory Medical Officer

Signature (with date)
Certifying surgeon



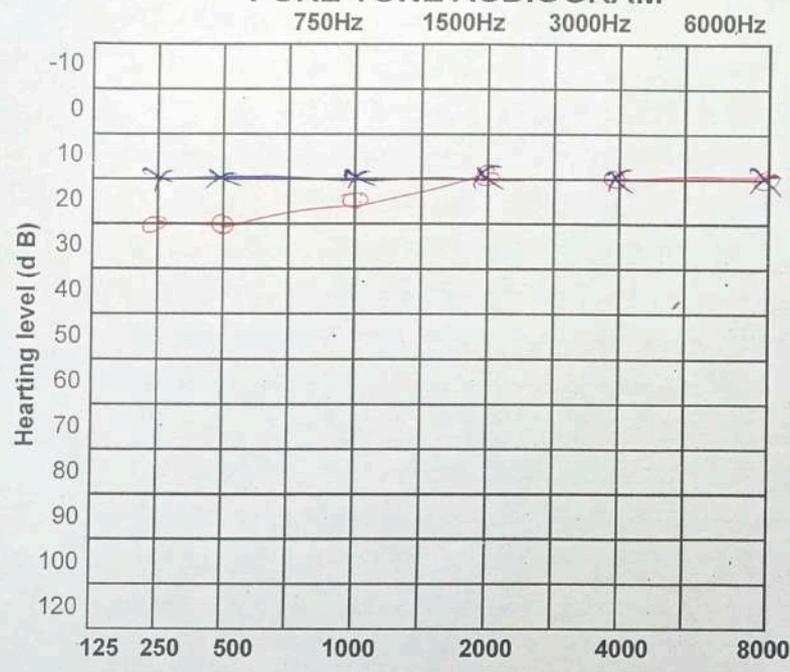
RAIPUR INSTITUTE OF MEDICAL SCIENCES

Bhansoj Road, Off. NH-6, Gram-Godhi, Raipur (C.G.)
 Tel.: 91-0771-3053060-87, Fax : 91-0771-3053088-89, www.rimsindia.ac.in
 Department of ENT

AUDIOLOGICAL EVALUATION

OPD No. Date 23/05/25 Audio No.
 Name Mr. Krishna Bhardi Age / Sex 29Y/M
 Address Ph. No. 911984826
 Tested by Audiometer Used Per/Post Treatment
 Complaint :-

PURE TONE AUDIOGRAM



KEY OF SYMBOLS

Right	Air Conditions	Left
Unmasked Three Hold	Masked Three Should	
No Response		
Unmasked Three Hold	Masked Three Should	
Bone Conducts		
Unmasked Three Hold	Masked Three Should	
No Response		
Unmasked Three Hold	Masked Three Should	
Sound Field		
Response	S	
No Response	S	
Audio Metric		

TEST	RINNE	WEBER	AUDIOMETRIC WEBER		
	T.F.T.	T.F.T.	500	1000	2000
EAR					
RT.					
LT.					

SPEECH AUDIOMETRY

	PTA (db HL)	SRT (db HL)	SDT (db HL)	SDS %	MCL	UCL
RIGHT EAR	<u>26dB</u>					
LEFT EAR	<u>15dB</u>					

TEST CONDITION

PROVISIONAL DIAGNOSIS :

Right Ear :- Normal hearing sensitivity
 Left Ear :- Normal hearing sensitivity
 Recommendation :-

Niti
DR. NITINWIRE ASHOK ZADBAJ
 REG NO-54603
 MBBS ENT
 DEPARTMENT - ENT
AUDIOLOGIST

Case number:

Name:MR KRISHNA BHARTI

Gender:Male

Age:29

Height:160 cm

Weight:55 kg

Smoke:No

BDT:No

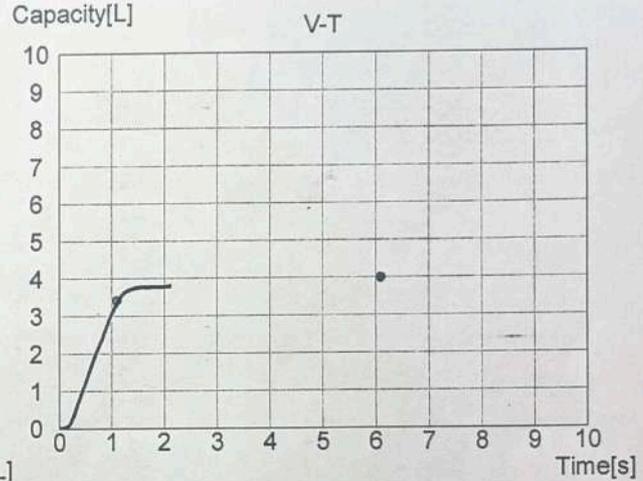
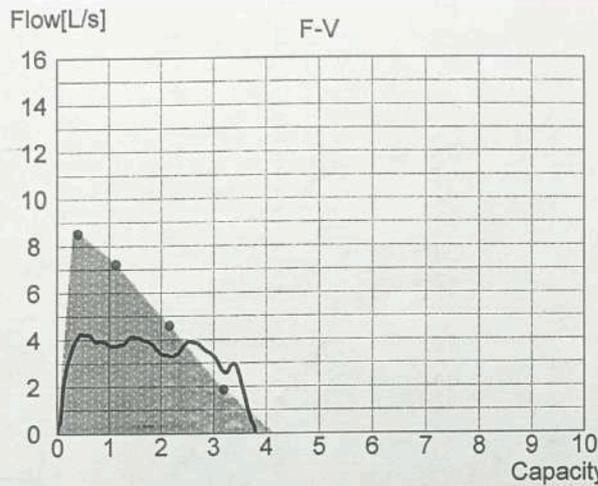
Equation:ECSC

Phone:

Test date:2025-05-23 15:01:16

Medical history:

Parameter	Unit	MEAS	PRED	PRED%	LLN	BDT diff	BDT rate
FVC	L	3.90	4.12	94.61%	3.12	-	-
FEV1	L	3.82	3.55	107.64%	2.71	-	-
FEV1/FVC	%	97.95	81.99	119.46%	70.20	-	-
PEF	L/s	4.60	8.73	52.71%	6.74	-	-
FEF2575	L/s	3.82	4.56	83.83%	2.85	-	-
FEF25	L/s	3.92	7.43	52.79%	4.61	-	-
FEF50	L/s	3.66	4.82	76.01%	2.64	-	-
FEF75	L/s	3.61	2.08	173.39%	0.80	-	-
EV	ml	103.00(2.64%FVC)	-	-	-	-	-
FET	s	2.13	6.00	35.50%	-	-	-
EOTV	ml	397.00	-	-	-	-	-
PEFT	ms	303.00	-	-	-	-	-



Test result: *spirometry all the parameter are normal*

Kambley
 DR. KAMBLEY RAMU WATUJI
 REG NO-MC-7520/2018
 MBBS MD
 DEPARTMENT-CHEST & PULMONARY

Operator:

Physician:

Reporting date: 2025-05-22

Device ID: PULMO022489



RAIPUR INSTITUTE OF MEDICAL SCIENCE

24 Hour Helpline

Bhansoj Road Off NH -6, Raipur 0771 - 3053060

PATIENT NAME	KRISHNA BHARTI	AGE/SEX	29Y/MALE
LAB NO.		PATIENT ID NO.	
REF BY DR.	RIMS	OPD/IPD NO.	
WARD		SAMPLE RECEIVING DATE	23-05-2025
SPECIMEN	SERUM	REPORT RELEASING DATE	23-05-2025

BIOCHEMISTRY REPORT

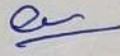
LIPID PROFILE- Test Name

Test Name	Observed Value	Reference Range
Total Cholesterol	158	Desirable <200 mg/dL Borderline High 200- 239 mg/dL High Risk >239 mg/dL
Triglycerides	147	Optimal <150 mg/dL Borderline High 150-199 mg/dL High 200-499 mg/dL Very high > 500 mg/dL
HDL Cholesterol	39	Male: 35-79.5 mg/dL, Female: 42-88 mg/dL
LDL Cholesterol	86	Optimal <100 mg/Dl Above Optimal 100-129 mg/Dl Borderline High 130-159 mg/Dl High 160-189 mg/Dl Very High >190 mg/Dl
Very Low Density Lipoproteins (VLDL)	29	20-40 mg/Dl
CHOL/HDL Ratio	4.0	3.3-4.4
LDL/HDL Ratio	2.2	0.5-3.0

Test done on random sample. kindly correlate clinically....!!


 Technician
 (Reports Checked by)




 Consultant
 Clinical biochemistry laboratory

Note: These reports are for assisting Doctors/Physicians in their Treatment and Not for Medico-legal purposes and should be correlated clinically.



RAIPUR INSTITUTE OF MEDICAL SCIENCES

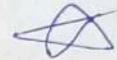
24 Hour Helpline, Health For All 0771 - 3268844,
Bhansoj Road, Off NH -6, Raipur

PATIENT NAME	KRISHNA BHARTI	AGE/SEX	29Y/MALE
LAB NO.		PATIENT ID NO.	
REF BY DR.	RIMS	OPD/IPD NO.	
WARD	CAMP	SAMPLE RECEIVING DATE	23/05/2025
SPECIMEN	BLOOD	REPORT RELEASING DATE	24/05/2025

HAEMATOLOGY REPORT

TEST NAME	OBSERVED VALUE	NORMAL VALUE
BLOOD GROUP & RH	"AB" POSITIVE	(Slides Method)

CHECKED BY 



ASSITANT PROFESSOR

Note: These reports are for assistent doctors/Physicians in their Treatment and Not for Medico-legal purposes and should be correlated clinically.

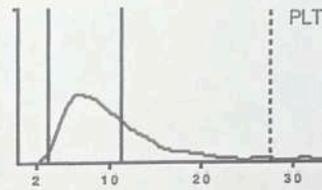
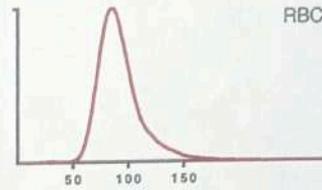
Teaching Hospital and Medical College

Results

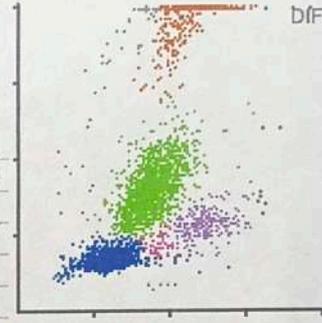
Run Date 24/05/2025 11:07:11 AM
 Last Name
 First Name KRISHNA BHARTI
 Gender Male Age 29 Y
 Patient ID AUTO_PID06913
 Date of birth
 Sample comments

Operator ABX
 Sample ID AUTO_SID0046
 Department
 Physician
 Type Man

			Range
RBC	4.47	10 ⁶ /μL	4.20 - 6.00
HGB	14.6	g/dL	13.0 - 17.0
HCT	42.6	%	39.0 - 52.0
MCV	95.4	μm ³	76.0 - 100.0
MCH	32.6	pg	26.0 - 34.0
MCHC	34.2	g/dL	32.0 - 35.0
RDW-CV	15.1	%	11.0 - 16.0
RDW-SD	52.9 h	μm ³	37.0 - 49.0
Range			
PLT	290	10 ³ /μL	150 - 400
PCT	0.28	%	0.15 - 0.40
MPV	9.8	μm ³	8.0 - 11.0
PDW	14.7	μm ³	11.0 - 22.0
P-LCC	86	10 ³ /μL	44 - 140
P-LCR	29.6	%	18.0 - 50.0



			Range
WBC	6.05	10 ³ /μL	3.50 - 10.00
	#	Range	%
NEU	2.70	1.60 - 7.00	45.0
LYM	2.29	1.00 - 3.00	37.9
MON	0.28	0.20 - 0.80	4.6
EOS	0.66 h	0.00 - 0.50	10.9 h
BAS	0.10	0.00 - 0.15	1.6
LIC	0.02	0.00 - 0.10	0.3



Alarms

Slide Review

- | | | |
|---------------------|---------------|-----------------|
| Neutrophil | Myeloblast | Anisocytosis |
| Lymphocyte | Promyelocyte | Hypochromia |
| Monocyte | Myelocyte | Polychromasia |
| Eosinophil | Metamyelocyte | Poikilocytosis |
| Basophil | Blast | Microcytosis |
| Atypical Lymphocyte | Target Cell | Macrocytosis |
| Other | Sickle Cell | Platelet Clumps |

Reviewed on _____ by _____



Signature:



RAIPUR INSTITUTE OF MEDICAL SCIENCES

Bhansoj Road Off NH-06 Village Godhi,
Raipur (C.G.), 492101, India

Tel: 1800-208-1088 ,Email - info@rimsindia.ac.in

DEPARTMENT OF PATHOLOGY

URINE REPORT

C.R. No. : 2305251150 /	Lab No : 20250524178	Collected : 24-05-2025
Name : MR. KRISHNA BHARTI	Age/Sex : 29 Year / M	Received : 24-05-2025
Guardian : S/O KUMAR		Reported : 24-05-2025
Department : General Medicine		

Tests	Result
Physical Examination	
Color	Pale Yellow
Volume	20
Appearance	Clear
Chemical Examination	
Albumin	NIL
Sugar	+
Ketone	-
Microscopic Examination	
Pus Cells	0 - 5
Epithelial Cells	0 - 5
RBC	Absent
Crystals	Absent
Bacteria	Absent
Cast	-
Others	-

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

Technician



Print Date : 24/5/2025

Consultant Pathologist

This is a professional opinion and can not be used for medico legal purposes.



DEPARTMENT OF MICROBIOLOGY

Patient's Name	KRISHNA BHARTI	AGE/SEX	29Y/MALE
Lab No		PATIENT ID	
Ref by Dr.	RIMS	OPD /IPD:	
Ward	CAMP	Sample Receiving Date	23/05/2025
Specimen	Serum	Report Releasing Date	24/05/2025

SEROLOGICAL TEST REPORT

S. No.	TEST	METHOD	RESULT
31.	ASO Titer	Latex Agglutination Test	
2.	CRP	Quantative Test	
3.	RA Factor	Latex Agglutination Test	
4	Dengue Test	Rapid Card Test	
5.	Widal Test	Slide Agglutination Test	
6.	Direct Coombs Test	Agglutination Test	
7.	In-direct Coombs Test	Agglutination Test	
8.	VDRL Antigen Test	Rapid Card Test	
9.	HbsAg	Rapid Card Test	NON-REACTIVE
10.	Anti-HCV	Rapid Card Test	
11.	HIV 1 &2	Rapid Card Test	

Please Note:-Kindly correlate clinically.



[Signature]
MICROBIOLOGIST



RAIPUR INSTITUTE OF MEDICAL SCIENCES

Bhansoj Road Off NH -6, Raipur 0771 - 3053060

24 Hour Helpline

PATIENT NAME	KRISHNA BHARTI	AGE/SEX	29Y/MALE
LAB NO.		PATIENT ID NO.	
REF BY DR.	RIMS	OPD/IPD NO.	
WARD		SAMPLE RECEIVING DATE	23-04-2025
SPECIMEN	SERUM	REPORT RELEASING DATE	23-04-2025

BIOCHEMISTRY REPORT

LIVER FUNCTION TEST

Test Name	Observed Value	Reference Range
Bilirubin Total	1.07	Upto 1.2 mg/dl
Bilirubin Direct	0.37	Upto 0.4 mg/dL
Bilirubin Indirect	0.70	0.2-0.8 mg/dL
S.G.O.T. (AST)	28	M:Upto 35 & F:Upto 31 IU/L
S.G.P.T. (ALT)	34	M:Upto 45 & F:Upto 34 IU/L
Alkaline Phosphatase	82	53-128 IU/L
S. LDH		2-12yrs: 180-360 & 12-60 yrs: 125-220 IU/L

SERUM PROTEINS

Total Protein	6.0-8.0 g/dL
Serum Albumin	3.5-5.5 g/dL
Serum Globulin	2.5-3.5 g/dL
A:G Ratio	1.2-1.5:1

RENAL FUNCTION TEST

B.Urea	18	15-40 mg/dL
S.Creatinine	0.88	F: 0.6-1.2 & M: 0.7-1.4 mg/dL
Uric Acid	5.1	F: 2.6-6.0 & M: 3.5-7.2 mg/dL

Calcium	9.0-11.0 mg/dL
Phosphorus	2.5-4.5 mg/dL
Magnesium	1.8-2.2 mg/dl

PANCREATIC FUNCTION TEST

S. Lipase	Upto 60 U/L
S. Amylase	Upto 80 U/L

BLOOD GLUCOSE

Blood Glucose, Random	99	70-140 mg/dL
Blood Glucose, Fasting		70-100 mg/dL
Blood Glucose, Post-Prandial		100-140 mg/dL

SERUM ELECTROLYTES

S. Sodium (Na ⁺)	135-145 mmol/L
S. Potassium (K ⁺)	3.5-5.0 mmol/L
S. Ca ⁺⁺	1.3-1.5 mmol/L
Iron	ug/dl

Kindly correlate clinically!!!s

Technician
(Reports checked by)



Consultant
Clinical biochemistry laboratory

Note: These reports are for assisting Doctor/Physicians in their Treatment and Not for Medico-legal purposes and should be correlated clinically.



DEPARTMENT OF BIOCHEMISTRY

PATIENT NAME	MR KRISHNA BHARTI	AGE/SEX	29Y/M
LAB NO.		PATIENT ID NO.	
REF BY DR.	RIMS	OPD/IPD NO.	
WARD		SAMPLE RECEIVING DATE	23/04/2025
SPECIMEN	BLOOD	REPORT RELEASING DATE	23/04/2025

BLOOD SUGAR FASTING & PP

INVESTIGATION	RESULT	REFERENCE RANGE
Sample Type		
FASTING BLOOD SUGAR	105	70-100 mg/dL
BLOOD SUGAR PP	125	100-140 mg/dL

Clinical Note :

Elevated glucose levels (hyperglycemia) are the most often encountered clinical in the setting of diabetes mellitus but they may also occur with pancreatic neoplasms , hyperthyroidism and adrenocortical dysfunction. Decreased glucose levels (hypoglycemia) may result from endogenous or exogenous insulin excess, prolonged starvation, or liver disease

Fasting glucose	2 hours pp glucose	Diagnosis
<100	<140	Normal
100 to 125	140 to 199	Pre diabetes
>126	>200	Diabetes

A level of 126 mg/dL or above , confirmed by repeating the test on another day , means a person has diabetes IGT (2 hrs post meal), means a person has an increased risk of developing type 2 diabetes but does not have it yet a 2 hour glucose level of 200 mg/dL or above , confirmed by repeating the test on another day , means a person has diabetes

-----End of report -----

Technician
(Reports checked by)

consultant
clinical biochemistry laboratory

NOTE-These reports are for assisting doctors in their treatment and not for medico-legal purposes and should be correlated clinically



Health For All

RIMS HOSPITAL URLA

(A unit of LORD BUDDHA EDUCATIONAL SOCIETY)

PT. NAME : MR. KRISH BHARTI
PATIENT ID : RIMS/
REF. DR. / DEPT : RIMS HOSPITAL, URLA (OPD)
AGE / SEX: 29 Y / M
DATE: 23.05.2025

SONOGRAPHY OF WHOLE ABDOMEN

LIVER: The liver is normal in size, shape and has smooth margins. It is uniformly isoechoic with normal echotexture. No SOL is seen. Intra-hepatic biliary radicals are not dilated.

GALL BLADDER: The gall bladder is well distended. No intra-luminal calculi or mass lesion is seen. Its wall thickness is normal.

COMMON BILE DUCT & PORTAL VEIN: The common bile duct is normal in caliber. No calculi are seen in it. The portal vein is normal in calibre and course.

SPLEEN: The spleen is normal in size and shape. Its echotexture is homogeneous. No evidence of focal lesion is noted.

PANCREAS: The pancreas is obscured due to bowel gases.

KIDNEYS: Both kidneys have normal cortical echotexture and have smooth margins. Cortico-medullary differentiation is maintained.

Right kidney measures ~ 9.5 x 3.5 cms. No calculus or hydronephrosis seen in right kidney.

Left kidney measures ~ 9.6 x 4.9 cms. No calculus or hydronephrosis seen in left kidney.

URINARY BLADDER: The urinary bladder is empty.

PROSTATE: The could not be visualized.

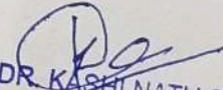
No free fluid is seen in the peritoneal cavity at the time of examination.

PROVISIONAL IMPRESSION :

- No significant abnormality detected.

ADVISED: Clinical correlation.

RESIDENT DOCTOR


DR. KASHI NATH SARKAR
REG NO-C G M C 3357/2011
MBBS
DEPARTMENT - RADIOLOGY

RIMS Rural Health & Training Center (RH&TC) Industrial Corporation Building,
Near Axis Bank, Urla, Dist.-Raipur, Pin - 492003, Contact Number - 91091-90902

Medical College (Main Campus) - Raipur Institute Of Medical Sciences (750 Bedded
Hospital & Medical College) at Bhansoj Road . Off, NH-06, Village-Godhi, Raipur (C.G.),
Mob. No.-9109190914, 9303081217 Fax : 0771-3053089, www.rimsindia.ac.in



RIMS HOSPITAL URLA

(A unit of LORD BUDDHA EDUCATIONAL SOCIETY)

Health For All

PT. NAME : MR. KRISHNA BHARTI
PATIENT ID : RIMS/
REF. DR. / DEPT : RIMS HOSPITAL, URLA (OPD)

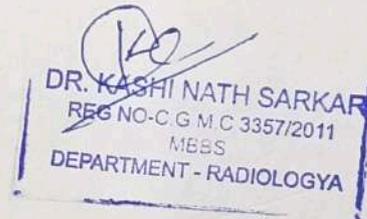
AGE / SEX: 29 Y/M
DATE: 23-05-2025

X RAY CHEST (PA VIEW)

- Trachea is central.
- Lung fields are clear bilaterally.
- No evidence of consolidation, collapse, or effusion.
- Cardiac silhouette is normal in size and contour.
- Mediastinal contours are normal.
- Diaphragmatic domes are normal in position and outline.
- Costophrenic angles are sharp.
- Bony thorax appears intact, no fractures seen.

ADVISED: Clinical correlation.

RESIDENT DOCTOR

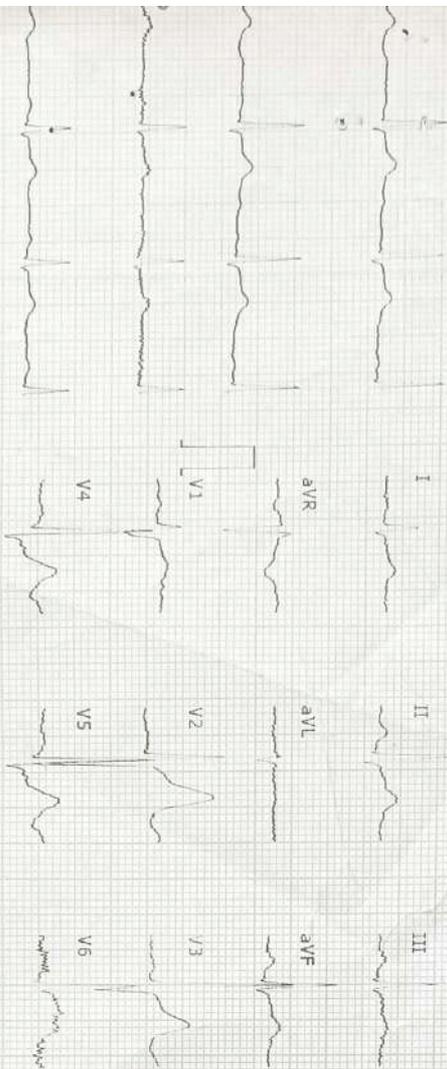


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Mob. No.-9109190914, 9303081217 Fax : 0771-3053089, www.rimsindia.ac.in

CARDIART

25mm/s



2025-5-23 11:50:53

ID: 00002337

BpL

ID Card:
 Name: **Krishna**
 Age: **29y**
 Weight(kg): /
 Gender: **male**
 Height(cm): /
 BP(mmHg): /

<< Conclusion >>
 801 Sinus Rhythm
 ** NORMAL ECG **

HR: 79 bpm
 P-R: 163 ms
 Q-R-S: 113 ms
 QT/QTc: 366/420 ms
 P/QRS/T AXES: 69/68/89 deg
 R/S/SV1: 1.66/1.00 mV
 R/S+SV1: 1.66/1.00 mV

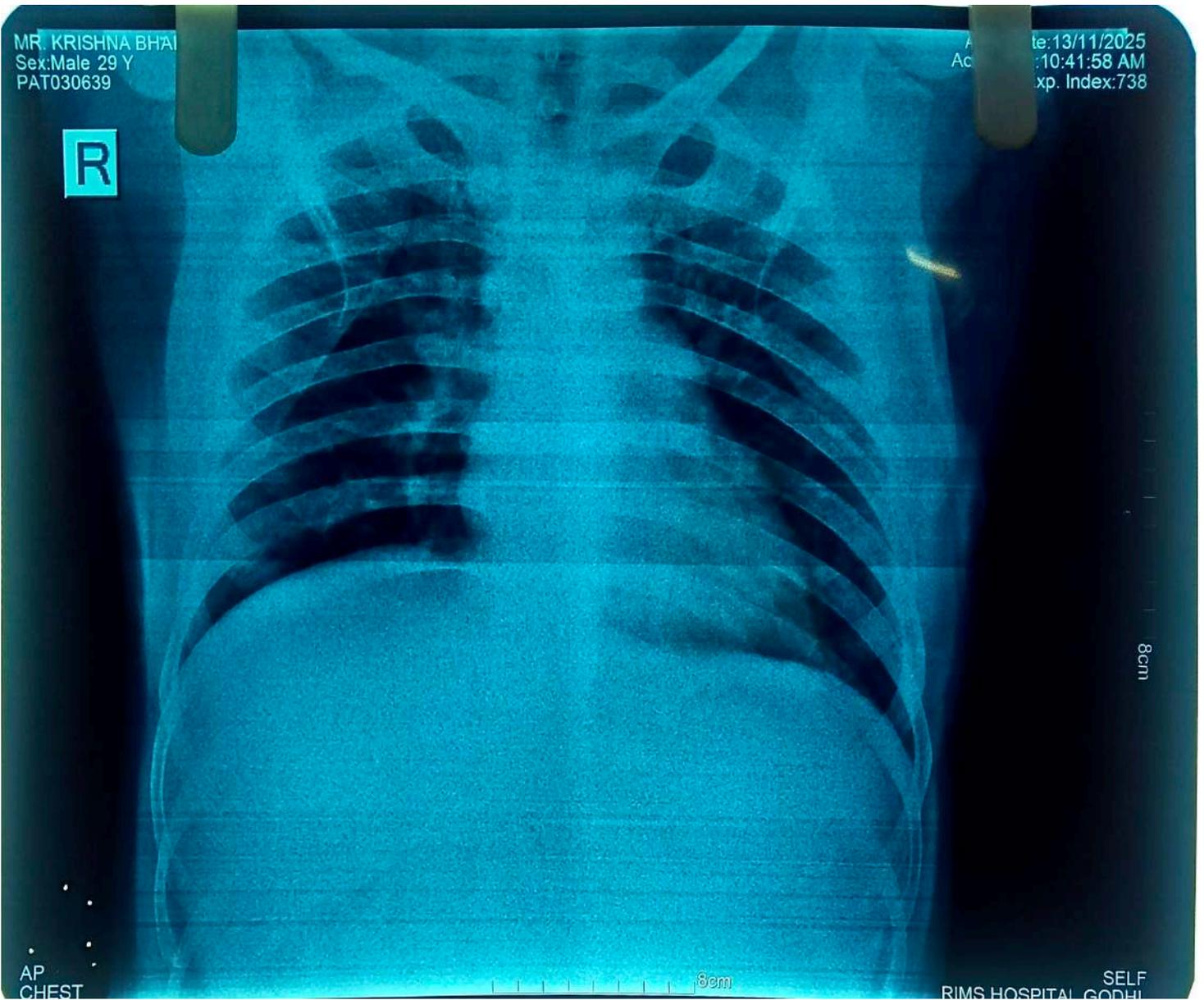
*The result must be confirmed by doctor!
 Report Confirmed by: RAMKRISHNA

Dr. Ravi K. Srinivasan
 MD Medicine
 Reg. No - CGMC 46312005
 Rajarajeswari Institute of Medical Sciences

MR. KRISHNA BHAI
Sex: Male 29 Y
PAT030639

Acquired: 13/11/2025
Time: 10:41:58 AM
Exp. Index: 738

R



AP
CHEST

8cm

SELF
RIMS HOSPITAL GODHI

8cm

Form 21
[Prescribed under Rule (19)]
Health Register

(In respect of persons employed in occupations declared to be dangerous operations under Section 87)

Name of Worker MUKESH SAHU Age/ Sex 32Y/M
Name of Company... HIRA FERRO ALLOYS LTD..... Employee Code..... 302250.....
Nature of occupation..... ELECTRICAL Date..... 02/05/2025..... Annexure

PRE-EMPLOYMENT & PERIODIC MEDICAL EXAMINATION

(1) GENERAL EXAMINATION:

Height 163 cm, Weight 75 kg. BMI 28.2 Chest
Inspiration ... 88... cm, Expiration... 83 cm
Throat... NORMAL... Tongue... MOIST... Tonsils... N/A.....
Teeth NORMAL..... Gums..... NORMAL.....
Thyroid..... NORMAL.....
Lymph nodes..... NORMAL.....
Additional finding..... N/A.....

(2) CARDIO-VASCULAR SYSTEM:

Pulse 95 mt. Regular/Irregular Peripheral Pulse-felt/not felt
BP 125/80 min Hg Heart Sound: . NORMAL.....
Murmur, If any... NO..... Additional finding (s), if any NO.....

(3) RESPIRATORY SYSTEM:

OO Shape of Chest: .. NORMAL..... Tubular..... Chest movements: **Symmetrical**
..... Trachea..... **Centrally**..... Breath sound **Vesularic**

(4) GASTRO-INTESTINAL SYSTEM:

Liver..... NP..... Spleen..... NP.....
Any abdominal lumps: NO

(5) EXAMINATION OF EYES:

External Exam -NORMAL... Squint: NO.....
Nystagmus: NO..... Fundus L/R
Night Blindness..... NO.....
Colour vision- Normal
Individual colour identification- Normal

Distance vision (without glasses) Right.. 6/6.... Left...
... 6/6.. (with glasses) Right..... Left
.....

Near-vision (without glasses) Right..... N/6.....
Left..... N/6... (with glasses) Right Left.....

(6) EXAMINATION OF EAR NOSE & THROAT:

External Examination: NAD.....

(7) GENITO URINARY SYSTEM:

Hernia - NO..... Hydrocele- NO
Cryptorchidism-NO Phimosis.....NO
Signs of STD.....NO
Varicocele - NO
Varicose veins- NO

Other Examinations for Females:

Menarche.....yr. G. Para.....Menstrual irregularity..... if any

INVESTIGATIONS

(8) Lab Investigations:

Haemogram

Blood Group.....AB..... Rh factor....POSITIVE..... Hb15.9 gm%
RBC4.63.....Platelets Count...302
TLC- .5.96 DLC: - N-66.9, L-26.7,E-1.8, M-3.8,
B-0.05

Renal profile

Blood Urea: ...22... S. Creatinine:0.82

Hepatic profile - S G O T ...15.... S G P T ...18. Alkaline Phosphate 67...S. Bilirubin 0.58

Lipid Profile:

Serum Cholesterol156.....Triglycerides.....122.....HDL...34.7.....LDL.....97.....

Metabolic

Blood Sugar.....115.....Blood Sugar PP 129 S. Uric Acid

Urine: Albumin...NIL.....**Sugar** ...NIL.....**Microscopy**.....
Stool:

(10) Other Investigation

11) Pulmonary Function Test

	FCV	FEV 1	FEV 1/ FVC
PREDICATED	4.22	3.59	81.45
MEASURED	3.44	2.46	71.51
% OF PREDICATED	81.58	68.50	87.80

12) Audiometry examination

PTA	Lt. Ear-15dB	Rt. Ear-15dB
Remark	NORMAL	

PTA of both ears at frequency Cycles/sec

13. Details of Other specific medical examination carried out as mentioned in the respective schedules of 107 of C.G. Factory rules 1962-

For, Hira Ferro Alloys Ltd.

Factory Medical Officer

Dr. Sanyam Kumar Adapa
Factory Medical Officer
(MBBS & AFTH)

Signature (with date)
Certifying surgeon

No. : APMC/FMR/90920



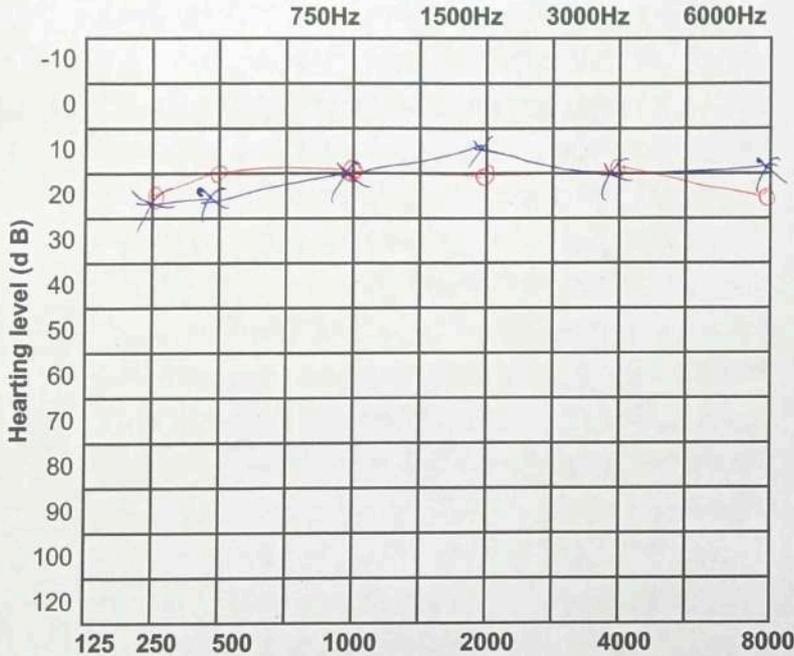
RAIPUR INSTITUTE OF MEDICAL SCIENCES

Bhansoj Road, Off. NH-6, Gram-Godhi, Raipur (C.G.)
 Tel.: 91-0771-3053060-87, Fax : 91-0771-3053088-89, www.rimsindia.ac.in
 Department of ENT

AUDIOLOGICAL EVALUATION

OPD No. Date 02/05/20 Audio No.
 Name Mr. Mukesh Sahu Age / Sex 32y/M
 Address Ph. No. 8269477128
 Tested by Audiometer Used Per/Post Treatment
 Complaint :-

PURE TONE AUDIOGRAM



KEY OF SYMBOLS

Right	Air Conditions	Left
Unmasked Three Hold		
Masked Three Should		
No Response		
Unmasked Three Hold		
Masked Three Should		
Bone Conducts		
Unmasked Three Hold		
Masked Three Should		
No Response		
Unmasked Three Hold		
Masked Three Should		
Sound Field		
Response		S
No Response		S
Audio Metric		

TEST	RINNE	WEBER	AUDIOMETRIC WEBER		
	T.F.T.	T.F.T.	500	1000	2000
EAR					
RT.					
LT.					

SPEECH AUDIOMETRY

	PTA (db HL)	SRT (db HL)	SDT (db HL)	SDS %	MCL	UCL
RIGHT EAR	15 dB					
LEFT EAR	15 dB					

TEST CONDITION

PROVISIONAL DIAGNOSIS :

Right Ear :- slight hearing sensitivity

Left Ear :- slight hearing sensitivity

Recommendation :-

DR. NITIN
 DR. NITIN WARE ASHOK ZADBA
 REG. NO. 4503
 DL.
 DE.

AUDIOLOGIST

Case number:

Name: MUKESH SAHU

Gender: Male

Age: 32

Height: 163 cm

Weight: 75 kg

Smoke: No

BDT: No

Equation: ECSC

Phone:

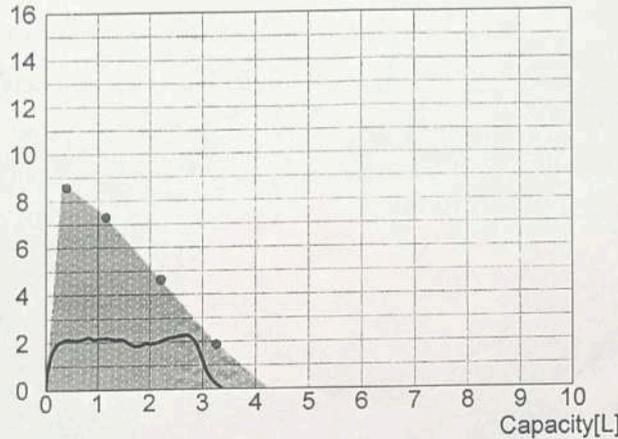
Test date: 2025-05-01 14:27:44

Medical history:

Parameter	Unit	MEAS	PRED	PRED%	LLN	BDT diff	BDT rate
FVC	L	3.44	4.22	81.58%	3.21	-	-
FEV1	L	2.46	3.59	68.50%	2.75	-	-
FEV1/FVC	%	71.51	81.45	87.80%	69.66	-	-
PEF	L/s	2.45	8.78	27.90%	6.79	-	-
FEF2575	L/s	2.08	4.49	46.36%	2.78	-	-
FEF25	L/s	2.25	7.50	29.99%	4.69	-	-
FEF50	L/s	1.91	4.84	39.50%	2.66	-	-
FEF75	L/s	2.25	2.08	108.05%	0.80	-	-
EV	ml	257.00(7.47%FVC)	-	-	-	-	-
FET	s	3.24	6.00	54.00%	-	-	-
EOTV	ml	89.00	-	-	-	-	-
PEFT	ms	1359.00	-	-	-	-	-

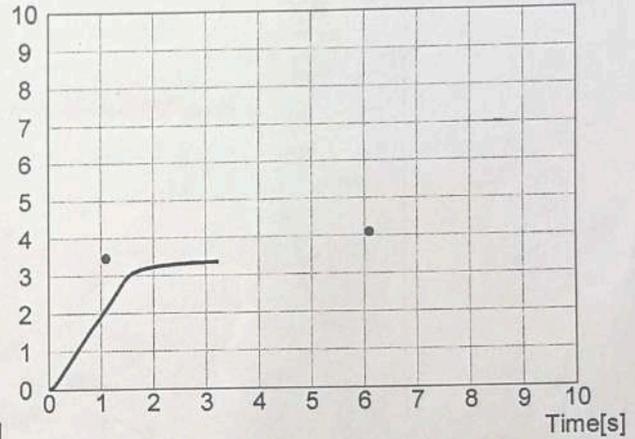
Flow[L/s]

F-V



Capacity[L]

V-T



Test result:

Spirometry all the parameter are Normal

Dr. Kambley

DR. KAMBLEY RAJESHWARI

REG. NO. 12345

M.B.B.S., M.D.

DEPARTMENT CHEST & PULMONARY

Operator:

Physician:

Reporting date: 2025-04-29

Device ID: PULMO022489



RAIPUR INSTITUTE OF MEDICAL SCIENCE

Bhansoj Road Off NH -6, Raipur 0771 - 3053060

24 Hour Helpline

PATIENT NAME	MUKESH KUMAR SAHU	AGE/SEX	32Y/MALE
LAB NO.		PATIENT ID NO.	
REF BY DR.	RIMS	OPD/IPD NO.	
WARD	URLA PATIENT	SAMPLE RECEIVING DATE	01-05-2025
SPECIMEN	SERUM	REPORT RELEASING DATE	02-05-2025

BIOCHEMISTRY REPORT

LIPID PROFILE-

Test Name	Observed Value	Reference Range
Total Cholesterol	156	Desirable <200 mg/dL Borderline High 200- 239 mg/dL High Risk >239 mg/dL
Triglycerides	122	Optimal <150 mg/dL Borderline High 150-199 mg/dL High 200-499 mg/dL Very high > 500 mg/dL
HDL Cholesterol	34.7	Male: 35-79.5 mg/dL, Female: 42-88 mg/dL
LDL Cholesterol	97	Optimal <100 mg/Dl Above Optimal 100-129 mg/Dl Borderline High 130-159 mg/Dl High 160-189 mg/Dl Very High >190 mg/Dl
Very Low Density Lipoproteins (VLDL)	24	20-40 mg/Dl
CHOL/HDL Ratio	4.49	3.3-4.4
LDL/HDL Ratio	2.79	0.5-3.0

Test done on random sample. kindly correlate clinically...!!



Consultant
Clinical biochemistry laboratory

Note: These reports are for assisting Doctors/Physicians in their Treatment and Not for Medico-legal purposes and should be correlated clinically.



DEPARTMENT OF MICROBIOLOGY

Patient's Name	MUKESH SAHU	Age /Sex	32Y/MALE
Lab No		PATIENT ID	
Ref by Dr.	RIMS	OPD /IPD:	
Ward	CAMP	Sample Receiving Date	01/05/2025
Specimen	Serum	Report Releasing Date	02/05/2025

SEROLOGICAL TEST REPORT

S. No.	TEST	METHOD	RESULT
1.	ASO Titer	Latex Agglutination Test	
2.	CRP	Quantative Test	
3.	RA Factor	Latex Agglutination Test	
4.	Dengue Test	Rapid Card Test	
5.	Widal Test	Slide Agglutination Test	
6.	Direct Coombs Test	Agglutination Test	
7.	In-direct Coombs Test	Agglutination Test	
8.	VDRL Antigen Test	Rapid Card Test	
9.	HbsAg	Rapid Card Test	NON-REACTIVE
10.	Anti-HCV	Rapid Card Test	
11.	HIV 1 &2	Rapid Card Test	

Please Note:-Kindly correlate clinically.



MICROBIOLOGIST



RAIPUR INSTITUTE OF MEDICAL SCIENCES

Bhansoj Road Off NH -6, Raipur 0771 - 3053060

24 Hour Helpline

PATIENT NAME	MOHESH SAHU	AGE/SEX	32Y/MALE
LAB NO.		PATIENT ID NO.	
REF BY DR.	RIMS	OPD/IPD NO.	
WARD		SAMPLE RECEIVING DATE	01-05-2025
SPECIMEN	SERUM	REPORT RELEASING DATE	01-05-2025

BIOCHEMISTRY REPORT

LIVER FUNCTION TEST

Test Name	Observed Value	Reference Range
Bilirubin Total	0.58	Upto 1.2 mg/dl
Bilirubin Direct	0.24	Upto 0.4 mg/dL
Bilirubin Indirect	0.34	0.2-0.8 mg/dL
S.G.O.T. (AST)	15	M:Upto 35 & F:Upto 31 IU/L
S.G.P.T. (ALT)	18	M:Upto 45 & F:Upto 34 IU/L
Alkaline Phosphatase	67	53-128 IU/L
S. LDH		2-12yrs: 180-360 & 12-60 yrs: 125-220 IU/L

SERUM PROTEINS

Total Protein		6.0-8.0 g/dL
Serum Albumin		3.5-5.5 g/dL
Serum Globulin		2.5-3.5.g/dL
A:G Ratio		1.2-1.5:1

RENAL FUNCTION TEST

B.Urea	22	15-40 mg/dL
S.Creatinine	0.82	F: 0.6-1.2 & M: 0.7-1.4 mg/dL
Uric Acid	3.7	F: 2.6-6.0 & M: 3.5-7.2 mg/dL

Calcium		9.0-11.0 mg/dL
Phosphorus		2.5-4.5 mg/dL
Magnesium	1.63	1.8-2.2 mg/dl

PANCREATIC FUNCTION TEST

S. Lipase		Upto 60 U/L
S. Amylase		Upto 80 U/L

BLOOD GLUCOSE

Blood Glucose, Random	115	70-140 mg/dL
Blood Glucose, Fasting		70-100 mg/dL
Blood Glucose, Post-Prandial		100-140 mg/dL

SERUM ELECTROLYTES

S. Sodium (Na ⁺)		135-145 mmol/L
S. Potassium (K ⁺)		3.5-5.0 mmol/L
S. Ca ⁺⁺		1.3-1.5 mmol/L
Iron		ug/dl

Kindly correlate clinically !!s



Consultant
Clinical biochemistry laboratory

Note: These reports are for assisting Doctors/Physicians in their Treatment and Not for Medico-legal purposes and should be correlated clinically.



DEPARTMENT OF BIOCHEMISTRY

PATIENT NAME	MR MUKESH SAHU	AGE/SEX	32Y/M
LAB NO.		PATIENT ID NO.	
REF BY DR.	RIMS	OPD/IPD NO.	
WARD		SAMPLE RECEIVING DATE	02/05/2025
SPECIMEN	BLOOD	REPORT RELEASING DATE	02/05/2025

BLOOD SUGAR FASTING & PP

INVESTIGATION	RESULT	REFERENCE RANGE
Sample Type		
FASTING BLOOD SUGAR	95	70-100 mg/dL
BLOOD SUGAR PP	129	100-140 mg/dL

Clinical Note :

Elevated glucose levels (hyperglycemia) are the most often encountered clinical in the setting of diabetes mellitus but they may also occur with pancreatic neoplasms , hyperthyroidism and adrenocortical dysfunction. Decreased glucose levels (hypoglycemia) may result from endogenous or exogenous insulin excess, prolonged starvation, or liver disease

Fasting glucose	2 hours pp glucose	Diagnosis
<100	<140	Normal
100 to 125	140 to 199	Pre diabetes
>126	>200	Diabetes

A level of 126 mg/dL or above , confirmed by repeating the test on another day , means a person has diabetes IGT (2 hrs post meal), means a person has an increased risk of developing type 2 diabetes but does not have it yet a 2 hour glucose level of 200 mg/dL or above , confirmed by repeating the test on another day , means a person has diabetes

-----End of report -----

Technician
(Reports checked by)

consultant
clinical biochemistry laboratory

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Tel: 1800-208-1088 ,Email - info@rimsindia.ac.in , http://rimsindia.ac.in

DEPARTMENT OF PATHOLOGY HAEMATOLOGY REPORT

C.R. No. : 010525111/	Lab No : 20250501744	Collected : 02-05-2025
Name : MR. MUKESH SAHU	Age/Sex : 32 Year / M	Received : 02-05-2025
Guardian : S/O SAHU		Reported : 02-05-2025
Department : General Medicine	Select	/

Tests	Result	Units	Ref. Interval
CBC(Complete Haemogram)			
HB (Hemoglobin) SLS	15.9	gm/dl	13.0 - 17.0
TLC (Total Leucocytes Count) Electrical Impedance/ Flow Cytometry	5.96	10 ³ /μL	3.5 - 10
DLC (Differential Leucocytes Count) Flow Cytometry	-		-
Neutrophils Flow Cytometry/DC Detection	66.9	%	40 - 75
Lymphocytes Flow Cytometry/DC Detection	26.7	%	20 - 40
Eosinophils Flow Cytometry/DC Detection	1.8	%	01 - 06
Monocytes Flow Cytometry/DC Detection	3.8	%	02 - 10
Basophils Flow Cytometry/DC Detection	0.05	%	00 - 01
MCV Calculated	104.8 H	fl	80 - 100
MCHC Calculated	32.8	g/dl	31 - 37
RDW-CV Hydro Dynamic Focussing / DC Detection	15.4 H	%	11.6 - 14.0
Platelet Count Hydro Dynamic Focussing / DC Detection	302	10 ³ /μL	150 - 400
HCT Flow Cytometry/DC Detection	48.6	%	40 - 51
MCH Calculated	34.4 H	pg	26 - 34
RBC Count Hydro Dynamic Focussing / DC Detection	4.63	million/mm ³	4.0 - 5.2



Ford
Pathologist

--- END OF REPORT ---



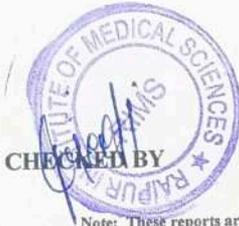
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24 Hour Helpline, Health For All 0771 - 3268844,
Bhansoj Road, Off NH -6, Raipur

PATIENT NAME	MUKESH SAHU	AGE/SEX	32Y/MALE
LAB NO.		PATIENT ID NO.	
REF BY DR.	RIMS	OPD/IPD NO.	
WARD	URLA	SAMPLE RECEIVING DATE	01/05/2025
SPECIMEN	BLOOD	REPORT RELEASING DATE	01/05/2025

HÆMATOLOGY REPORT

TEST NAME	OBSERVED VALUE	NORMAL VALUE
BLOOD GROUP & RH	"AB" POSITIVE	(Slides Method)



Ford
ASSITANT PROFESSOR

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Teaching Hospital and Medical College



RIMS HOSPITAL URLA

(A unit of LORD BUDDHA EDUCATIONAL SOCIETY)

Health For All

PT. NAME : MR.MUKESH KUMAR SAHU AGE / SEX: 32Y / M
PATIENT ID : RIMS/ DATE: 09.05.2025
REF. DR. / DEPT : RIMS HOSPITAL, URLA (OPD)

SONOGRAPHY OF WHOLE ABDOMEN

LIVER: The liver is normal in size, shape and has smooth margins. It is uniformly isoechoic with normal echotexture. No SOL is seen. Intra-hepatic biliary radicals are not dilated.

GALL BLADDER: The gall bladder is contracted.

COMMON BILE DUCT & PORTAL VEIN: The common bile duct is normal in caliber. No calculi are seen in it. The portal vein is normal in calibre and course.

SPLEEN: The spleen is normal in size and shape. Its echotexture is homogeneous. No evidence of focal lesion is noted.

PANCREAS: The pancreas is normal in size, shape, contours and echotexture. No evidence of solid or cystic mass lesion is noted.

KIDNEYS: Both kidneys have normal cortical echotexture and have smooth margins. Cortico-medullary differentiation is maintained.

Right kidney measures ~ 8.8x4.4 cms. No calculus or hydronephrosis seen in right kidney.

Left kidney measures ~ 9.7x4.8 cms. No calculus or hydronephrosis seen in left kidney.

URINARY BLADDER: The urinary bladder is minimally distended. It shows uniformly thin walls and sharp mucosa. No intra-luminal calculus or diverticulum is seen.

PROSTATE: The prostate is normal in size and measures ~ 10cc in volume. No focal lesion seen.

No free fluid is seen in the peritoneal cavity at the time of examination.

PROVISIONAL IMPRESSION :

- No significant abnormality detected.

ADVISED: Clinical correlation.

DR.KASHINATH SARKAR
MBBS, MD RADIODIAGNOSIS

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PATIENT NAME	MUKESH SAHU	AGE/SEX	32Y/MALE
LAB NO.		PATIENT ID NO.	
REF BY DR.	RIMS	OPD/IPD NO.	
WARD	URLA	SAMPLE RECEIVING DATE	01/05/2025
SPECIMEN	URINE	REPORT RELEASING DATE	01/05/2025

PHYSICAL EXAMINATION

VOLUME : 20 ML
COLOUR : PALE YELLOW
APPEARANCE : CLEAR

CHEMICAL EXAMINATION

ALBUMIN : NIL
SUGAR : NIL

MICROSCOPIC EXAMINATION

PUS CELLS : 1-2 /HPF
EPITHELIAL CELL : 0-1 /HPF
RBC : ABSENT
CRYSTAL : ABSENT
BACTERIA : ABSENT
CAST : ABSENT
OTHERS : ABSENT



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For d
ASSITANT PROFESSOR

Teaching Hospital and Medical College



RIMS HOSPITAL URLA

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PATIENT ID : RIMS/
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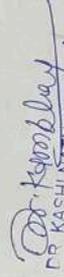
AGE / SEX: 32Y / M
DATE: 10-05-2025

X RAY CHEST (PA VIEW)

- Trachea is central.
- Lung fields are clear bilaterally.
- No evidence of consolidation, collapse, or effusion.
- Cardiac silhouette is normal in size and contour.
- Mediastinal contours are normal.
- Diaphragmatic domes are normal in position and outline.
- Costophrenic angles are sharp.
- Bony thorax appears intact, no fractures seen.

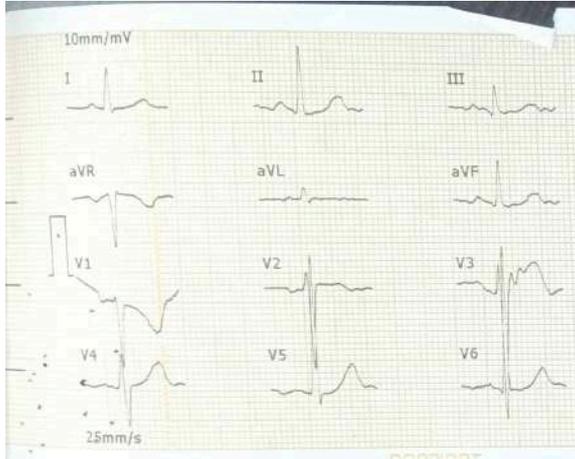
ADVISED: Clinical correlation.

RESIDENT DOCTOR


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REG NO. C.G.M.C 335720
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DEPARTMENT - RADIOLOG

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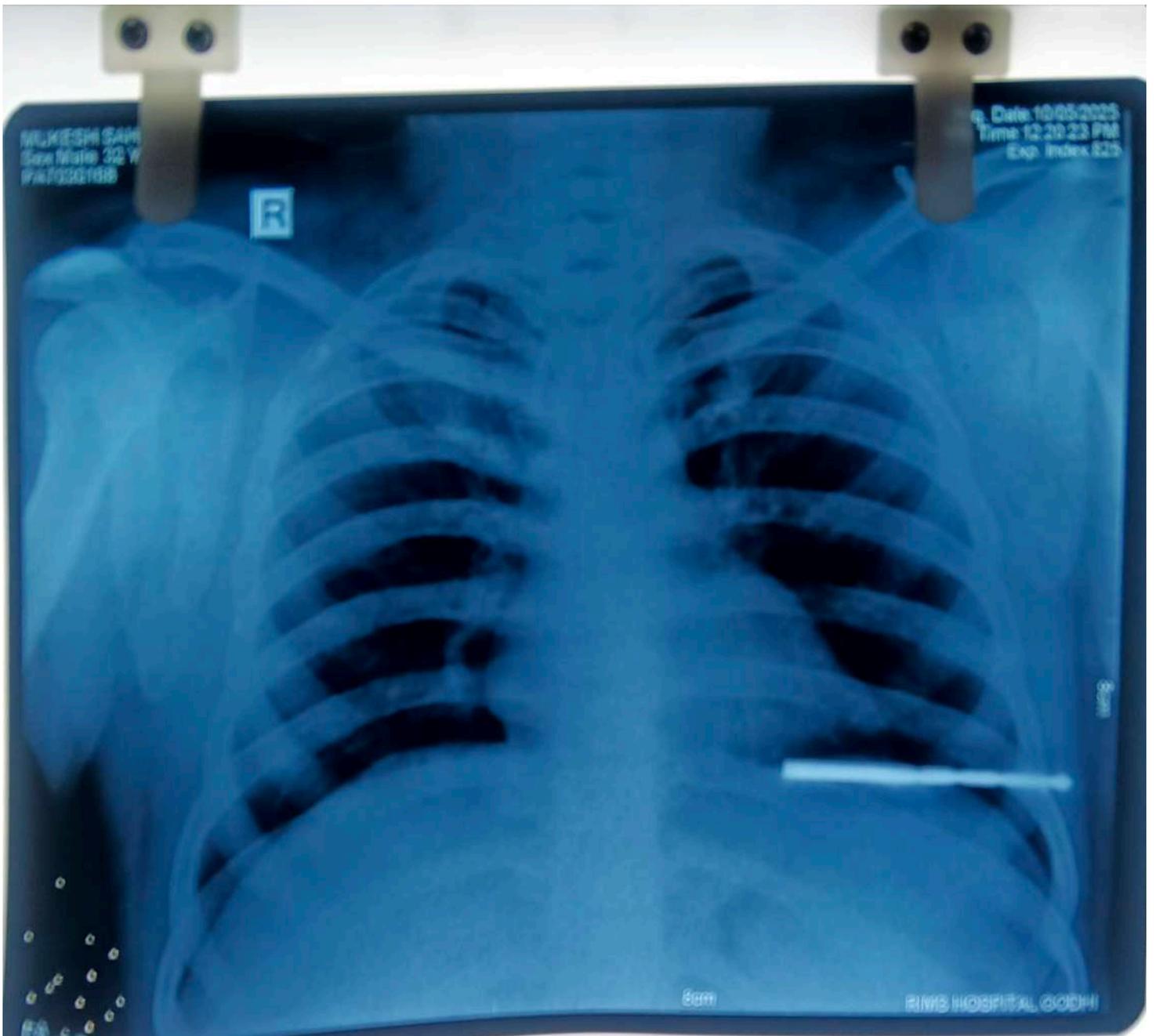
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Mob. No.-9109190914, 9303081217 Fax : 0771-3053089, www.rimsindia.ac.in



2025-6-4 12:47:19 ID: 00002629
 ID Card:
 Name: Nikhil sam Gender: male
 Age: 32 y Height(cm): 163cm
 Weight(Kg): 75kg BP(mmHg): 150/100
 HR.....bpm 84
 P-R.....ms 236
 Q-R-S.....ms 156
 QT/QTc.....ms 373/440
 P/QRS/T AXES.....deg 63/48/63
 RV5/SV1.....mV 2.23/1.07
 RV5+SV1.....mV 3.30
 *The result must be confirmed by doctor!
 Report Confirmed by:

<< Conclusion >>
 801 Sinus Rhythm
 ** NORMAL ECG **
 Dr. Ram Gopal Ghritahare
 MD Medicine
 Reg.No - CGMC-463/2005
 Calicut Institute of Medical Sciences

CARDIART



Form 21
[Prescribed under Rule (19)]
Health Register

(In respect of persons employed in occupations declared to be dangerous operations under Section 87)

Name of Worker.....SHUBHAM VERMAAge/ Sex...29Y/M.....
Name of Compan.....HIRA FERROW ALLOYS LTD....Employee Code....402158.....
Nature of occupation....MECHANICAL.....Date.....1/5/25... Annexure

PRE-EMPLOYMENT & PERIODIC MEDICAL EXAMINATION

(1) GENERAL EXAMINATION:

Height 182 cm, Weight 57kg BMI... 17.2 Chest
Inspiration..90....cm, Expiration 86 cm
Throat...NORMAL... Tongue.....MOIST...Tonsils...N/A.....
Teeth ..NORMAL..... Gums.....NORMAL.....
Thyroid.....NORMAL.....
Lymph nodes.....NORMAL.....
Additional finding.....N/A.....

(2) CARDIO-VASCULAR SYSTEM:

Pulse 94 mt. Regular/Irregular Peripheral Pulse-felt/not felt
BP.126/84..... min Hg Heart Sound: NORMAL.....
Murmur, If any...NO..... Additional finding (s), if anyNO.....

(3) RESPIRATORY SYSTEM:

Shape of Chest:NORMAL.... Tubular..... Chest movements: **Symmetrical**
..... Trachea..... **Centrally**..... Breath sound **Vesicular**

(4) GASTRO-INTESTINAL SYSTEM:

Liver.....NP..... Spleen.....NP.....
Any abdominal lumps: NO

(5) EXAMINATION OF EYES:

External Exam -NORMAL... Squint: NO.....
Nystagmus: NOFundus L/R
Night Blindness.....NO.....
Colour vision- Normal
Individual colour identification- Normal

Distance vision (without glasses) Right..6/6.... Left
...6/6..... (with glasses) Right..... Left

Near-vision (without glasses) Right...N/6.....
Left...N/6..... (with glasses) Right ... Left.....

(6) EXAMINATION OF EAR NOSE & THROAT:

External Examination:NAD.....

For Hira Ferro Alloys Ltd.
Factory Medical Officer
Dr. Prakash Kumar Abshp
(MBBS & FCIM)
Reg. No. 1440000000000000

(7) GENITO URINARY SYSTEM:

Hernia - NO..... Hydrocele- NO
Cryptorchidism-NO Phimosi.....NO
Signs of STD.....NO
Varicocele - NO
Varicose veins- NO

Other Examinations for Females:

Menarche..... yr. G. Para..... Menstrual irregularity..... if any

INVESTIGATIONS

(8) Lab Investigations:

Haemogram

Blood Group.....O+..... Rh factor.....POSITIVE..... Hb 16.4 gm%
RBC4.52.....Platelet Count.....243
TLC.....5.42..... DLC: - ..N-61..L-30.5..E-2.3..M-5.6..B-0.03.

Renal profile

Blood Urea: ...24... S. Creatinine:0.69

Hepatic profile - S G O T...15. S G P T ...18. Alkaline Phosphat 78 S. Bilirubin 0.58

Lipid Profile:

Serum Cholesterol130.....Triglycerides.....105.....HDL...42.....LDL.....66...

Metabolic

Blood Sugar.....92.....Blood Sugar PP...121.. S. Uric Acid.2.8

Urine: Albumin....NIL....SugarNIL.....Microscopy.....
Stool:

(10) Other Investigation

11) Pulmonary Function Test

	FCV	FEV 1	FEV 1/FVC
PREDICATED	5.39	4.50	81.99
MEASURED	4.33	3.91	90.30
% OF PREDICATED	80.35	86.99	110.14

12) Audiometry examination

PTA	Lt. Ear -16dB	Rt. Ear-21 dB
Remark	NORMAL	

PTA of both ears at frequency Cycles/sec

13. Details of Other specific medical examination carried out as mentioned in the respective schedules of 107 of C.G. Factory rules 1962-

For, Hira Ferro Alloys Ltd.

Signature (with date) of
Factory Medical Officer
Dr. Shyam Kumar Adapa
(MBBS & AFIH)

Signature (with date)
Certifying surgeon

Reg. No. : APMC/FMR/90920



RAIPUR INSTITUTE OF MEDICAL SCIENCE

Bhansoj Road Off NH -6, Raipur 0771 - 3053060

24 Hour Helpline

PATIENT NAME	SUBHAM VERMA	AGE/SEX	29Y/MALE
LAB NO.		PATIENT ID NO.	
REF BY DR.	RIMS	OPD/IPD NO.	
WARD	URLA PATIENT	SAMPLE RECEIVING DATE	01-05-2025
SPECIMEN	SERUM	REPORT RELEASING DATE	02-05-2025

BIOCHEMISTRY REPORT

LIPID PROFILE-

Test Name	Observed Value	Reference Range
Total Cholesterol	130	Desirable <200 mg/dL Borderline High 200- 239 mg/dL High Risk >239 mg/dL
Triglycerides	105	Optimal <150 mg/dL Borderline High 150-199 mg/dL High 200-499 mg/dL Very high > 500 mg/dL
HDL Cholesterol	42.9	Male: 35-79.5 mg/dL, Female: 42-88 mg/dL
LDL Cholesterol	66	Optimal <100 mg/Dl Above Optimal 100-129 mg/Dl Borderline High 130-159 mg/Dl High 160-189 mg/Dl Very High >190 mg/Dl
Very Low Density Lipoproteins (VLDL)	21	20-40 mg/Dl
CHOL/HDL Ratio	3.03	3.3-4.4
LDL/HDL Ratio	1.53	0.5-3.0

Test done on random sample. kindly correlate clinically....!!



Consultant
Clinical biochemistry laboratory

Note: These reports are for assisting Doctors/Physicians in their Treatment and Not for Medico-legal purposes and should be correlated clinically.



DEPARTMENT OF MICROBIOLOGY

Patient's Name	SHUBHAM VERMA	Age /Sex	29Y/MALE
Lab No		PATIENT ID	
Ref by Dr.	RIMS	OPD /IPD:	
Ward	CAMP	Sample Receiving Date	01/05/2025
Specimen	Serum	Report Releasing Date	02/05/2025

SEROLOGICAL TEST REPORT

S. No.	TEST	METHOD	RESULT
31.	ASO Titer	Latex Agglutination Test	
2.	CRP	Quantative Test	
3.	RA Factor	Latex Agglutination Test	
4	Dengue Test	Rapid Card Test	
5.	Widal Test	Slide Agglutination Test	
6.	Direct Coombs Test	Agglutination Test	
7.	In-direct Coombs Test	Agglutination Test	
8.	VDRL Antigen Test	Rapid Card Test	
9.	HbsAg	Rapid Card Test	NON-REACTIVE
10.	Anti-HCV	Rapid Card Test	
11.	HIV 1 &2	Rapid Card Test	

Please Note:-Kindly correlate clinically.



MICROBIOLOGIST



RAIPUR INSTITUTE OF MEDICAL SCIENCES

Bhansoj Road Off NH -6, Raipur 0771 - 3053060

24 Hour Helpline

PATIENT NAME	SHUBHANI VERMA	AGE/SEX	29Y/MALE
LAB NO.		PATIENT ID NO.	
REF BY DR.	RIMS	OPD/IPD NO.	
WARD		SAMPLE RECEIVING DATE	01-05-2025
SPECIMEN	SERUM	REPORT RELEASING DATE	01-05-2025

BIOCHEMISTRY REPORT

LIVER FUNCTION TEST

Test Name	Observed Value	Reference Range
Bilirubin Total	0.58	Upto 1.2 mg/dl
Bilirubin Direct	0.21	Upto 0.4 mg/dL
Bilirubin Indirect	0.37	0.2-0.8 mg/dL
S.G.O.T. (AST)	15	M:Upto 35 & F:Upto 31 IU/L
S.G.P.T. (ALT)	18	M:Upto 45 & F:Upto 34 IU/L
Alkaline Phosphatase	78	53-128 IU/L
S. LDH		2-12yrs: 180-360 & 12-60 yrs: 125-220 IU/L

SERUM PROTEINS

Total Protein		6.0-8.0 g/dL
Serum Albumin		3.5-5.5 g/dL
Serum Globulin		2.5-3.5.g/dL
A:G Ratio		1.2-1.5:1

RENAL FUNCTION TEST

B.Urea	24	15-40 mg/dL
S.Creatinine	0.69	F: 0.6-1.2 & M: 0.7-1.4 mg/dL
Uric Acid	2.8	F: 2.6-6.0 & M: 3.5-7.2 mg/dL

Calcium		9.0-11.0 mg/dL
Phosphorus		2.5-4.5 mg/dL
Magnesium	1.5	1.8-2.2 mg/dl

PANCREATIC FUNCTION TEST

S. Lipase		Upto 60 U/L
S. Amylase		Upto 80 U/L

BLOOD GLUCOSE

Blood Glucose, Random	102	70-140 mg/dL
Blood Glucose, Fasting		70-100 mg/dL
Blood Glucose, Post-Prandial		100-140 mg/dL

SERUM ELECTROLYTES

S. Sodium (Na ⁺)		135-145 mmol/L
S. Potassium (K ⁺)		3.5-5.0 mmol/L
S. Ca ⁺⁺		1.3-1.5 mmol/L
Iron		ug/dl

Kindly correlate clinically

Technician
(Report checked)



Consultant
Clinical biochemistry laboratory

Note: These reports are for assisting the Doctors/Physicians in their Treatment and Not for Medico-legal purposes and should be correlated clinically.



RAIPUR INSTITUTE OF MEDICAL SCIENCES

Bhansoj Road Off NH-06 Village Godhi,
Raipur (C.G.), 492101, India

Tel: 1800-208-1088 ,Email - info@rimsindia.ac.in , http://rimsindia.ac.in

DEPARTMENT OF PATHOLOGY HAEMATOLOGY REPORT

C.R. No. : 010525110/	Lab No : 20250501765	Collected : 02-05-2025
Name : MR. SHUBHAM VERMA	Age/Sex : 29 Year / M	Received : 02-05-2025
Guardian : S/O VERMA		Reported : 02-05-2025
Department : General Medicine	Select	/

Tests	Result	Units	Ref. Interval
CBC(Complete Haemogram)	16.4	gm/dl	13.0 - 17.0
HB (Hemoglobin)			
SLS			
TLC (Total Leucocytes Count)	5.42	10 ³ /μL	3.5 - 10
Electrical Impedance/ Flow Cytometry			
DLC (Differential Leucocytes Count)	-		-
Flow Cytometry			
Neutrophils	61.0	%	40 - 75
Flow Cytometry/DC Detection			
Lymphocytes	30.5	%	20 - 40
Flow Cytometry/DC Detection			
Eosinophils	2.3	%	01 - 06
Flow Cytometry/DC Detection			
Monocytes	5.6	%	02 - 10
Flow Cytometry/DC Detection			
Basophils	0.03	%	00 - 01
Flow Cytometry/DC Detection			
MCV	108.3 H	fl	80 - 100
Calculated			
MCHC	33.5	g/dl	31 - 37
Calculated			
RDW-CV	16.2 H	%	11.6 - 14.0
Hydro Dynamic Focussing / DC Detection			
Platelet Count	243	10 ³ /μL	150 - 400
Hydro Dynamic Focussing / DC Detection			
HCT	48.9	%	40 - 51
Flow Cytometry/DC Detection			
MCH	36.3 H	pg	26 - 34
Calculated			
RBC Count	4.52	million/mm ³	4.0 - 5.2
Hydro Dynamic Focussing / DC Detection			

For
Pathologist



--- END OF REPORT ---



DEPARTMENT OF BIOCHEMISTRY

PATIENT NAME	MR SHUBHAM VERMA	AGE/SEX	29Y/M
LAB NO.		PATIENT ID NO.	
REF BY DR.	RIMS	OPD/IPD NO.	
WARD		SAMPLE RECEIVING DATE	1/5/2025
SPECIMEN	BLOOD	REPORT RELEASING DATE	1/5/2025

BLOOD SUGAR FASTING & PP

INVESTIGATION	RESULT	REFERENCE RANGE
Sample Type		
FASTING BLOOD SUGAR	92	70-100 mg/dL
BLOOD SUGAR PP	121	100-140 mg/dL

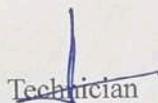
Clinical Note :

Elevated glucose levels (hyperglycemia) are the most often encountered clinical in the setting of diabetes mellitus but they may also occur with pancreatic neoplasms , hyperthyroidism and adrenocortical dysfunction. Decreased glucose levels (hypoglycemia) may result from endogenous or exogenous insulin excess, prolonged starvation, or liver disease

Fasting glucose	2 hours pp glucose	Diagnosis
<100	<140	Normal
100 to 125	140 to 199	Pre diabetes
>126	>200	Diabetes

A level of 126 mg/dL or above , confirmed by repeating the test on another day , means a person has diabetes IGT (2 hrs post meal), means a person has an increased risk of developing type 2 diabetes but does not have it yet a 2 hour glucose level of 200 mg/dL or above , confirmed by repeating the test on another day , means a person has diabetes

-----End of report -----


Technician
(Reports checked by)


consultant
clinical biochemistry laboratory

NOTE-These reports are for assisting doctors in their treatment and not for medico-legal purposes and should be correlated clinically



RAIPUR INSTITUTE OF MEDICAL SCIENCES

24 Hour Helpline, Health For All 0771 - 3268844,
Bhansoj Road, Off NH -6, Raipur

PATIENT NAME	SUBHAM VERMA	AGE/SEX	29Y/MALE
LAB NO.		PATIENT ID NO.	
REF BY DR.	RIMS	OPD/IPD NO.	
WARD	URLA	SAMPLE RECEIVING DATE	01/05/2025
SPECIMEN	BLOOD	REPORT RELEASING DATE	01/05/2025

HAEMATOLOGY REPORT

TEST NAME	OBSERVED VALUE	NORMAL VALUE
BLOOD GROUP & RH	"O" POSITIVE	(Slides Method)



For d
ASSITANT PROFESSOR

These reports are for assisting Doctors/Physicians in their Treatment and Not for Medico-legal purposes and should be correlated clinically.

Teaching Hospital and Medical College



RAIPUR INSTITUTE OF MEDICAL SCIENCES

24 Hour Helpline, Health For All 0771 - 3268844,

PATIENT NAME	SUBHAM VERMA	AGE/SEX	29Y/MALE
LAB NO.		PATIENT ID NO.	
REF BY DR.	RIMS	OPD/IPD NO.	
WARD	URLA	SAMPLE RECEIVING DATE	01/05/2025
SPECIMEN	URINE	REPORT RELEASING DATE	01/05/2025

PHYSICAL EXAMINATION

VOLUME : 20 ML
COLOUR : PALE YELLOW
APPEARANCE : CLEAR

CHEMICAL EXAMINATION

ALBUMIN : NIL
SUGAR : NIL

MICROSCOPIC EXAMINATION

PUS CELLS : 1-2 /HPF
EPITHELIAL CELL : 0-1 /HPF
RBC : ABSENT
CRYSTAL : ABSENT
BACTERIA : ABSENT
CAST : ABSENT
OTHERS : ABSENT



Ford
ASSITANT PROFESSOR

Note: These reports are for assisting Doctors/Physicians in their Treatment and Not for Medico-legal purposes and should be correlated clinically.

Teaching Hospital and Medical College

Case number:

Name: SHUBHAM VERMA

Gender: Male

Age: 29

Height: 182 cm

Weight: 57 kg

Smoke: No

BDT: No

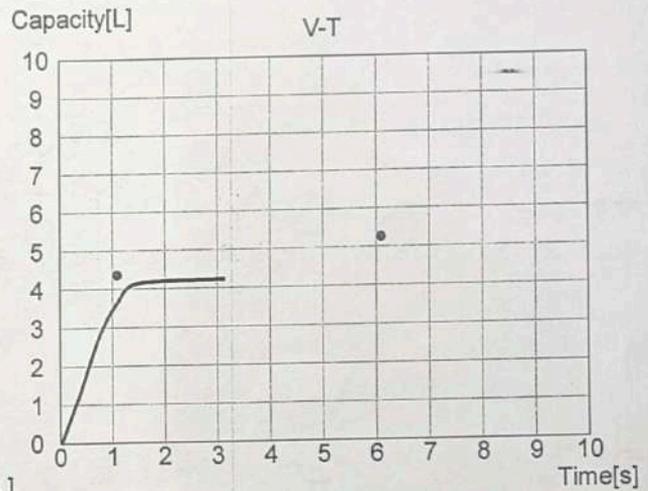
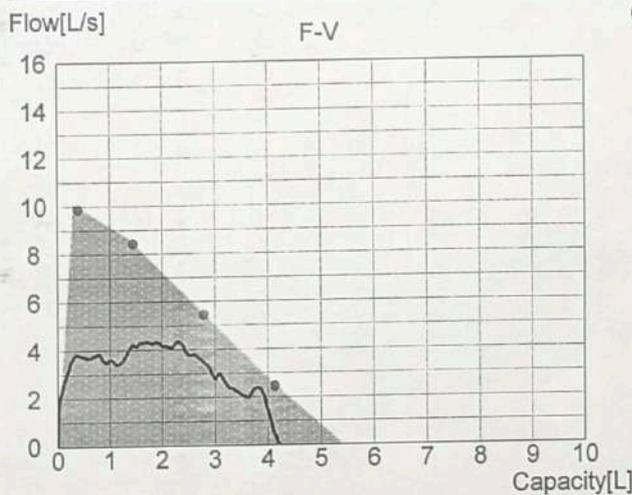
Equation: ECSC

Phone:

Test date: 2025-05-01 15:04:57

Medical history:

Parameter	Unit	MEAS	PRED	PRED%	LLN	BDT diff	BDT rate
FVC	L	4.33	5.39	80.35%	4.39	-	-
FEV1	L	3.91	4.50	86.99%	3.66	-	-
FEV1/FVC	%	90.30	81.99	110.14%	70.20	-	-
PEF	L/s	4.69	10.08	46.54%	8.09	-	-
FEF2575	L/s	3.89	4.98	78.05%	3.27	-	-
FEF25	L/s	3.60	8.63	41.73%	5.81	-	-
FEF50	L/s	4.23	5.65	74.88%	3.48	-	-
FEF75	L/s	2.89	2.66	108.80%	1.37	-	-
EV	ml	244.00(5.64%FVC)	-	-	-	-	-
FET	s	3.15	6.00	52.50%	-	-	-
EOTV	ml	25.00	-	-	-	-	-
PEFT	ms	493.00	-	-	-	-	-



Test result:

Spirometry all the parameters all Normal

Dr. Kambley
DR. KAMBLEY RAMU WATUJI
 REG NO-MC-7823/2018
 MBBS, MD
 DEPARTMENT-CHEST & PULMONARY

Operator:

Physician:

Reporting date: 2025-04-29

Device ID: PULMO022489



RIMS HOSPITAL URLA

(A unit of LORD BUDDHA EDUCATIONAL SOCIETY)

Health For All

PT. NAME : MR.SHUBHAM VERMA
PATIENT ID : RIMS/
REF. DR. / DEPT : RIMS HOSPITAL, URLA (OPD)

AGE / SEX: 29Y / M
DATE:09-05- 2025

X RAY CHEST (PA VIEW)

- Trachea is central.
- Lung fields are clear bilaterally.
- No evidence of consolidation, collapse, or effusion.
- Cardiac silhouette is normal in size and contour.
- Mediastinal contours are normal.
- Diaphragmatic domes are normal in position and outline.
- Costophrenic angles are sharp.
- Bony thorax appears intact, no fractures seen.

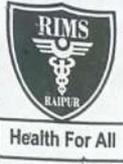
ADVISED: Clinical correlation.

RESIDENT DOCTOR

Dr. Kashi Nath
DR. KASHI NATH SARKAR
REG NO-C.G.M.C 3357/2011
MBBS
DEPARTMENT - RADIOLOGY

RIMS Rural Health & Training Center (RH&TC) Industrial Corporation Building,
Near Axis Bank, Urla, Dist.-Raipur, Pin – 492003, Contact Number – 91091-90902

Medical College (Main Campus) – Raipur Institute Of Medical Sciences (750 Bedded
Hospital & Medical College) at Bhansoj Road . Off, NH-06, Village-Godhi, Raipur (C.G.),
Mob. No.-9109190914, 9303081217 Fax : 0771-3053089, www.rimsindia.ac.in



RAIPUR INSTITUTE OF MEDICAL SCIENCES

Bhansoj Road, Off. NH-6, Gram-Godhi, Raipur (C.G.)
 Tel.: 91-0771-3053060-87, Fax : 91-0771-3053088-89, www.rimsindia.ac.in
 Department of ENT

AUDIOLOGICAL EVALUATION

OPD No. Date 01/05/20 Audio No.

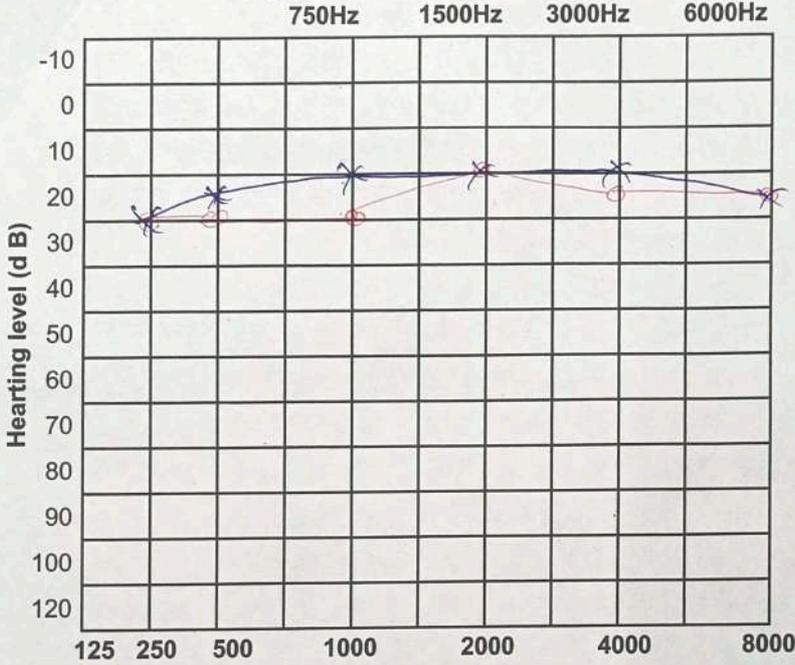
Name Mr. Shubham Varma Age/ Sex 29 y 1 M

Address Ph. No. 8103538498

Tested by Audiometer Used Per/Post Treatment

Complaint :-

PURE TONE AUDIOGRAM



KEY OF SYMBOLS

Right	Air Conditions	Left
Unmasked Three Hold		
Masked Three Should		
No Response		
Unmasked Three Hold		
Masked Three Should		
Bone Conducts		
Unmasked Three Hold		
Masked Three Should		
No Response		
Unmasked Three Hold		
Masked Three Should		
Sound Field		
Response		S
No Response		S
Audio Metric		

TEST	RINNE	WEBER	AUDIOMETRIC WEBER		
	T.F.T.	T.F.T.	500	1000	2000
EAR					
RT.					
LT.					

SPEECH AUDIOMETRY

	PTA (db HL)	SRT (db HL)	SDT (db HL)	SDS %	MCL	UCL
RIGHT EAR	<u>21 dB</u>					
LEFT EAR	<u>16 dB</u>					

TEST CONDITION

PROVISIONAL DIAGNOSIS :

Right Ear :- SNHL

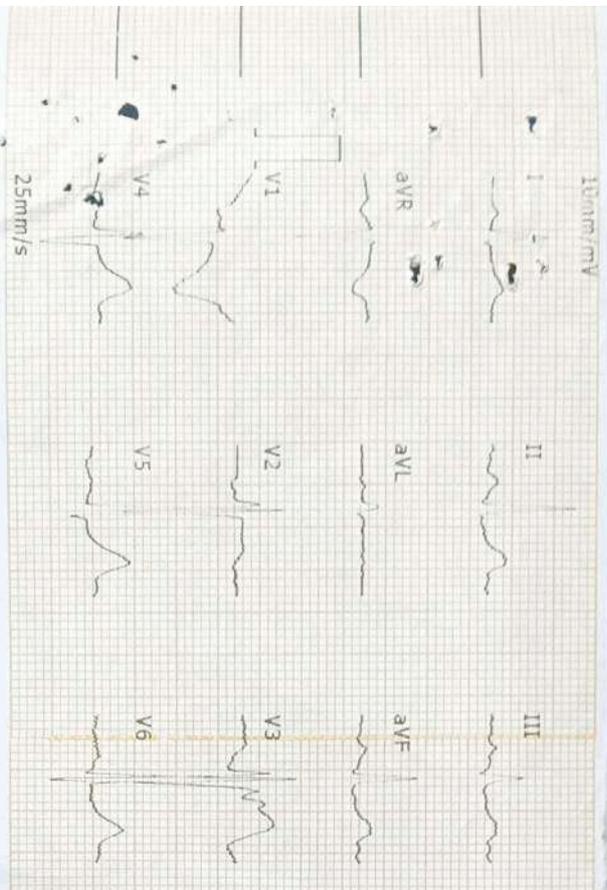
Left Ear :- SNHL

Recommendation :-

Handwritten notes in red ink: "Mild SNHL" and "Mild SNHL" with arrows pointing to the right and left ear results respectively.

Signature of Dr. Nitinwre Ashok Zadbaaj
 DR. NITINWRE ASHOK ZADBAAJ
 REG NO-54603
 MBBS ENT
 DEPARTMENT - ENT

AUDIOLOGIST



10mm/mV

25mm/s

2025-6-4 12:47:19

ID:00002629

ID Card: 402158

Name: *Shekhar*

Gender: *male*

Age: *20/y*

Height(cm): *182*

Weight(kg): *57kg*

BP(mmHg): *136/96*

HR:bpm *84*

P-R:ms *236*

Q-R-S:ms *156*

QT/QTc:ms *373/440*

P/QRS/T AXES:deg *63/48/63*

R/S/SV1:mV *2.23/1.07*

R/S+SV1:mV *3.30*

*The result must be confirmed by doctor!

Report Confirmed by:

CARDIART

<< Conclusion >>

801 Sinus Rhythm

** NORMAL ECG **

Dr. Ramyappal
 Dr. Ramyappal
 M.D. Medicine

Reg.No.-CCIML-403/2005
24 **Institute of Medical Sciences**



RIMS HOSPITAL URLA

(A unit of LORD BUDDHA EDUCATIONAL SOCIETY)

Health For All

PT. NAME : MR. SHUBHAM VERMA AGE / SEX: 29Y
/ M
PATIENT ID : RIMS/ DATE: 10-05-2025
REF. DR. / DEPT : RIMS HOSPITAL, URLA (OPD)

SONOGRAPHY OF WHOLE ABDOMEN

LIVER: The liver is normal in size, shape and has smooth margins. It is uniformly isoechoic with normal echotexture. No SOL is seen. Intra-hepatic biliary radicals are not dilated.

GALL BLADDER: The gall bladder is well distended. No intra-luminal calculi or mass lesion is seen. Its wall thickness is normal.

COMMON BILE DUCT & PORTAL VEIN: The common bile duct is normal in caliber. No calculi are seen in it. The portal vein is normal in calibre and course.

SPLEEN: The spleen is normal in size and shape. Its echotexture is homogeneous. No evidence of focal lesion is noted.

PANCREAS: The pancreas is normal in size, shape, contours and echotexture. No evidence of solid or cystic mass lesion is noted.

KIDNEYS: Both kidneys have normal cortical echotexture and have smooth margins. Cortico-medullary differentiation is maintained.

Right kidney measures ~ 9.7x4.6 cms. No calculus or hydronephrosis seen in right kidney.

Left kidney measures ~ 9.9x4.7 cms. No calculus or hydronephrosis seen in left kidney.

URINARY BLADDER: The urinary bladder is minimally distended. It shows uniformly thin walls and sharp mucosa. No intra-luminal calculus or diverticulum is seen.

PROSTATE: The prostate is normal in size and measures ~ 6cc in volume. No focal lesion seen. No free fluid is seen in the peritoneal cavity at the time of examination.

PROVISIONAL IMPRESSION :

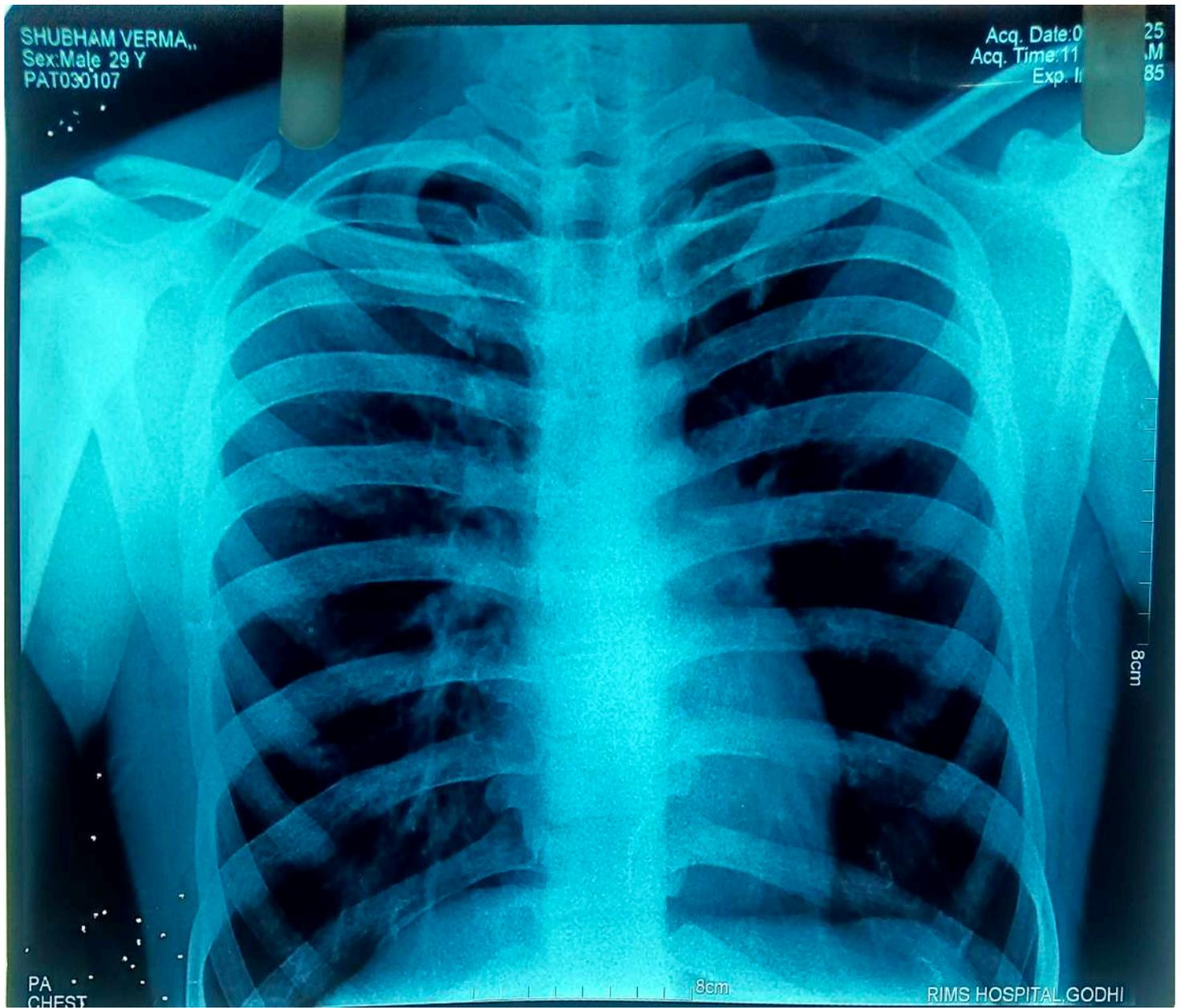
- No significant abnormality detected.

ADVISED: Clinical correlation.

RESIDENT DOCTOR

RIMS Rural Health & Training Center (RH&TC) Industrial Corporation Building,
Near Axis Bank, Urla, Dist.-Raipur, Pin – 492003, Contact Number – 91091-90902

Medical College (Main Campus) – Raipur Institute Of Medical Sciences (750 Bedded
Hospital & Medical College) at Bhansoj Road . Off, NH-06, Village-Godhi, Raipur (C.G.),
Mob. No.-9109190914, 9303081217 Fax : 0771-3053089, www.rimsindia.ac.in



Annexure XVII: HFAL Environmental Policy



HIRA FERRO ALLOYS LIMITED

ENVIRONMENT POLICY

HIRA FERRO ALLOYS LTD. UNIT-I A unit of Hira group of industries is committed to conduct business with strong environmental conscience towards community, customer and employees by:

- Conserving natural resources.
- Executing Clean Development Mechanism (CDM) project.
- Adopting and promoting industry best practices to improve our environmental performance.
- Continuous monitoring and protecting air, water and soil.
- Complying with all relevant legislation and regulation on Environmental protection.
- Promoting transformation of solid waste into more value added product.
- Applying stringent control to reduce generation of hazardous waste.
- Accelerating the forestation and water harvesting.
- To conduct environment awareness training program through experts.

DATE: - 21-08-2024



Hira Ferro Alloys Limited

An ISO 9001:2015, ISO 14001:2015 and OHSAS 18001:2007 certified company
CIN - U27101CT1984PLC005837

Registered Office : Plot No. 567-B

Works : Plot No. 490/1, 490/2, 491, 567-B, 568, 553-B, Urla Industrial Complex, Raipur - 492003 Chhattisgarh, India

P: +91 771 4082450-51 **F**: +91 771 4082452

Corporate Office : Ground Floor, Hira Arcade, Near New Bus Stand, Pandri, Raipur - 492004, Chhattisgarh, India

P: +91 771 4082470, **F**: +91 771 4082742

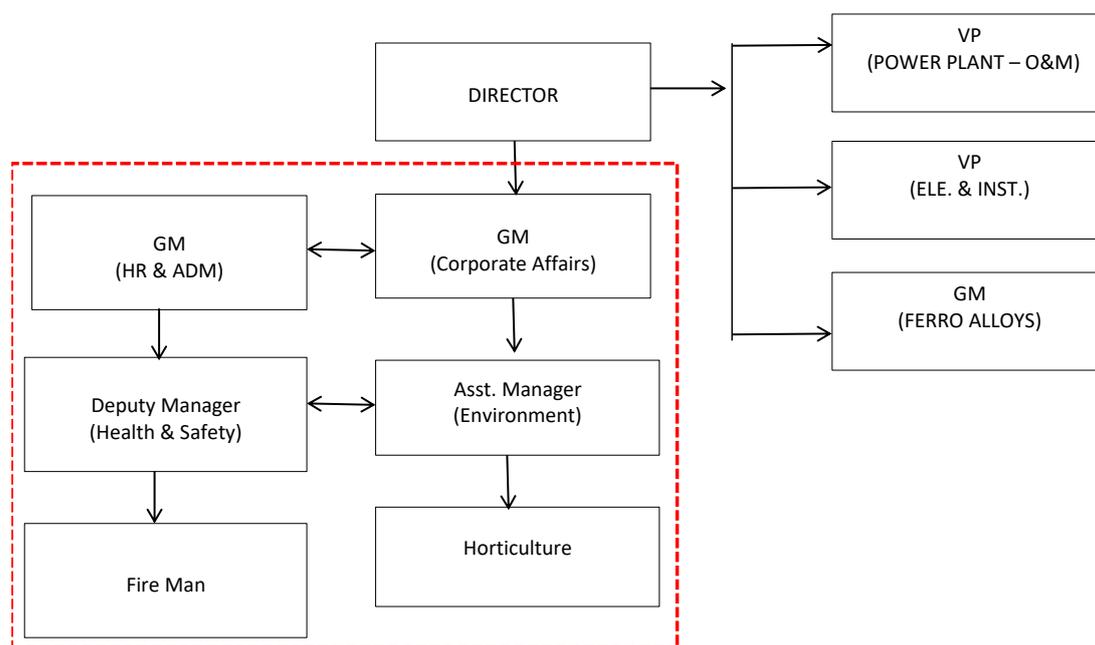
www.hfal.in, www.hiragroup.com

Annexure XVIII: Environment Management Cell

Environment Management Cell/ Environment Health & Safety Cell

To ensure effective implementation of environmental safeguards, occupational health protocols, and legal compliance across all stages of its operations, HFAL has constituted a dedicated Environment Management Cell (EMC). The EMC functions under the supervision of the senior management and integrates with plant operations, maintenance, electrical, laboratory, and safety teams to provide a holistic approach to environmental governance.

The EMC is responsible for monitoring environmental parameters, ensuring statutory compliance, and implementing mitigation measures outlined in the Environmental Management Plan (EMP). It also supports performance improvement through periodic audits, training, and stakeholder engagement.



Hierarchy of Environmental Management Cell

Table 1: EMC Person Details

S. No.	Designation	Department / Responsibility
1	Director	Overall Management & Strategic Decisions
2	Vice President (Power Plant – O&M)	Operation & Maintenance of Captive Power Plant
3	Vice President (Electrical & Instrumentation)	Electrical Systems, Instrumentation & Automation
4	General Manager (Ferro Alloys)	Ferro Alloy Production, Process & Quality Control
5	General Manager (HR & Administration)	Human Resources, Administration & Industrial Relations
6	General Manager (Corporate Affairs)	Liaisoning, CSR, Legal & Statutory Compliance

7	Deputy Manager (Health & Safety)	Occupational Health, Safety Management & Training
8	Assistant Manager (Environment)	Environmental Management & Regulatory Compliance
9	Fire Man	Fire Protection & Emergency Response
10	Horticulture Officer	Greenbelt Development & Plantation Maintenance

Key Responsibilities of the Environment Management Cell

1. **Environmental Monitoring and Reporting:** Conduct periodic monitoring of air emissions, ambient air, noise, wastewater, soil, and groundwater using in-house and NABL-accredited external labs.
2. **Regulatory Compliance:** Ensure full compliance with CECB, MoEF&CC, and CGWA norms including submission of returns via the PARIVESH portal and upkeep of CTO, CTE, and Authorization records.
3. **Pollution Control System Management:** Oversee operation and efficiency of APCs (e.g., ESPs, bag filters, dry gas cleaning units), Neutralization pit followed by sedimentation Tank /STP, and ensure Zero Liquid Discharge (ZLD) performance.
4. **Waste Management:** Maintain inventories and compliance for hazardous, solid, and municipal wastes, and coordinate with TSDFs and authorized recyclers.
5. **Greenbelt Development and Biodiversity:** Monitor and maintain the greenbelt (target: $\geq 40\%$ coverage), support biodiversity conservation with survival rate tracking and native species plantation.
6. **Occupational Health & Safety (OHS):** Assist OHC in medical surveillance, safety inspections, accident/incident logging, and ensure PPE usage and statutory workplace safety protocols.
7. **Emergency Preparedness & Training:** Coordinate fire safety drills, mock environmental emergencies, and awareness campaigns for workforce and nearby communities.
8. **Documentation and Environmental Audits:** Prepare Form V (Annual Environmental Statement), support internal and external environmental audits, and maintain documentation for EMS compliance.
9. **Stakeholder Engagement:** Facilitate local stakeholder interaction, grievance redressal, and environmental education in nearby villages as part of CSR/CER initiatives.
10. **Groundwater and Water Use Surveillance:** Monitor abstraction and recharge, track water consumption and recycling efficiency in alignment with CGWA approvals and conservation goals.

This structured EMC system ensures that HFAL continuously improves its environmental performance while complying with applicable environmental, health, and safety regulations.

**Annexure XIX: Newspaper Advertisement and EC
Display on Website**

Display of UNIT II EC on HFAL Website

← → 🏠 hiraferroalloys.com/investors ☆ 📄 Verify that it's you

HIRA Home Products Sustainability Company Blog Contact Enquiry → Sales: +91-771-408-2741

S.No	Notice Subject	Link
18	The details of CSR Expenditure during the FY 2024-25	Read
19	Notice of AGM 2025	Read
20	Draft Letter of Appointment as an Independent Director XX.09.2025	Read
21	Environmental Clearance HIRA FERRO UNIT II	Read
22	Environmental Clearance HIRA FERRO UNIT 1	Read
23	Notice of AGM 2024	Read
24	Draft Letter of Appointment as an Independent Director	Read
25	Letter of offer	Read
26	Public Announcement	Read

Activate Windows
Go to Settings to activate Windows.

Annexure XX: Ack Nagar Nigam

प्रति,
आयुक्त महोदय जी
नगरपालिक निगम बीरगांव
जिला - रायपुर, छत्तीसगढ़

विषय: मेसर्स हीरा फेरो एलॉयस लिमिटेड (यूनिट-II) द्वारा फेरो एलॉयस उत्पादन क्षमता में विस्तार हेतु पर्यावरणीय स्वीकृति की प्रति प्रस्तुत करने बाबत ।

सन्दर्भ: पर्यावरणीय स्वीकृति File No: IA-J-11011/81/2024-IA-II (Ind-I) दिनांक 08.03.2025

आदरणीय महोदय,

उपरोक्त विषयान्तर्गत, आपको सूचित किया जाता है कि भारत सरकार, पर्यावरण वन जलवायु परिवर्तन मंत्रालय द्वारा जारी ई.आ.ए नोटिफिकेशन 2006 (यथा-संशोधित) के अंतर्गत File No: IA-J-11011/81/2024-IA-II (Ind-I) दिनांक 08.03.2025 के द्वारा हमारे प्लांट मेसर्स हीरा फेरो एलॉयस लिमिटेड (यूनिट-II), प्लाट नंबर 490/1, 491/2, उरला इण्डस्ट्रीयल एरिया, ग्राम-अछोली, जिला-रायपुर (छ.ग.) में स्थापित परियोजना में क्षमता विस्तार के तहत फर्नेस कॉन्फिगरेशन में विस्तार/संशोधन (2X11MVA, 1X7.5MVA और 1X5 MVA से 3X11MVA, 2X7.5 MVA) और प्रस्तावित फर्नेस मेल्ट इंडक्शन फर्नेस (2000 KW/3000 Kg) और फेरो एलॉयस उत्पादन क्षमता में विस्तार - SiMn- 50,000 TPA से 91,800 TPA या Pig Iron - 70,000 TPA से 1,33,500 TPA और/या FeMn 1,27,000 TPA या FeSi 41,600 TPA और प्रस्तावित फेरो मेल्ट इंडक्शन फर्नेस द्वारा फेरो एलॉयस (SiMn/ FeMn) - 9000 TPA प्रस्तुत परियोजना हेतु पर्यावरण स्वीकृति प्रदाय किया गया है। जिसकी प्रतिलिपि आपके समक्ष अवलोकनार्थ प्रस्तुत है। तथा इसकी मूल प्रति पर्यावरण वन एवं जलवायु परिवर्तन मंत्रालय के वेबसाइट <https://parivesh.nic.in/> तथा प्रतिलिपि सदस्य सचिव, छत्तीसगढ़ पर्यावरण संरक्षण मंडल तथा क्षेत्रीय कार्यालय, छत्तीसगढ़ पर्यावरण संरक्षण मंडल रायपुर छत्तीसगढ़ अवलोकनार्थ प्रस्तुत है।

यह आपकी जानकारी और अभिलेख के लिए है, और कृपया इसकी प्राप्ति की पावती देने की कृपा करें।

“धन्यवाद”

भवदीय

वास्ते, हीरा फेरो एलॉयस लिमिटेड (यूनिट-II)

अधिकृत हस्ताक्षरकर्ता



Hira Ferro Alloys Limited

An ISO 9001:2015, ISO 14001:2015 and OHSAS 18001:2007 certified company

CIN - U27101CT1984PLC005837

Registered Office : Plot No. 567-B

Works : Plot No. 490/1, 490/2, 491, 567-B, 568, 553-B, Urla Industrial Complex, Raipur - 492003 Chhattisgarh, India

P: +91 771 4082450-51 F: +91 771 4082452

Corporate Office : Ground Floor, Hira Arcade, Near New Bus Stand, Pandri, Raipur - 492004, Chhattisgarh, India

P: +91 771 4082470, F: +91 771 4082742

www.hfal.in, www.hiragroup.com

Annexure XXI: Water Sprinkler Unit II

HIRA FERRO ALLOYS LIMITED UNIT-II

Situated at Plot No. 490/1, 491/2, Urla Industrial Area, Urla Raipur (C.G)

PHOTOGRAPHS OF WATER SPRINKLER





Annexure XXII: Fugitive emission result



Approved: by Occupational Health & Safety Management (ISO45001:2018)

Approved: by National Accreditation Board for Testing and Calibration Laboratories

Registered Office: 63/1, Kailash Vihar, Near Income Tax Office, City Center-II,

Gwalior-474 011, M.P., India

☎ 0751-3566867, 2232177

Email: aetgwalior@gmail.com, aetrlcenter@gmail.com

Web: aetrl.com



TEST REPORT

Report No.: AETRL/FE-25122025/01		Date:		07/01/2026	
Name & Address of Customer		: M/s Hira Ferro Alloys Limited (Unit - II) Plot No. 490/1, 491/2, Urla Industrial Area, District – Raipur (C.G.) Pin - 492003			
Sample Collection Date	: 25/12/2025	Sampling Type	:	NA	
Sample Receipt Date	: 30/12/2025	Sample ID	:	FE-25122025/01	
Sampling Location	: Main Gate	Sample Description	:	Fugitive emission	
Sample Collected / Submitted by	: Lab representative	Protocol used for monitoring	:	IS 5182 (Part - 14)	
Quantity / No. of Sample	: One/ Fugitive emission	Analysis Started On	:	30/12/2025	
Packing / Seal	: Temp. Sealed	Analysis Completed On	:	07/01/2026	
Meteorological condition during monitoring		Clear sky			

FUGITIVE EMISSION ANALYSIS RESULTS

Sr. No.	Parameter	Result	Unit	Protocol used for Analysis	Limit
1	Total Suspended Particulate matter (SPM)	804	µg/m ³	EPA METHOD IO 2.1	2000

Authorized Signatory

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

Note:

1. This report is not to be reproduced wholly or in part and cannot be used as evidence in the court of law and should not be used in any advertising media without our special permission in writing.
2. The sample will be destroyed after 15 days from the date of issue of test certificate unless otherwise specified.
3. Any discrepancy in test result should be reported within 15 days.
4. The above Results are related to the tested Sample Only.



Approved: by Occupational Health & Safety Management (ISO45001:2018)

Approved: by National Accreditation Board for Testing and Calibration Laboratories

Registered Office: 63/1, Kailash Vihar, Near Income Tax Office, City Center-II,

Gwalior-474 011, M.P., India

☎ 0751-3566867, 2232177

Email: aelgwalior@gmail.com, aetrlcenter@gmail.com

Web: aetri.com



TEST REPORT

Report No.: AETRL/FE-26122025/02	Date:	07/01/2026	
Name & Address of Customer	M/s Hira Ferro Alloys Limited (Unit - II) Plot No. 490/1, 491/2, Urla Industrial Area, District – Raipur (C.G.) Pin - 492003		
Sample Collection Date	: 26/12/2025	Sampling Type	: NA
Sample Receipt Date	: 30/12/2025	Sample ID	: FE-26122025/02
Sampling Location	: Material Gate	Sample Description	: Fugitive emission
Sample Collected / Submitted by	: Lab representative	Protocol used for monitoring	: IS 5182 (Part - 14)
Quantity / No. of Sample	: One/ Fugitive emission	Analysis Started On	: 30/12/2025
Packing / Seal	: Temp. Sealed	Analysis Completed On	: 07/01/2026
Meteorological condition during monitoring	Clear sky		

Fugitive Emission Analysis Results

Sr. No.	Parameter	Result	Unit	Protocol used for Analysis	Limit
1	Total Suspended Particulate matter (SPM)	810	µg/m ³	EPA METHOD IO 2.1	2000

Authorized Signatory

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

Note:

1. This report is not to be reproduced wholly or in part and cannot be used as evidence in the court of law and should not be used in any advertising media without our special permission in writing.
2. The sample will be destroyed after 15 days from the date of issue of test certificate unless otherwise specified.
3. Any discrepancy in test result should be reported within 15days.
4. The above Results are related to the tested Sample Only.



Approved: by Occupational Health & Safety Management (ISO45001:2018)

Approved: by National Accreditation Board for Testing and Calibration Laboratories

Registered Office: 63/1, Kailash Vihar, Near Income Tax Office, City Center-II,
Gwalior-474 011, M.P., India
☎ 0751-3566867, 2232177

Email: aelgwalior@gmail.com, aetrlcenter@gmail.com
Web: aetrl.com



TEST REPORT

Report No.: AETRL/FE-27122025/03	Date:	07/01/2026	
Name & Address of Customer	M/s Hira Ferro Alloys Limited (Unit - II) Plot No. 490/1, 491/2, Urla Industrial Area, District – Raipur (C.G.) Pin - 492003		
Sample Collection Date	: 27/12/2025	Sampling Type	: NA
Sample Receipt Date	: 30/12/2025	Sample ID	: FE-27122025/03
Sampling Location	: Near Coal Yard	Sample Description	: Fugitive emission
Sample Collected / Submitted by	: Lab representative	Protocol used for monitoring	: IS 5182 (Part - 14)
Quantity / No. of Sample	: One/ Fugitive emission	Analysis Started On	: 30/12/2025
Packing / Seal	: Temp. Sealed	Analysis Completed On	: 07/01/2026
Meteorological condition during monitoring	Clear sky		

Fugitive Emission Analysis Results

Sr. No.	Parameter	Result	Unit	Protocol used for Analysis	Limit
1	Total Suspended Particulate matter (SPM)	845	µg/m ³	EPA METHOD IO 2.1	2000

Authorized Signatory

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

Note:

1. This report is not to be reproduced wholly or in part and cannot be used as evidence in the court of law and should not be used in any advertising media without our special permission in writing.
2. The sample will be destroyed after 15 days from the date of issue of test certificate unless otherwise specified.
3. Any discrepancy in test result should be reported within 15 days.
4. The above Results are related to the tested Sample Only.



Approved: by Occupational Health & Safety Management (ISO45001:2018)

Approved: by National Accreditation Board for Testing and Calibration Laboratories

Registered Office: 63/1, Kailash Vihar, Near Income Tax Office, City Center-II,

Gwalior-474 011, M.P., India

☎ 0751-3566867, 2232177

Email: aelgwalior@gmail.com, aetrlcenter@gmail.com

Web: aetri.com



TEST REPORT

Report No.: AETRL/FE-27122025/04		Date: 07/01/2026	
Name & Address of Customer	:	M/s Hira Ferro Alloys Limited (Unit - II) Plot No. 490/1, 491/2, Urla Industrial Area, District – Raipur (C.G.) Pin - 492003	
Sample Collection Date	:	27/12/2025	Sampling Type : NA
Sample Receipt Date	:	30/12/2025	Sample ID : FE-27122025/04
Sampling Location	:	Near Furnace area	Sample Description : Fugitive emission
Sample Collected / Submitted by	:	Lab representative	Protocol used for monitoring : IS 5182 (Part - 14)
Quantity / No. of Sample	:	One/ Fugitive emission	Analysis Started On : 30/12/2025
Packing / Seal	:	Temp. Sealed	Analysis Completed On : 07/01/2026
Meteorological condition during monitoring		Clear sky	

Fugitive Emission Analysis Results

Sr. No.	Parameter	Result	Unit	Protocol used for Analysis	Limit
1	Total Suspended Particulate matter (SPM)	740	µg/m ³	EPA METHOD IO 2.1	2000

Authorized Signatory

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

Note:

1. This report is not to be reproduced wholly or in part and cannot be used as evidence in the court of law and should not be used in any advertising media without our special permission in writing.
2. The sample will be destroyed after 15 days from the date of issue of test certificate unless otherwise specified.
3. Any discrepancy in test result should be reported within 15 days.
4. The above Results are related to the tested Sample Only.

Annexure XXIII: Power Plant Monitoring Report

Arvind Industrial Hygiene Consultancy

Ref. No- Arvind Ind. Hygiene/2025/27

Date: 10-05-2025

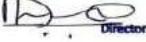
To,
DGM, HR
Hira Ferro Alloys Ltd. (Unit-II)
Plot no. 490/1, 491/2, Urla Industrial Area
District- Raipur, Chhattisgarh- 492003
Urla Industrial Complex
Raipur - 492003

Sub-Industrial Hygiene Survey at Hira Ferro Alloys Limited (Unit – II)

Reference –POWER/25 -26/SO/0011 DATED 29.4.2025

Dear Sir,

With reference to the above order an industrial hygiene survey for coal dust, in CPP & DE system checking in entire CHP area had been conducted at different locations of Hira Ferro Alloys Ltd. (Unit –II), Urla Raipur on 1st May 2025. The survey work was coordinated by Mr. Praveen Singh from HR and Mr. Shivraj Verma from Safety department. Please find a detail report of the survey for your information and necessary action.

Arvind Industrial Hygiene Consultancy

Director

Dr. A.K. Verma, M.Sc. Ph.D.
Director & Competent Person Under CG Govt.
Arvind Industrial Hygiene Consultancy, Raipur (C.G.)

HIRA FERRO ALLOYS LIMITED

Introduction – HFAL (HIRA FERRO ALLOYS LIMITED _UNIT- II) has an operational ferro alloy manufacturing unit located at Urla Industrial Area, Accholi Village, Raipur Tehsil and District, Chhattisgarh. The industry currently manufactures Ferro Alloys (Silico Manganese/Ferro Manganese)- 50,000 TPA and/or Pig Iron - 70,000 TPA. The unit also has a 20 MW Captive Power plant. The unit is operational as per the latest Consent to Operate issued by SPCB (CECB) vide Letter No.8679/TS/CECB/2024 dated 30.12.2024 (valid up to 31.12.2025). The total plant area is 46.294 Acres (18.735 Ha.). The unit has four Submerged Arc Furnaces and 20 MW Captive Power Plant. The site is self-sufficient with all the infrastructural facilities consisting of utilities, environment management, manufacturing area, OHC, full-fledged safety department, warehousing, and site technical management.

OCCUPIER & FACTORY MANAGER OF THE UNIT

SHRI AJAY DUBEY (Director)

Hira Ferro Alloys Ltd. (Unit – II)

Plot No. 490/1, 491/2, Urla Industrial Complex, Urla Raipur (C.G.)

Pincode : 492003

Mail ID : ajay.dubey@hiragroup.com, tarun.kumar@hfal.in

Contact : +91- 8770008994, +91- 97555 22009

Phone No.- 0771- 4938401(O), M- +91 97555 22009

HIRA FERRO ALLOYS LIMITED (HFAL) is a certified ISO 9001:2015, ISO 14001:2015, ISO 45001 company of Hira Group which is one of the leading business conglomerates in the state of Chhattisgarh. The group is one of the largest groups of Chhattisgarh with predominant interest in power generation, sponge iron, steel making, steel rolled products, Ferro alloys and coal and iron ore mining and cement manufacture. The group has vast experience in Ferro Alloys & Steel making projects among other products.

The process of Ferro alloys production comes under Hazardous process as per the factory act 1948 amended in 1987. Monitoring of these contaminants by approved method and keeping Their concentration within TLV in the working environment is mandatory to comply the section 87 & 41F of the factory act. The process of ferro alloy production generates dust, heat stress, fumes & noise in the working environment. These occupational health hazards may cause adverse health effect among employees during prolong exposure if proper control measures are not implemented at the work place.

The plant is working under the flagship of Hira group of industries having other units of power and steel also.

OBJECTIVE

The objective of this study was to monitor and to assess the coal dust concentration in breathing zone of workers exposed in CHP area, estimation of Free silica content in collected dust samples & Testing of Bag filter efficiency (DE system) in line with Form 21 A prescribed under Indian Factories Act. Recommending suggesting for control measures.

RESPIRABLE DUST- The respirable dust concentration was monitored with the help of Personal air sampler (APEX II, Casella London Make). The instrument was attached to workers in the working locations of the plant. Air containing respirable dust was drawn through the sampling head (Cyclone 225-8-01) at the rate of 2.2 ltr./mts. Suction is provided by a pump driven by a D.C. motor from a rechargeable NiMH battery which lasts up to 10 hrs. The breathing zone samples were collected during the normal working hours. of the individual. The instrument was removed after 8 hrs. and dust concentration was calculated on the basis of weight difference of the filter paper (PVC Membrane 37 mm diameter). The internationally approved NIOSH method 0600 were used to evaluate the dust concentration in mg/m³ of air. Filter sent to laboratory for silica estimation.

OBSERVATIONS

**Table-1
Respirable Dust – Personal Sampling
Instrument–Casella Apex II Air sampling pump with variable flow rates &
Absorption media TLV – Coal dust 2 Mg/m³ Silica < 5 % .**

S.No.	Name	Desig.	Location	Dust mg/m ³	TLV mg/m ³
1.	Rajesh Kumar Patel	Operator	CHP	1.78	2
2.	Ashok Kumar	Supervisor	Coal Bunker	1.52	2
3.	Kuneshwar Lahare	Helper	Screening area	3.63	2
4.	Bharat Lal Sahu	Operator	CHP	0.90	2

TLV – Coal dust 2 Mg/m³ Silica < 5 %

As Per AFA 2nd Schedule, Based on Free Silica content in coal dust sample: **3.74 %**

Based on free silica dust exposure for Rakesh Kumar, Ashok kumar, Kuneshwar & Bharat lal sahu have found to be **within TLV norms.**

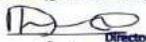
As per 2nd Schedule IFA - $30/3 + 3.74 = 4.45 \text{ mg/m}^3$ **(Converted TLV)**

RESULTS:

Coal dust concentration collected from breathing zone of workers were found to be within TLV at all the above Four locations. Free silica content in coal dust samples of workers was observed to be 3.74 & converted TLV 4.45 mg/m³, respectively which is below the permissible norms, lab report is enclosed for your reference.

DE System /Bag Filter Testing – Efficiency of De system was evaluated by using digital manometer model Testo 512 West Germany make. The report in Form 21 A is enclosed in the end.

DE system at all the locations were found functioning properly, no dust emission was observed from the chimney & nearby area.

Arvind Industrial Hygiene Consultancy

Director

Dr.A.K.Verma, M.Sc. Ph.D.
Director & Competent Person Under CG Govt.
Arvind Industrial Hygiene Consultancy
Raipur (C.G.)

SURVEY PHOTO:



LAB REPORT



NATIONAL BUILDING MATERIAL LAB

& steel's testing laboratory

APPROVED BY BUREAU OF INDIAN STANDARDS (BIS)

(ISO 9001:2015, ISO :14001:2015 ISO : 18001: 2007 CERTIFY LAB)

Approved by Govt. of India

TEST REPORT

To,
M/s Arvind Industrial Hygiene Consultancy
Raipur, C.G.

Date of Issue :- 07.05.2025
Page No. :- 01 of 01



Samples Description	:- Coal Dust Samples	Customer's Ref.No. & Date	:- Nil
No. of Sample	:- 2 Nos	Lab Ref. No.	:- SRAF No.NBML/NF-0100/2025, Date:-05.05.2025
Date of Samples Received	:- 05.05.2025	Test Method	:- Gravimetric Analysis
Test Carried out on	:- 05.05.2025	Sample Condition	:- Powdered
Test Completion Date	:- 07.05.2025		

CHEMICAL ANALYSIS :-

TEST

Sr. No.	Sample Identification	Silica %
1	Hira Ferro Alloy Urla, Raipur CHP Area	3.74
2	Alok Ferro Alloy Urla, Raipur CHP Area	4.35

*** END OF TEST REPORT***

Checked by



Authorised Signatory

BIS CERTIFIED LABORATORY APPROVED BY GOVT. OF INDIA

Conditions

1. The Result listed refer only to tested samples & applicable parameter Endorsement of product is neither interred nor implied. 2. The use of report for arbitration ,publicity & evidence in legal dispute is forbidden except with prior written consent of NBML Lab. 3. All disputes are subject to Raipur jurisdiction 7 days correction to this report invalidates this report. 4. Sample will be destroyed after 90-days from the date of test report unless otherwise Specified.

Lab. Office Address : Raipur-Bilaspur road,Urkura Chouk, (Venu Petrol Pump),Urkura Nagar, Beside Akashwani Radio Station, Rawabhata Village, Raipur-493221. Website :- www.nbmlab.com, Email ID:- nbml2017@gmail.com, Contact No:- +91 9285284469,+91 9993493802

Form 21-A
(Prescribed under rule 107)
Test Report – Dust Extraction System

Machine Discharge Area- Bag Filter-1 CHP area		
1.	Type	Bag Filters
	Model	Pulse Jet System
	Fan Specification	Centrifugal
	Capacity (m ³ /hr.)	17000
	Power (kw)/RPM	22KW/1450 RPM
Head		
2.	Sr. No. of Heads	-
	Containment Captured	Fine Dust
	Captured Velocity (m/s)	6.80
	Volume Exhausted at Head	Remixed/Collected at other point
	Head Static Pressure (mmwc)	300 mmwc
Total Pressure Drop		
3.	(a) At joint (mmwc)	80
	(b) At other point of system	116
Transport Velocity in Dust		
4.	Bag Filter (m/s)	6.7
Air Cleaning Device		
5.	Type Used	Bag Filters
	Velocity at Inlet (m/s)	7.69
	Static Pressure at Inlet (mmwc)	24
	Velocity at Outlet (m/s)	4.2
	Static Pressure at Outlet (mmwc)	82.0
Fan		
6.	Type Used	Centrifugal Flow
	Volume handled (m ³ /h)	15600
	Static Pressure (mmwc)	
	Pressure drop at Outlet of Fan (mmwc)	
Motor		
7.	Type	3 Phase Induction Motor
	Speed	1450
	HP/KW	30HP/22kW
8.	Particulars of Defects	<p>System performance is satisfactory. But Regular cleaning is required to improve the efficiency of DE System.</p> <p style="text-align: center;">Signature</p>

Form 21-A
(Prescribed under rule 107)
Test Report – Dust Extraction System

Machine Discharge Area- Bag Filter – 2 CHP Area		
1.	Type	Bag Filters
	Model	Pulse Jet System
	Fan Specification	Centrifugal
	Capacity (m3/hr.)	10000
	Power (kw)/RPM	15Kw/1400
Head		
2.	Sr. No. of Heads	-
	Containment Captured	Fine Dust
	Captured Velocity (m/s)	9.60
	Volume Exhausted at Head	Remixed/Collected at other point
	Head Static Pressure (mmwc)	300 mmwc
Total Pressure Drop		
3.	(a) At joint (mmwc)	76
	(b) At other point of system	112
Transport Velocity in Dust		
4.	Bag Filter (m/s)	6.6
Air Cleaning Device		
5.	Type Used	Bag Filters
	Velocity at Inlet (m/s)	11.7
	Static Pressure at Inlet (mmwc)	12.0
	Velocity at Outlet (m/s)	17.5
	Static Pressure at Outlet (mmwc)	12.0
Fan		
6.	Type Used	Centrifugal Flow
	Volume handled (m3/h)	8800
	Static Pressure (mmwc)	
	Pressure drop at Outlet of Fan (mmwc)	-
Motor		
7.	Type	3 Phase Induction Motor
	Speed	1450
	HP/KW	20HP/15KW
8.	Particulars of Defects	System performance is satisfactory. Regular monitoring & maintenance is required to improve the efficiency of DE System. Signature

Form 21-A
(Prescribed under rule 107)
Test Report – Dust Extraction System

Machine Discharge Area- Bag Filter- 3 CHP Area		
1.	Type	Bag Filters
	Model	Pulse Jet System
	Fan Specification	Centrifugal
	Capacity (m3/hr.)	26000
	Power (kw)/RPM	37KW/1450 RPM
Head		
2.	Sr. No. of Heads	-
	Containment Captured	Fine Dust
	Captured Velocity (m/s)	10.6
	Volume Exhausted at Head	Remixed/Collected at other point
	Head Static Pressure (mmwc)	300 mmwc
Total Pressure Drop		
3.	(a) At joint (mmwc)	85
	(b) At other point of system	121
Transport Velocity in Dust		
4.	Bag Filter (m/s)	6.8
Air Cleaning Device		
5.	Type Used	Bag Filters
	Velocity at Inlet (m/s)	12.4
	Static Pressure at Inlet (mmwc)	9.6
	Velocity at Outlet (m/s)	23.7
	Static Pressure at Outlet (mmwc)	12.2
Fan		
6.	Type Used	Centrifugal Flow
	Volume handled (m3/h)	24500
	Static Pressure (mmwc)	-
	Pressure drop at Outlet of Fan (mmwc)	-
Motor		
7.	Type	3 Phase Induction Motor
	Speed	1450
	HP/KW	50HP /37KW
8.	Particulars of Defects	System performance is satisfactory. Regular monitoring & maintenance is required to improve the efficiency of DE System. Signature

CALIBRATION CERTIFICATE'S

Pump ①

www.casellasolutions.com

CASELLA
A DIVISION OF TSI

Certificate of Conformity and Calibration

Instrument Type Apex2Plus I.S Personal Sampling Pump
Serial Number 4914858
Firmware Version 299.087.16.00

Applicable standards:-

ISO 13137: 2013- Workplace Atmospheres: Pumps for Personal Sampling of Chemical and Biological Agents

Test Conditions:-

Temperature 22 °C
Humidity 40 %RH
Pressure 998 mBar

Test Engineer:-

Ghanshyam Kumar

Date of Issue:-

20/11/2024

Due Date :-

19/11/2025

Equipment Used

Air Flow Calibrator:

Type: BGI Challenger

Serial Number:

EQ11364



Declaration of conformity

This test certificate confirms that the instrument specified above has been successfully tested to comply with the manufacturer's published specifications.

Tests are performed using equipment traceable to national standards in accordance with Casella's ISO 9001:2015 quality procedures. This product is certified as being compliant to the requirements of the CE Directive.

Test and Calibration Results :-

General tests

Item	Measured value	Lower Limit	Upper Limit	Status
Pump temperature (°C)	29.6	0	45	Pass
Battery voltage - CELL1 (V)	4.1	3.6	4.2	Pass
Battery voltage - CELL2 (V)	4.0	3.6	4.2	Pass
General hardware	N/A	N/A	N/A	Pass
Bluetooth communication	N/A	N/A	N/A	Pass

General tests

All Tests Pass

Flow rate accuracy

Set flow point (litres/min)	Measured flow rate (litres/min)	Error (%)	Error Limits (%)		Status
			Min	Max	
5.00	4.60	-2.00%	-5%	5%	Pass
4.00	4.00	0.00%	-5%	5%	Pass
3.00	3.00	0.00%	-5%	5%	Pass
2.00	2.09	2.50%	-5%	5%	Pass

Flow rate accuracy

All Tests Pass

Flow control accuracy

Set flow point (litres/min)	Inlet pressure loading (cm H ₂ O)	Measured flow rate (litres/min)	Error (%)	Error Limits (%)			Status
				Min	Max	Ref.	
2.00	6	1.96	Ref.	Ref.	Ref.	Ref.	
2.00	41	1.96	-2.00%	-5%	5%	Pass	

Flow control accuracy

All Tests Pass

Casella UK
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E-mail: Answ@tsi.com

Casella India
TSI Instruments India Pvt.Ltd
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Manesar, Gurgaon, Gurgaon,
Haryana 122050, India.
Tel: +91 8200971884
E-mail: ghanshyam.singh@tsi.com

Tested to Apex2 test sheet TP525 revision 11-00

Pump - (2)

www.casellasolutions.com

CASELLA
A DIVISION OF TSI

Certificate of Conformity and Calibration

Instrument Type Apex2Plus I.S Personal Sampling Pump
Serial Number 4021886
Firmware Version 209.007.16.00

Applicable standards:-

ISO 13137: 2013- Workplace Atmospheres: Pumps for Personal Sampling of Chemical and Biological Agents

Test Conditions:-

Temperature 22 °C
Humidity 40 %RH
Pressure 998 mBar

Test Engineer:-

Ghanshyam Kumar

Date of Issue:-

20/11/2024

Due Date :-

19/11/2025

Equipment Used

Air Flow Calibrator:

Type:

BGI Challenge

Serial Number:

EQ11364



Declaration of conformity

This test certificate confirms that the instrument specified above has been successfully tested to comply with the manufacturer's published specifications.

Tests are performed using equipment traceable to national standards in accordance with Casella's ISO 9001:2015 quality procedures. This product is certified as being compliant to the requirements of the CE Directive.

Test and Calibration Results :-

General tests

Item	Measured value	Lower Limit	Upper Limit	Status
Pump temperature (°C)	22.5	0	45	Pass
Battery voltage - CELL1 (V)	4.0	3.5	4.2	Pass
Battery voltage - CELL2 (V)	3.9	3.5	4.2	Pass
General hardware	N/A	N/A	N/A	Pass
Bluetooth communication	N/A	N/A	N/A	Pass

General tests

All Tests Pass

Flow rate accuracy

Set flow point (litres/min)	Measured flow rate (litres/min)	Error (%)	Error Limits (%)		Status
			Min	Max	
5.00	4.88	-2.40%	-5%	5%	Pass
4.00	3.98	-0.50%	-5%	5%	Pass
3.00	3.05	1.67%	-5%	5%	Pass
2.00	1.99	-0.50%	-5%	5%	Pass

Flow rate accuracy

All Tests Pass

Flow control accuracy

Set flow point (litres/min)	Inlet pressure loading (cm H ₂ O)	Measured flow rate (litres/min)	Error (%)	Error Limits (%)		Status
				Min	Max	
2.00	5	1.96	Ref.	Ref.	Ref.	
2.00	41	1.96	-2.05%	-5%	5%	Pass

Flow control accuracy

All Tests Pass

Casella UK

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 E-mail: info@casellasolutions.com

Casella C/o TSI Incorporated

800 Gortigan Road
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 MN 55125
 USA
 Tel: +1 855-450-2800
 E-mail: Arvind@tsi.com

Casella India

TSI Instruments India Pvt Ltd
 Office no 1230, 82th floor,
 DLF Cybercity, Phase 3, Gurgaon,
 Haryana 122002 India
 Tel: +91 0560078984
 E-mail: ghanshyam.sk@tsi.com

Pump ⑧

www.casellasolutions.com

CASELLA
A DIVISION OF TSI

Certificate of Conformity and Calibration

Instrument Type Apex2Std. I.S Personal Sampling Pump
Serial Number 1414952
Firmware Version 200.007.16.00

Applicable standards:-

ISO 13137: 2013- Workplace Atmosphere: Pumps for Personal Sampling of Chemical and Biological Agents

Test Conditions:-

Temperature 22 °C
Humidity 46 %RH
Pressure 998 mBar

Test Engineer:-

Ghanshyam Kumar

Date of Issue:-

20/11/2024

Due Date :-

19/11/2025

Equipment Used

Air Flow Calibrator:

Type:

BGI Challenger

Serial Number:

EQ11364



Declaration of conformity

This test certificate confirms that the instrument specified above has been successfully tested to comply with the manufacturer's published specifications.

Tests are performed using equipment traceable to national standards in accordance with Casella's ISO 9001:2015 quality procedures. This product is certified as being compliant to the requirements of the CE Directive.

Test and Calibration Results :-

General tests

Item	Measured value	Lower Limit	Upper Limit	Status
Pump temperature (°C)	25.7	0	45	Pass
Battery voltage - CELL1 (V)	4.0	3.5	4.2	Pass
Battery voltage - CELL2 (V)	4.1	3.5	4.2	Pass
General hardware	N/A	N/A	N/A	Pass
Bluetooth communication	N/A	N/A	N/A	Pass

General tests

All Tests Pass

Flow rate accuracy

Set flow point (litres/min)	Measured flow rate (litres/min)	Error (%)	Error Limits (%)		Status
			Min	Max	
5.00	4.93	-2.00%	-5%	5%	Pass
4.00	4.00	0.00%	-5%	5%	Pass
3.00	3.00	0.00%	-5%	5%	Pass
2.00	2.05	2.50%	-5%	5%	Pass

Flow rate accuracy

All Tests Pass

Flow control accuracy

Set flow point (litres/min)	Inlet pressure loading (cm H ₂ O)	Measured flow rate (litres/min)	Error (%)	Error Limits (%)		Status
				Min	Max	
2.00	0	1.95	Ref.	Ref.	Ref.	Ref.
2.00	41	1.95	-2.00%	-5%	5%	Pass

Flow control accuracy

All Tests Pass

Casella UK

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 Kingston, Surrey
 MK2 7YJ,
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 Malviya, Ghanshyam, Gurgaon,
 Haryana 122002, India

Tel: +91 9502875594
 E-mail: ghanshyam_arvind@tsi.com

Tested to Apex2 test sheet TP525 revision 11-00

Page 1 of 4



Quality Solutions Industries Pvt. Ltd.
(Formerly Known As Quality Solutions India)

ACCREDITED BY NABL (A Constituent Board of QCI, Deptt. of Industrial Policy & Promotion, Govt. of India)
ISO/IEC 17025:2017- ACCREDITED LABORATORY



Customer Connect with us
Since-1998

CALIBRATION CERTIFICATE					
					Page : 1 of 1
Date of Issue	30-12-2024	Certificate No.	QSI/10933/24/12		
Date of Calibration	27-12-2024	ULR Number	CC271724000010901F		
Suggested Due Date	26-12-2025	SRF No. / Date	10933 / 24-12-2024		
Customer Details		Calibrated At	At Site		
M/s. Arvind Industrial Hygiene Consultancy.		Condition on Receipt	Satisfactory		
Add: C.19, Tagore Nagar, Raipur, Chhattisgarh - 492001.		Environmental Temperature	23° C ± 1.5° C		
		Relative Humidity	Max. 80 % RH		
		Calibration Method	DKD R6-1, 2014		
		Calibration Procedure No.	QMP-25(WI-67M)		
Details of Unit Under Calibration (UUC)					
Name	Manometer	Model / Type	Testo 512/---		
Range	0 - 200 hPa	Sr. No.	22400072/210		
Least Count	0.01 hPa	ID No.	22400072/210		
Make	Testo	Location	---		
Details of Standard Used					
Instrument Name	Certificate No	Valid Upto	Calibrated By		
Digital Pressure Gauge (with comparator) (-1 to 30 bar/0.001 bar)	L24030703-02	06.03.2025	NABL LAB CC-3172		
Calibration Results					
Sr. No.	U.U.C Value (hPa)	Corresponding Value in bar	Avg. Std. Value (bar)	Error (bar)	% of Error (FS)
1	0.00	0.000	0.000	0.000	0.00
2	20.00	0.020	0.020	0.000	0.00
3	40.00	0.040	0.039	0.001	0.50
4	80.00	0.080	0.079	0.001	0.50
5	120.00	0.120	0.119	0.001	0.50
6	160.00	0.160	0.158	0.002	1.00
7	200.00	0.200	0.198	0.002	1.00
UUC:- Unit Under Calibration, FS:- Full Scale					
Format no: F01 (QMP-21) -7.8, Issue no/ Date: 01/ 01/04/2024, Revision no/Date: 00/ 01/04/2024					
Traceability of Standard(s): The Standard Used for calibration is traceable to National Standards					
Uncertainty of Measurement (At 95% Confidence Level, k=2): ±0.006 bar					
NOTE: (AS PER IS: 3624 Permissible ACCURACY SPECIFICATION): The error in pressure indication at any point above 10% and below 90% & of the maximum scale value, Shall not exceed 2% of the Maximum scale value, and for the rest of the scale, 3% of the maximum scale value)					
Employee ID: - QS-032					
Calibrated By Shri Ram Dhiman (Technical Executive)			Approved By Ajay Kumar Singh (Technical Manager)		

Address - Plot No: X-04, Sector-76, BPTP, Faridabad, 121 006 Haryana (INDIA)
Ph.: +91-129-4065432 Mobile : +91-9868069836, 9891912871 | E-mail : qsi_fbd@rediffmail.com, info@qsiglobal.in | Website : www.qualitysolutions.in





Certificate OF REGISTRATION

This is to Certify that the Management System of
ARVIND INDUSTRIAL HYGIENE CONSULTANCY

C-19, TAGORE NAGAR, RAIPUR-492 001,
CHHATTISGARH (INDIA)

has been found to conform to the Occupational Health & Safety Management System standard:

ISO 45001:2018

This certificate is valid for the following scope of operations:

**PROVIDING INDUSTRIAL HYGIENE CONSULTANCY
SERVICES TO INDUSTRIES**

Certificate No.: 09111887C-1

Date of initial registration

01 July 2024

Date of this Certificate

01 July 2024

Recertification Due

30 June 2027

Accreditation

This Certificate remains valid subject to satisfactory surveillance audits.



ICL/FM-001/REV07



Joana
Director



For verification and updated information concerning the present certificate visit to www.iclcert.com

This certificate is property of Integral Certification Ltd. and shall be returned immediately when demanded.

Integral Certification Ltd.

International Office: 45, Middle Hillgate Stockport, Greater Manchester SK1 3DG

Contact No.: +44 7404823687

(Company Number 15218428 in England and Wales)

Integral Certification Pvt. Ltd.

Corporate Office: 301, U-60 (3rd Floor), Shakarpur, Laxmi Nagar, Delhi-110052, India

Contact No.: +91-9319332223

Email: info@iclcert.com Website: www.iclcert.com



Certificate OF REGISTRATION

This is to Certify that the Management System of
ARVIND INDUSTRIAL HYGIENE CONSULTANCY
C-19, TAGORE NAGAR, RAIPUR-492 001,
CHHATTISGARH (INDIA)

has been found to conform to the Environmental Management System standard:

ISO 14001:2015

This certificate is valid for the following scope of operations:

**PROVIDING INDUSTRIAL HYGIENE CONSULTANCY
SERVICES TO INDUSTRIES**

Certificate No.: 09111887B

Date of initial registration

01 July 2024

Date of this Certificate

01 July 2024

Recertification Due

30 June 2027

Accreditation

This Certificate remains valid subject to satisfactory surveillance audits.



ICL/FM-001/REV07



Joanna
Director



For verification and updated information concerning the present certificate visit to www.iclcert.com
This certificate is property of Integral Certification Ltd. and shall be returned immediately when demanded.

Integral Certification Ltd.
International Office: 45, Middle Hillgate Stockport, Greater Manchester SK1 3DG
Contact No.: +44 7404823687
(Company Number 13219428 in England and Wales)
Integral Certification Pvt. Ltd.
Corporate Office: 301, U-80 (3rd Floor), Shakarpur, Laxmi Nagar, Delhi-110092, India
Contact No.: +91-9319332223
Email: info@iclcert.com Website: www.iclcert.com

**DIRECTORATE OF INDUSTRIAL HEALTH & SAFETY
CHHATTISGARH, RAIPUR**

2nd Floor, 3rd Block, Indrawati Bhawan, Atal Nagar Raipur

No. DIHS/C.G./RPR/C.C./4437270336A

Raipur, Dated 06/02/2025

CERTIFICATE OF COMPETENCY

This is to certify that **Arvind Industrial Hygiene Consultancy, C-19, Tagore Nagar, Raipur (C.G)** to be a competent person for the purpose of carrying out tests, examinations, inspections and certification for such precautions against dangerous fumes, ventilation system as required under various schedule framed under sec-87, used in factories located in the State of Chhattisgarh used in factories for the **person named as SAKET KUMARSHRIVASTAVA Section 36 and 87** and the Rules made there under of Factories Rules 1962 for the period from **06/02/2025 To 05/02/2026**. This certificate is issued subject to the conditions stipulated here under :-

CONDITIONS

1. The examinations and inspections shall be carried out in accordance with the provisions of the Act and the Rules made there under.
2. Tests, examination and inspections shall be carried out under direct supervision of the competent person.
3. Copies of examination certificate issued by you after due examination are to be marked to the Inspector of Factories concerned in all cases where defects are noticed and repairs are ordered or any alterations are imposed on its use.
4. The Chief Inspector of Factories, Chhattisgarh State, Raipur reserves the right to revoke, renew or amend this order at any time after giving opportunity of hearing.
5. All the testing facilities at the disposal of the competent person/institution/Association shall be maintained in good working order.
6. Any change in testing facilities (either addition or deletion) shall be intimated to the Chief Inspector of Factories, C.G. immediately.

No. DIHS/C.G./RPR/C.C./4437270336A

Copy forwarded to :-

1. Shri **Arvind Industrial Hygiene Consultancy, C-19, Tagore Nagar, Raipur (C.G)** in reference to application dated 14/01/2025
2. Dy. Director, Industrial Health & Safety, H.Q/ D.D.Raipur/ D.D.Hygiene Lab/ Bilaspur/ Durg/ Raigarh/ Korba/ Rajnandgaon, Assistant Director , Industrial Health & Safety, Janjgir -Champa, Balodabazar for Information.

Alarm
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Alarmelmann
Chief Inspector of Factories
Government of Chhattisgarh Raipur
Date:
2025.02.06
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Raipur, Dated 06/02/2025

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Alarmelmann
Chief Inspector of Factories
Government of Chhattisgarh Raipur
Date:
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..... END OF REPORT.....



7th
MARCH
2025

COMPREHENSIVE INDUSTRIAL HYGIENE SURVEY

AT

HIRA FERRO ALLOY LTD. (Unit -2)

PLOT NO. 490/1, 491/2, URLA INDUSTRIAL AREA, URLA DIST – RAIPUR



Survey Conducted
By
Arvind Industrial Hygiene
Consultancy
Raipur (C.G.)

Ref. No- Arvind Ind. Hygiene/2025/48

Date: 11 - 03 -2025

To,
HOD, Safety Department
Hira Ferro Alloys Ltd. (Unit –
2), Plot No. 490/1, 491/2.
Urla Industrial Complex
Raipur -492003

Sub – Comprehensive Industrial Hygiene Survey at Hira Ferro Alloys Ltd. (Unit – 2)

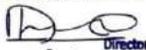
Reference – Service order Ferro /24-25/SO/0686 dated 26.02.2025

Dear Sir,

With reference to the above order an extensive industrial hygiene survey have been conduct at various location of the plant on 7th March 2025. 2024.The survey work was coordinated by Mr. Shiv Raj Verma, Safety Officer from Safety department. The overall coordination was extended by Mr.Tarun kumar from Environment department .

Please find a report of the survey for your information and necessary action & compliance.

Arvind Industrial Hygiene Consultancy



Director

Dr.A.K.Verma, M.Sc.Ph.D.
Director & Competent Person Under CG Govt.
Arvind Industrial Hygiene Consultancy, Raipur (C.G.)

STUDY FINDINGS – AT A GLANCE

HAZARD	NO. OF SAMPLES	EXCEEDED TLV
Respirable Dust (P)	05	01
Noise (P)	04	00
Noise (A)	07	02
Heat Stress	04	00
Gas/chem.	03	01
Walking Illumination	07	00
Total	30	(13%), 04

(P) - PERSONAL SAMPLING

Overall, 13% deviation from the TLV data in the current survey.

INDUSTRIAL HYGIENE SURVEY REPORT OF HIRA FERRO ALLOY LTD.

Introduction - Hira Ferro Alloys Limited (HFAL) is one of the leading Ferro Alloy Production Unit of Chhattisgarh. As per Pollution Clearance Company has operational 4 Nos. of Submerge Arc Furnace having Ferro Alloys - 50000 Tonnes per Annual capacity and/or Pig Iron -70000 Tonnes per Annum and There is a separate coal-based power plant of 20 MW capacities. The plant is working under the flagship of Hira group of industries having other units of power and steel also. In HFA unit there are 375 regular employees and 125 contractual workers working at different sections of the plant. The plant is certified with ISO -9001, ISO 14001, ISO 45001 management system for assuring best possible occupational health and environment conditions inside the plant.

The main production is done through three nos. of electric arc furnaces. The present hygiene survey was conducted on 3rd Feb.2024 at Ferro alloy unit and power division of the plant.

The survey was conducted at the time when all the units were under operation. The process of ferroalloy production comes under hazardous process as per the factory act 1948 amended in 1987. Monitoring of these contaminants by approved method and keeping their concentration within TLV in the working environment. Is mandatory to comply the section 87 & 41F of the factory act. The process of ferroalloy production generates dust, heat stress, fumes & noise in the working environment. These occupational health hazards may cause adverse health effect among employees during prolong exposure if proper control measures are not implemented at the work place.

The industrial hygiene survey was conducted at the various identified locations of the plant. This survey provides input for the assessment of occupational health risk among the workers, which may help subsequently for taking control measures in the work place. The data collected is useful to correlate the health of employees with their occupation, improvement of working environment and work to become conducive to safety and health.

In the plant the shop floor layout including housekeeping, safety signage's displayed at various locations, were appreciable. The spacious and open landscaping inside the plant covering with greenery was also very much appreciable from environment point of view.

Objective - The objective of this study was to monitor and to assess the respirable dust concentration, noise level, Heat stress, Gas Chemical, Illumination in the working environment and to identify the potential hazard and risk arising from the workplace, comparing with permissible exposure limits (TLV) and to suggest remedial measures to make the environment congenial, conducive and comfortable for the employees.

Technical information:

(a) **Threshold limit value** – TLVs refers to airborne concentration of substances for 8 hrs. Workdays to which nearby all workers may be repeatedly exposed day after day without having any adverse health effect.

(b) **TWA** – The time weighted average concentrations permit excursions above the limits, provided they are compensated by equivalent excursion below the limit during the work day.

(c) **Decibel db** - A unit used to express sound intensity. Minimum difference in loudness that is usually perceptible. The general relationship is $L = 10 \log_{10}(q/q_0)$ (dB). One decibel is one tenth of a bel and it is the preferred unit for noise measurement.

(d) **Sound pressure level Spl** – The level in decibel of a sound is 20 times the logarithm to the base 10 of the ratio of the pressure of this sound to the reference sound pressure. The unit gives idea about the effect of noise on ear drum.

(e) **Equivalent noise exposure Leq** – Equivalent exposure for extended period of time, provided there is no change in the noise because of the interference. It gives the assessment of noise dose as per ISO -1999, for hearing conservation purpose. Useful for calculating TLV/TWA for noise dose of exposed employees.

(f) **Sound emission level SEL** – The unit gives the assessment of noise intensity generating from the source or machine. The parameter is useful for adopting engineering control measures in the work place.

(g) **Personal monitoring** – Sampling of employees exposed to various pollutants by fixing sampler in the breathing zone.

(h) **Exposure Time** – The length of individual employees' exposure may be limited as administrative control. There are shorter exposure times for higher sound levels. Permitted noise exposure time or PT can be calculated for the measured sound level and it may be used as an administrative control measure to minimize the exposure level. PT can be calculated from the following formula

$$PT = 8/2^{(L-90)/5}$$

(g) **Wet Bulb Globe Temperature (WBGT)** – It is the recognized index for monitoring dry & hot atmosphere in industry in compliance with ISO standard.

(h) **Respirable Dust (0.1 -5 micron)** – The dust of the above size suspended in the air for prolonged period of time and has a tendency to deposit in the alveoli chamber of the lungs. From naked eye one can see only the dust size of above 7 microns.

WBGT Index – Wet bulb globe temperature is an agreed international standard (ISO-7243) on heat stress which was published in 1982, and accepted by most of the countries in the world. Its TLVs have been established by American Conference of Government and Industrial Hygienist (ACGIH). This index is being used for judgment of the severity of thermal environment and the risk for heat casualties. The combination that was best related to the human response was found to be: **WBGT = 0.7tnw + 0.2tg + 0.1 tdb**

tnw –Natural wet bulb temp, tg –Globe temp, tdb –Dry bulb temp. This is the best index to be used in conjunction with Air velocity and Relative humidity (RH %) or vapor pressure at NTP.

What is HEAT STRESS - Heat may occur in environment with high air temperature, high thermal radiations like Foundries, Smelter, refineries, Steel plant, Ceramic factories & high level of humidity for example Rotary kiln, boiler, turbines & laundries or at work place where high activity level (Increasing metabolic rate) are needed. When heat stress from the thermal environment is imposed on the human body, there will be resulting strain in the body. This may result in physiological reactions such as increased skin temperature, sweat productions, increased heart rate and higher core temperature. Under severe conditions the strain may attain such a magnitude as to cause health impairment & death.

The heat stress imposed on the body by a certain environment is often evaluated by a heat stress index” which by a single value combines the influence of one or more of the environmental factors as air temperature, mean radiant temperature, air velocity, relative humidity, activity & clothing. WBGT index is the most commonly used internationally standardized index for monitoring heat stress in hot & dry environment. Some other index is CET, P4SR, ET etc. In India although there is a reference of many studies mentioned above on measurement of Heat Stress in various Industries, but there are a few (finger counted) studies published on the health effect of heat stress (heat strain). National Institute of OH, Ahmedabad Anjali Nag et.al have published a study on effect of heat stress in Am. Ind. Hyg. Asso. Journal. The purpose of this present study was to monitor Heat Stress in the identified locations of the plant and to suggest preventive & control measures to reduce the heat stress in the work place.

Heat Exchange & Heat Balance –

The heat stress on the human body results from two types of heat load

1. External Heat – Environmental heat
2. Internal Heat – Metabolic heat

External heat load results basically from Mechanism of conduction, convection and radiation. Internal heat generated from human body due to intra cellular oxidative process (metabolism) which is combination of heat generated by the basal metabolism and resulting from physical activity. In order to maintain the internal thermal balance, the metabolic heat load must be dissipated and this can be achieved through conduction, convections & radiation, (depending on the environment conditions) the body may gain or loss heat through this mechanism. The evaporation of 1 ltr. of sweat removes 580 kcal heat from the body, to the surrounding environment

Heat Balance – Heat exchanges between the human body & its environment follow certain physical laws & can be expressed by the following equation.

Heat Gain = Heat loss

$$M \pm W \pm Cd \pm Cv \pm R - E = 0$$

M –Metabolic rate, W – Heat gains due to work, Cd – conduction
Cv – convections, R – Radiation, E – Evaporation

The amount of heat gain by the body of the exposed worker should be lost by the evaporation, so that heat stress is not caused.

Effect of Heat Stress

	Symptoms	Effect	Prevention
Heat Syncope	Dizziness pooling of blood in dilated vessels of skin	Fainting while standing erect	Acclimatization
Heat Exhaustion	Dehydration, physical fatigue	Sustained exertion, thirst headache, lack of acclimatization	Acclimatization, fluid replacement
Heat Cramps	Giddiness, anoxia, salt depletion	Heavy sweating, painful spasm of muscle	Adequate salt intake
Heat Stroke	Hot dry skin, loss of consciousness, convulsions, high body temperature	Failure of thermoregulatory system	Cool the body, air movement around the victim, fluid replacement

Material & Methods - Monitoring of various health hazards was carried out by measuring the factors present in the environment through sampling. The survey was conducted at various locations identified after interaction with the safety department of the plant. The instruments used were portable and battery operated with direct reading LCD display type. Different physical & chemical hazards were monitored by using area sampling and personal sampling techniques. The identification of the exposed employees was done on the basis of data collection, its analysis and comparison with threshold limit values of respective hazards.

Respirable Dust - The respirable dust concentration was monitored with the help of Personal air sampler (Apex II, Casella London Make). The instrument was attached in the working locations of the plant. Air containing respirable dust was drawn through the sampling head (Cyclone 225-8-01) at the rate of 2.2ltr./mts. Suction is provided by a pump driven by a D.C. motor from a rechargeable NiMH battery which lasts up to 10 hrs. The breathing zone samples were collected during the normal working hours. of the individual. The instrument was

removed after 8 hrs. and dust concentration was calculated on the basis of weight difference of the filter paper (PVC Membrane filter 37 mm dia). The internationally approved NIOSH method 0600 was used to evaluate the dust concentration in mg/m^3 of air.

Noise - Noise level measurement was done with the help of sound level meter type Casella 62 X, London make. Parameters like Spl, Leq and SEL were recorded near the different machines following the OSHA guidelines for noise sampling (1 mtr. Away from the machine and at the place where worker spent their maximum time during duty hrs.).

Personal exposure to noise was assessed by noise dosimeter type 4428. The noise dosimeter was attached to the workers, working in noisy area and then it was removed to assess their actual exposure. The percentage exposure was further converted into corresponding decibel by using conversion table.

Heat Stress - Heat stress was measured in terms of wet bulb globe temperature (WBGT) which is the ISO recognized scale for measurement of heat stress in dry and hot atmosphere. The instrument WBGT heat stress monitor was used for this purpose. Heat stress was measured in the area where workers may at times be exposed to radiant/convective heat. Mean WBGT and relative humidity with air velocity was evaluated using velometer. The data collected was compared with the threshold limit value of the respective hazards. Some of the important aspect like use of PPEs, exposure pattern of the workers, ventilation and lighting system was also recorded during survey.

Illumination - Illumination measurement was done with luxmeter which gives assessment of brightness in the unit area of work place in lux. The degree of safety with which a task is performed depends in large part on the quality of illumination and on visual capacities. The visibility of an object can be altered in many ways. One of the most important factors is the contrast of the luminance's due to reflection factors, to shadows or to color of the object itself and to the reflection factors of the color. What the eye really perceives are the differences of

luminance between an object and its surroundings. In the night illumination is mostly influenced by the air density, environmental contaminations and quality of lamps. Human eye can accommodate wavelength of 380-760 nm. Illumination survey was conducted in the work place after the sunset, when there was no contribution of day light factor. The lighting system General lighting, localized lighting and local lighting were taken into the consideration during survey. The data collected was compared with the reference values adopted by ACGIH. These values are also applicable under the factory act.

Gas & Chemicals – Measurement of gases concentrations was done using Uniphos multi gas detector pump.

OBSERVATIONS:

**Table -1
Respirable Dust Personal Sampling Instrument Used – Casella Apex 2 IS
Plus, Serial no. 4914858 Calibration date – 20.11.2024**

S.N	Name & ID	Designation	Location	Dust Mg/m ³	TLV Mg/m ³
1.	Santosh Sahu	Tapper	Tapping Yard	0.8	2
2.	Vikash Kumar	Fork lift Operator	Furnace Floor	3.4	2
3.	Shit Kumar Bhagel	Tapper	11 MVA Furnace Floor	0.7	2
4.	Paras Pal	Fork Lift Operator	11 MVA Furnace Floor	1.5	3
5.	Sankar Nisad	Boiler Operator	Power Plant 20MW	0.7	3

*TLV – IFA ,Coal Dust 2 mg/m³ ,Ash dust – 3 Mg/m³

**Table – 2
Noise Personal Sampling, Noise Dosimeter, Instrument
Serial No.– Q -662236 Calibration date 07.11.2024**

S.N	Name	Designation	Location	Noise Leq dB	TL V dB
1.	Tikesh Verma	Operator	Furnace No – 1	72	85
2.	Shiv Sankar Nisad	Operator	Furnace No 2, unit-2	77	85
3.	Vishnu Singh Rajput	Operator	CCR, Unit -2	68	85
4.	Mukesh Vasni	Supervisor	Metal yard	81	85

Table -3
Noise level survey (Area sampling), Instrument– SL - 4022,
Calibration 7.11.24 Acoustic Calibrator 120/1, ANSI – S1. 40-2006

S.N	Location	Noise dB(A) SpL	Noise dB(A) Leq	Noise dB(A) SEL	TLV dB(A)
1.	Furnace Floor, Unit- 2	74.2	72.3	80.1	85
2.	ID Fan, Unit- 2	78.1	77.4	82.2	85
3.	Furnace Floor	71.4	70.7	75.6	85
4.	ID Fan Area	84.1	82.4	88.7	85
5.	Metal Yard	76.4	74.3	80.2	85
6.	TG Floor	87.7	85.3	81.5	85
7.	TG 'OML'	86.9	84.7	81.1	85

*Noise level meter Casella 63 X, I Acoustic calibrator CEL 120/1 Class 1, S.NO. 4914335.
 Threshold limit value for Noise ACGIH TLV- TWA: 85 dBA at 3 Db exchange rate for 8 hrs.
 Indian Factory Act 85 dBA at 5 dB exchange rate for 8 hrs.

** In the above location human exposure is Max. 30 minutes. However, they are strictly using Ear plugs in High noise area, NRR ear plug (Venus) - 29 dB., OSHA Guideline for calculating exposure: $29 - 7/2 = 11$
 Therefore, effective exposure will reduce by 11 Db, if ear plugs are used in Noisy locations

Table - 4
Heat Stress Measurement Instrument– WBGT Monitor Leutron, Mode HT -30,
Calibration date 7.11.2024

S.N	Location	D	W	Radiant Heat °C	Mean WBGT	% Excess	TLV
1.	Furnace -1, Unit- 2	40.7	18.5	44.8	26.6	Nil	29.5
2.	Furnace 1A, MVA	41.7	18.3	42.1	25.4	Nil	29.5
3.	Furnace 2B, MVA	42.7	19.9	44.7	27.3	Nil	29.5
4.	TG Floor, Unit- 2	36.7	17.0	36.5	23.0	Nil	29.5

*Air velocity (mean) –Turbine Hall– Air velocity >1.5 m/Sec.
 Relative Humidity 46 – 49 %, Oxygen 20.9%. TLV Reference 50% work /Rest basis.

Table - 5
Illumination level Lux Meter Leutron Model LX 103, R Range 0 - 50,000 Lux,
Calibration date 16.1.2024

S.N	Location	Lux	Requirement lux IFA
1.	CCR, Unit- 2	168	32
2.	11 MVA CCR	76	32
3.	CCR Power Plant	154	32
4.	TG Floor	134	32
5.	TG Floor "0 ML"	85	32
6.	Metal Yard	57	32
7.	DM Plant	74	32

*TLV IFA – 32 Lux for the work Place.

Table - 6
Gas & Chemicals Area Sampling

S. N.	Location	Contaminant	Conc. PPM	TLV PPM
1.	DM Plant (pump area)	HCl Acid fume	Nil	5 PPM
2.	Chemical storage Area	HCl fume Ammonia H ₂ SO ₄	Nil Nil Nil	5 PPM 25 PPM 1 Mg/m ³
3.	Chemical laboratory	Hydrazine	0.5	0.1 PPM

*TLV – As per IFA second schedule

SURVEY PHOTOGRAPHS



PERSONAL DUST SAMPLING



HEAT STRESS MONITORING



PERSONAL NOISE MONITORING



AREA NOISE MONITORING



ILLUMINATION MONITORING



GAS & CHEMICAL MONITORING

RESULTS & DISCUSSION –

The comprehensive Industrial hygiene survey has been conducted at various locations of HFA on 7TH March 2025. The locations were identified after having interaction with the safety department. The locations were covered randomly ensuring that all the production units such as electric arc furnace, raw material yard, power plant area, compressor house may be covered under the survey programmed.

The electric arc furnace which utilizes raw materials like Mn ore, dolomite, coke, quartzite to produce silico manganese product. The process takes about 2 hrs.30 minutes to complete and then tapping is done and the material is broken manually to reduce its sizes for packing in the bags and stored in the metal yard.

The plant having all the pollution control system working properly in the place. The process of various section is being controlled from centralized control room. Worker's exposure were found to be negligible except in the metal yard and ground hopper where the process is absolutely manual. Total 30 samples with respect to area and personal monitoring for various hazards were collected from the different locations out of that 4 samples deviated from the TLV norms. The data were analyzed statistically and the results are shown in the observation tables 1 to 7.

Respirable Dust – Respirable dust at personal level was measured at 5 working locations out of that 1 sample of furnace floor, fork lift operator has exceeded TLV norms. High dust & fume emission were observed on the furnace floor. Rest were found within the permissible limit. (table -1).

Noise – Personal noise exposure assessment was done for 4 employees of furnace and CPP area out of that noise exposure for all the employees were observed within TLV on 8 hrs. TLV/TWA basis (Leq value). Area noise were monitored at 7 locations out of that noise level were found above TLV at 2 locations of Power plant TG hall & Zero ML. (Table 2 & 3).

Heat Stress – Heat stress was measured in terms of wet bulb globe temperature (W.B.G.T.). Mean W.B.G.T. and radiant heat is reported in table No.4. Out of 4 locations, mean WBGT was found within TLV norms at all the locations. Personal exposure was not observed at the furnace floor, but the fork lift operator was found intermittently exposed to heat while charging the material and tapping out process. TLV criteria considered as 50% work /Rest schedule. All the jobs relating to operation being performed through control cabins. (table 4).

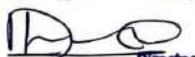
Illumination – Illumination survey was conducted at 7 locations light intensity at all the locations were found to be adequate at all the locations .Illumination intensity was measured at indoor locations only, where the day time lightings are necessary to perform the job. (Table 5).

Gas & Chemicals – Gas & chemical concentration were monitored at 3 different locations of DM plant and found to be within norms at all the locations except at one location of chemical laboratory where the hydrazine emission was observed from the container because its cap was not kept closed properly. MSDS was found displayed in the work place and chemical storage area.

Recommendations – On the basis of the above industrial hygiene survey and data collection and its comparison with the TLV criteria, following recommendations have been suggested:

1. High dust & metal fume emission at furnace floor may be checked by increasing efficiency of DE system .Control room door to be repaired to avoid dust exposure of CCR operators sitting inside the room .
2. At furnace 11 MV CCR ,AC to be rectified ,and CCR door needs repairing ,Operators chair may also be repaired and placed accordingly with height and back adjustment .
3. In DM Plant ,chemical laboratory ,hydrazine leaks to be checked by using polythene on the container cap.
4. In power plant TG hall exhaust ventilation to be improved and rectified.

Arvind Industrial Hygiene Consultancy



Director

Dr.A.K.Verma, M.Sc.Ph.D.
Director & Competent Person Under CG Govt.
Arvind Industrial Hygiene Consultancy, Raipur (C.G.)

Pump ①

Certificate of Conformity and Calibration

Instrument Type Apex2Plus I.S Personal Sampling Pump
Serial Number 4914858
Firmware Version 209.087.16.00

Applicable standards:-

ISO 13137: 2013- Workplace Atmospheres; Pumps for Personal Sampling of Chemical and Biological Agents

Test Conditions:-

Temperature 22 °C
 Humidity 40 %RH
 Pressure 998 mBar

Test Engineer:-

Ghanshyam Kumar

Date of Issue:-

20/11/2024

Due Date :-

19/11/2025



Equipment Used

Air Flow Calibrator:
 Type: BGI Challenger Serial Number: EQ11364

Declaration of conformity

This test certificate confirms that the instrument specified above has been successfully tested to comply with the manufacturer's published specifications.

Tests are performed using equipment traceable to national standards in accordance with Casella's ISO 9001:2015 quality procedures. This product is certified as being compliant to the requirements of the CE Directive.

Test and Calibration Results :-

General tests

Item	Measured value	Lower Limit	Upper Limit	Status
Pump temperature (°C)	29.6	0	45	Pass
Battery voltage - CEL1 (V)	4.1	3.6	4.2	Pass
Battery voltage - CEL2 (V)	4.0	3.6	4.2	Pass
General hardware	N/A	N/A	N/A	Pass
Bluetooth communication	N/A	N/A	N/A	Pass

General tests

All Tests Pass

Flow rate accuracy

Set flow point (litres/min)	Measured flow rate (litres/min)	Error (%)	Error Limits (%)		Status
			Min	Max	
5.00	4.90	-2.00%	-5%	5%	Pass
4.00	4.00	0.00%	-5%	5%	Pass
3.00	3.00	0.00%	-5%	5%	Pass
2.00	2.05	2.50%	-5%	5%	Pass

Flow rate accuracy

All Tests Pass

Flow control accuracy

Set flow point (litres/min)	Inlet pressure loading (cm H ₂ O)	Measured flow rate (litres/min)	Error (%)	Error Limits (%)		Status
				Min	Max	
2.00	9	1.96	Ref.	Ref.	Ref.	
2.00	41	1.96	-2.05%	-5%	5%	Pass

Flow control accuracy

All Tests Pass

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Pump - (2)

Certificate of Conformity and Calibration

Instrument Type Apex2Plus I.S Personal Sampling Pump
Serial Number 4021886
Firmware Version 209.087.16.00

Applicable standards:-

ISO 13137: 2013- Workplace Atmospheres: Pumps for Personal Sampling of Chemical and Biological Agents

Test Conditions:-

Temperature 22 °C
Humidity 46 %RH
Pressure 958 mBar

Test Engineer:-

Ghanshyam Kumar

Date of Issue:-

26/11/2024

Due Date :-

19/11/2025

Equipment Used

Air Flow Calibrator:
Type:

BGI Challenger

Serial Number:

EQ11364



Declaration of conformity

This test certificate confirms that the instrument specified above has been successfully tested to comply with the manufacturer's published specifications.

Tests are performed using equipment traceable to national standards in accordance with Casella's ISO 9001:2015 quality procedures. This product is certified as being compliant to the requirements of the CE Directive.

Test and Calibration Results :-

General tests

Item	Measured value	Lower Limit	Upper Limit	Status
Pump temperature (°C)	29.5	0	45	Pass
Battery voltage - CELL1 (V)	4.0	3.5	4.2	Pass
Battery voltage - CELL2 (V)	3.9	3.5	4.2	Pass
General hardware	N/A	N/A	N/A	Pass
Bluetooth communication	N/A	N/A	N/A	Pass

General tests

All Tests Pass

Flow rate accuracy

Set flow point (litres/min)	Measured flow rate (litres/min)	Error (%)	Error Limits (%)		Status
			Min	Max	
5.00	4.88	-2.40%	-5%	5%	Pass
4.00	3.98	-0.50%	-5%	5%	Pass
3.00	3.05	1.67%	-5%	5%	Pass
2.00	1.99	-0.50%	-5%	5%	Pass

Flow rate accuracy

All Tests Pass

Flow control accuracy

Set flow point (litres/min)	Inlet pressure loading (cm H ₂ O)	Measured flow rate (litres/min)	Error (%)	Error Limits (%)		Status
				Min	Max	
2.00	9	1.96	Ref	Ref	Ref	
2.00	41	1.98	-2.03%	-5%	5%	Pass

Flow control accuracy

All Tests Pass

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Pump 8

Certificate of Conformity and Calibration

Instrument Type Apex2Std. I.S Personal Sampling Pump
Serial Number 1414952
Firmware Version 209.087.16.00

Applicable standards:-

ISO 15137: 2013- Workplace Atmospheres; Pumps for Personal Sampling of Chemical and Biological Agents

Test Conditions:-

Temperature 22 °C
 Humidity 46 %RH
 Pressure 998 mBar

Test Engineer:-

Ghanshyam Kumar

Date of Issue:-

20/11/2024

Due Date :-

19/11/2025



Equipment Used

Air Flow Calibrator:
Type: BGI Challenger **Serial Number:** EQ11364

Declaration of conformity

This test certificate confirms that the instrument specified above has been successfully tested to comply with the manufacturer's published specifications.
 Tests are performed using equipment traceable to national standards in accordance with Casella's ISO 9001:2015 quality procedures. This product is certified as being compliant to the requirements of the CE Directive.

Test and Calibration Results :-

General tests

Item	Measured value	Lower Limit	Upper Limit	Status
Pump temperature (°C)	29.7	0	45	Pass
Battery voltage - CELL1 (V)	4.0	3.6	4.2	Pass
Battery voltage - CELL2 (V)	4.1	3.6	4.2	Pass
General hardware	N/A	N/A	N/A	Pass
Bluetooth communication	N/A	N/A	N/A	Pass

General tests All Tests Pass

Flow rate accuracy

Set flow point (litres/min)	Measured flow rate (litres/min)	Error (%)	Error Limits (%)		Status
			Min	Max	
5.00	4.93	-2.00%	-5%	5%	Pass
4.00	4.00	0.00%	-5%	5%	Pass
3.00	3.00	0.00%	-5%	5%	Pass
2.00	2.05	2.50%	-5%	5%	Pass

Flow rate accuracy All Tests Pass

Flow control accuracy

Set flow point (litres/min)	Inlet pressure loading (cm H ₂ O)	Measured flow rate (litres/min)	Error (%)	Error Limits (%)		Status
				Min	Max	
2.00	9	1.98	Ref	Ref	Ref.	
2.00	41	1.98	-2.06%	-5%	5%	Pass

Flow control accuracy All Tests Pass

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(Formerly Known As Quality Solutions India)



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CALIBRATION CERTIFICATE

Page : 1 of 1

Date of Issue	09-11-2024	Certificate No.	QSI/2290/24/11
Date of Calibration	07-11-2024	ULR Number	CC271724000002290F
Suggested Due Date	06-11-2025	SRF No. / Date	2290 / 04-11-2024

Customer Details		Calibrated At	At Lab
M/s. Arvind Industrial Hygiene Consultancy.		Condition on Receipt	Satisfactory
Add: C-19, Tagore Nagar, Raipur, Chhattisgarh.		Environmental Temperature	20° C ± 2° C
		Relative Humidity	50 ± 10 % RH
		Calibration Method	IS-15575 (PART 1)
		Calibration Procedure No.	QMP-25(WI-21M)

Details of Unit Under Calibration (UUC)

Name	Noise Dosimeter	Model / Type	----
Range	70 -130 dB	Sr. No.	----
Least Count	0.1 dB	ID No.	Q662236
Make	Lutron	Location	----

Details of Standard Used

Instrument Name	Certificate No	Valid Upto	Calibrated By
Sound Level Calibrator	ME08107	18.08.2025	NABL LAB CC-2864

Calibration Results

OBSERVATIONS A-Weighting @1kHz

Range-dB	STANDARD VALUE – dB	U.U.C VALUE - dB	± Expanded Uncertainty At approximately 95% Confidence Level- dB	coverage factor
70-130	94.18	93.7	1.37	k = 2
	113.92	113.7	1.37	k = 2

OBSERVATIONS C-Weighting @1kHz

Range-dB	STANDARD VALUE – dB	U.U.C VALUE - dB	± Expanded Uncertainty At approximately 95% Confidence Level- dB	coverage factor
70-130	94.18	94.3	1.37	k = 2
	113.92	114.4	1.37	k = 2

UUC:- Unit Under Calibration
 Traceability of Standard(s) : The Standard Used for calibration is traceable to National Standards
 Note : Acceptance Norms of CUSTOMER (As per Manufacturers Specification), Overall : ±3.5db @1kHz
 The results of Instt. Meet with in above acceptance norms.
 RESULT: Results of Instt. compliance to required specification (Acceptance Norms of CUSTOMER), Results Found : OK
 Employee ID :- QS-012

Calibrated By
 Shri Ram Dhiman
 (Technical Executive)

Approved By
 Ajay Kumar Singh
 (Technical Manager)

NATIONAL AWARD WINNER

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Quality Solutions Industries Pvt. Ltd.
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ACCREDITED BY NABL (A Constituent Board of OCI, Deptt. of Industrial Policy & Promotion, Govt. of India)
ISO/IEC 17025:2017- ACCREDITED LABORATORY



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CALIBRATION CERTIFICATE				
				Page : 1 of 1
Date of Issue	09-11-2024	Certificate No.	QSI/2289/24/11	
Date of Calibration	07-11-2024	ULR Number	CC271724000002289F	
Suggested Due Date	06-11-2025	SRF No. / Date	2289 / 04-11-2024	
Customer Details		Calibrated At	At Lab	
M/s. Arvind Industrial Hygiene Consultancy. Add: C-19, Tagore Nagar, Raipur, Chhattisgarh.		Condition on Receipt	Satisfactory	
		Environmental Temperature	20° C ± 2° C	
		Relative Humidity	50 ± 10 % RH	
		Calibration Method	IS-15575 (PART 1)	
		Calibration Procedure No.	QMP-25(WI-21M)	
Details of Unit Under Calibration (UUC)				
Name	Sound Level Meter	Model / Type	SL-4022	
Range	30 -130 dB	Sr. No.	----	
Least Count	0.1 dB	ID No.	AIHC/SLM-01	
Make	Lutron	Location	----	
Details of Standard Used				
Instrument Name	Certificate No	Valid Upto	Calibrated By	
Sound Level Calibrator	ME08107	18.08.2025	NABL LAB CC-2864	
Calibration Results				
OBSERVATIONS A-Weighting @1kHz				
Range-dB	STANDARD VALUE – dB	U.U.C VALUE - dB	± Expanded Uncertainty At approximately 95% Confidence Level- dB	coverage factor
50-100	94.18	93.9	1.37	k = 2
80-130	94.18	93.9	1.37	k = 2
	113.92	113.9	1.37	k = 2
OBSERVATIONS C-Weighting @1kHz				
Range-dB	STANDARD VALUE – dB	U.U.C VALUE - dB	± Expanded Uncertainty At approximately 95% Confidence Level- dB	coverage factor
50-100	94.18	94.1	1.37	k = 2
80-130	94.18	94.1	1.37	k = 2
	113.92	114.2	1.37	k = 2
UUC:- Unit Under Calibration				
Traceability of Standard(s) : The Standard Used for calibration is traceable to National Standards				
Note : Acceptance Norms of CUSTOMER (As per Manufacturers Specification), Overall : ±3.5db @1kHz				
The results of Instt. Meet with in above acceptance norms.				
RESULT: Results of Instt. compliance to required specification (Acceptance Norms of CUSTOMER), Results Found : OK				
Employee ID :- QS-012				
 Calibrated By Shri Ram Dhiman (Technical Executive)		 Approved By Ajay Kumar Singh (Technical Manager)		

Address - Plot No: X-04, Sector-76, BPTP, Faridabad, 121 006 Haryana (INDIA)

Ph.: +91-129-4065432 Mobile : +91-9868069836, 9891912871 | E-mail : qsi_fbd@rediffmail.com, info@qsiglobal.in | Website : www.qualitysolutions.in



Quality Solutions Industries Pvt. Ltd.

(Formerly Known As Quality Solutions India)



Customer Connect with us Since-1998

AN ISO 9001-2015 REGISTERED

CALIBRATION CERTIFICATE

Page : 1 of 1

Date of Issue 09-11-2024	Certificate No. QSI/2293/24/11
Date of Calibration 07-11-2024	ULR Number CC271724000002293F
Suggested Due Date 06-11-2025	SRF No. / Date 2293 / 05-11-2024
Customer Details	Calibrated At At Lab
M/s. Arvind Industrial Hygiene Consultancy. Add: C-19, Tagore Nagar, Raipur, Chhattisgarh.	Condition on Receipt Satisfactory
	Environmental Temperature 24° C ±3° C
	Relative Humidity 50 ±10% RH
	Calibration Method IS-5725/2480
	Calibration Procedure No. QMP-25(WI-01) TH

Details of Unit Under Calibration (UUC)

Name Digital Heat Strees Meter	Model / Type HT-30 / ----
Range 0 to 50° C, 0 - 100% RH	Sr. No. ----
Least Count 0.1° C, 1% RH	ID No. AIHC/DHSM-01
Make Extech	Location ----

Details of Standard Used

Name	Certificate No.	Valid upto	Traceable to
Temperature & Humidity Meter with Sensor	L23112501-01	24.11.2024	NABL LAB CC-3172

Calibration Results

TEMP. @ 50% RH				% RH @25°C		
Sr. No.	U.U.C Value (°C)	Average Standard Value (°C)	Error (°C)	U.U.C Value (RH%)	Average Standard Value (RH%)	Error (RH%)
1	15.3	15.13	0.17	37	36.81	0.19
2	19.8	19.53	0.27	62	61.62	0.38
3	20.5	20.15	0.35	89	88.57	0.43
4	21.2	20.83	0.37			
5	30.6	30.13	0.47			
6	40.4	39.71	0.69			

UUC:- Unit Under Calibration

Temperature Scale : International Temperature Scale-1990

Measurement uncertainty is estimated at a level of confidence of approx. 95% with a coverage factor k=2 is ±1.32°C & ±2.45 % RH

Format no : F01(QMP-21) -7.8, Issue no/ Date: 01/ 01/11/2019, Revision no/Date: 00 / 01/11/2019

Employee ID :- QS-030

Calibrated By
Manoj Kumar
(Technical Executive)

NATIONAL AWARD WINNER

Approved By
Sushma Yadav
(Technical Manager)

Address - Plot No: X-04, Sector-76, BPTP, Faridabad, 121 006 Haryana (INDIA)

Ph.: +91-129-4065432 Mobile : +91-9868069836, 9891912871 | E-mail : qsi_fbd@rediffmail.com, info@qsiglobal.in | Website : www.qualitysolutions.in



CERTIFICATE

*This is to Certify that the
Quality Management System
of*

ARVIND INDUSTRIAL HYGIENE CONSULTANCY

C-19, TAGORE NAGAR, RIPUR- 492 001(C.G) INDIA

**has been independently assessed and is compliant
with the requirements of**

ISO 9001:2015

This Certificate is applicable to the following product or service ranges:

**PROVIDING INDUSTRIAL HYGIENE CONSULTANCY
TO INDUSTRIES**

:: Certificate No :: IN10511A

Date of initial registration	01 May 2018
Date of this certificate	04 May 2024
Recertification Due / Certificate expiry	30 April 2027

This Certificate is property of Certiva Limited Certifications and remains valid
subject to satisfactory surveillance audits.

Director



Certiva Limited
3rd Floor, 207 Regent Street, London, W1B 3HH, UK
Tel : + 44 203 514 3425 Phone: +44 704 204 2076
Fax : +44 845 874 1820
E-mail : enquiry@certiva.uk Web: www.certiva.uk
Company Number : 9799171



For precise and updated information concerning the present certificate visit at www.certiva.uk



Certificate OF REGISTRATION

This is to Certify that the Management System of
ARVIND INDUSTRIAL HYGIENE CONSULTANCY

C-19, TAGORE NAGAR, RAIPUR-492 001,
CHHATTISGARH (INDIA)

has been found to conform to the Occupational Health & Safety Management System standard:

ISO 45001:2018

This certificate is valid for the following scope of operations:

**PROVIDING INDUSTRIAL HYGIENE CONSULTANCY
SERVICES TO INDUSTRIES**

Certificate No.: 09111887C-1

Date of initial registration

01 July 2024

Date of this Certificate

01 July 2024

Recertification Due

30 June 2027

Accreditation

This Certificate remains valid subject to satisfactory surveillance audits.



Director



ICL/FM-001/REV07

For verification and updated information concerning the present certificate visit to www.iclcert.com
This certificate is property of Integral Certification Ltd. and shall be returned immediately when demanded.

Integral Certification Ltd.

International Office: 45, Middle Hillgate Stockport, Greater Manchester SK1 3DG

Contact No.: +44 7404823687

(Company Number 15218428 in England and Wales)

Integral Certification Pvt. Ltd.

Corporate Office: 301, U-60 (3rd Floor), Shakarpur, Laxmi Nagar, Delhi-110092, India

Contact No.: +91-9319332223

Email: info@iclcert.com **Website:** www.iclcert.com



Certificate OF REGISTRATION

This is to Certify that the Management System of
ARVIND INDUSTRIAL HYGIENE CONSULTANCY
C-19, TAGORE NAGAR, RAIPUR-492 001,
CHHATTISGARH (INDIA)

has been found to conform to the Environmental Management System standard:

ISO 14001:2015

This certificate is valid for the following scope of operations:

**PROVIDING INDUSTRIAL HYGIENE CONSULTANCY
SERVICES TO INDUSTRIES**

Certificate No.: 09111887B

Date of initial registration

01 July 2024

Date of this Certificate

01 July 2024

Recertification Due

30 June 2027

Accreditation

This Certificate remains valid subject to satisfactory surveillance audits.



ICL/FM-001/REV07



Paaw
Director



For verification and updated information concerning the present certificate visit to www.iclcert.com

This certificate is property of Integral Certification Ltd. and shall be returned immediately when demanded.

Integral Certification Ltd.

International Office: 45, Middle Hillgate Stockport, Greater Manchester SK1 3DG

Contact No.: +44 7404823687

(Company Number 15218428 in England and Wales)

Integral Certification Pvt. Ltd.

Corporate Office: 301, U-60 (3rd Floor), Shakarpur, Laxmi Nagar, Delhi-110092, India

Contact No.: +91-9319332223

Email: Info@iclcert.com **Website:** www.iclcert.com

**DIRECTORATE OF INDUSTRIAL HEALTH & SAFETY
CHHATTISGARH, RAIPUR**

2nd Floor, 3rd Block, Indrawati Bhawan, Atal Nagar Raipur

No. DIHS/C.G./RPR/C.C./4437270336A

Raipur, Dated 06/02/2025

CERTIFICATE OF COMPETENCY

This is to certify that **Arvind Industrial Hygiene Consultancy, C-19, Tagore Nagar, Raipur (C.G)** to be a competent person for the purpose of carrying out tests, examinations, inspections and certification for such precautions against dangerous fumes, ventilation system as required under various schedule framed under sec-87, used in factories located in the State of Chhattisgarh used in factories for the **person named as SAKET KUMARSHRIVASTAVA Section 36 and 87** and the Rules made there under of Factories Rules 1962 for the period from **06/02/2025 To 05/02/2026**. This certificate is issued subject to the conditions stipulated here under :-

CONDITIONS

1. The examinations and inspections shall be carried out in accordance with the provisions of the Act and the Rules made there under.
2. Tests, examination and inspections shall be carried out under direct supervision of the competent person.
3. Copies of examination certificate issued by you after due examination are to be marked to the Inspector of Factories concerned in all cases where defects are noticed and repairs are ordered or any alterations are imposed on its use.
4. The Chief Inspector of Factories, Chhattisgarh State, Raipur reserves the right to revoke, renew or amend this order at any time after giving opportunity of hearing.
5. All the testing facilities at the disposal of the competent person/institution/Association shall be maintained in good working order.
6. Any change in testing facilities (either addition or deletion) shall be intimated to the Chief Inspector of Factories, C.G. immediately.

No. DIHS/C.G./RPR/C.C./4437270336A

Copy forwarded to :-

1. Shri **Arvind Industrial Hygiene Consultancy, C-19, Tagore Nagar, Raipur (C.G)** in reference to application dated 14/01/2025
2. Dy. Director, Industrial Health & Safety, H.Q/ D.D. Raipur/ D.D. Hygiene Lab/ Bilaspur/ Durg/ Raigarh/ Korba/ Rajnandgaon, Assistant Director, Industrial Health & Safety, Janjgir -Champa, Balodabazar for Information.

Alarm
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Digitally signed by
Alarman
Chief Inspector of Factories
Government of Chhattisgarh Raipur
Date:
2025.02.06
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+05'30'

Raipur, Dated 06/02/2025

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Digitally signed by
Alarman
Chief Inspector of Factories
Government of Chhattisgarh Raipur
Date:
2025.02.06
13:55:46 +05'30'

..... **END OF REPORT**

Annexure XXIV: GW Monitoring

Advanced Environmental Testing And Research Lab P. Ltd.

CIN: U73100MP2002PTC015352

GSTIN: 23AAECA9188L1Z8



Approved: by Occupational Health & Safety Management (ISO45001:2018)

Approved: by National Accreditation Board for Testing and Calibration Laboratories

Registered Office: 63/1, Kailash Vihar, Near Income Tax Office, City Center-II,
Gwalior-474 011, M.P., India
☎ 0751-3566867, 2232177

Email: aelgwalior@gmail.com, aetrlcenter@gmail.com
Web: aetrl.com



TEST REPORT

Report No.: AETRL/ GW-25122025/01	Date:	07/01/2026			
Customer Name & Address	:	M/s Hira Ferro Alloys Limited (Unit - II) Plot No. 490/1, 491/2, Urla Industrial Area, Raipur (C.G.) Pin - 492003			
Date of Sample Collection	:	25/12/2025	Sampling Type	:	Grab
Date of Sample Received	:	30/12/2025	Sample ID	:	GW-25122025/01
Sampling Location	:	Borewell- 01	Sample Description	:	Ground Water
Sample Collected / Submitted by	:	Lab representative	Protocol used for Sampling	:	APHA 24 th Edition
Quantity / No. of Sample	:	2Liter/1Nos.	Analysis Started On	:	30/12/2025
Packing / Seal	:	Temp. Sealed	Analysis Completed On	:	07/01/2026
Type of Container	:	Plastic Container	Environmental Condition	:	Clear sky

Water Analysis Results

S. No.	Name of Test	Method of Test	Test Result	Units	Limits as per IS:2296
1	pH	IS:3025 (Part-11)-2022	7.89	-	8.5
2	Taste	IS:3025 (Part-8)- 2023	Agreeable	-	-
3	Odour	IS:3025 (Part-5)- 2018	Odourless	-	Odour/ Odourless
4	Colour	IS:3025 (Part-4)- 2021	BLQ (< 1.0)	Hazen	10.0 (Max.)
5	Turbidity	IS:3025 (Part-10)- 2023	BLQ (< 1.0)	NTU	1.0 (Max.)
6	Total Dissolved Solids	IS:3025 (Part-16)- 2023	784	mg/L	500.0 (Max.)
7	Calcium (as Ca)	IS:3025 (Part-40)-2024	115	mg/L	80.10 (Max.)
8	Free Residual Chlorine	IS 3025 (Part-26)-2021	BLQ (< 0.08)	mg/L	-
9	Chlorides (as Cl-)	IS:3025 (Part-32)-2019	18	mg/L	250.0 (Max.)
10	Magnesium (as Mg)	IS:3025 (Part-46)-2023	17.9	mg/L	24.28 (Max.)
11	Total Alkalinity	IS:3025 (Part-23)-2023	251	mg/L	-
12	Total Hardness (as CaCO ₃)	IS:3025 (Part-21)-2023	369	mg/L	300.0 (Max.)
13	Sulphate (as SO ₄)	IS:3025 (Part-24/Sec-1) 2022	86.33	mg/L	400.0 (Max.)
14	E. Coliform	IS : 15185:2016	Absent	Per 100 ml	Shall not be detectable in any 100 ml sample
15	Total Coliform	IS : 15185:2016	Absent	Per 100 ml	Shall not be detectable in any 100 ml sample

Remarks BLW: Below Limit of Qualification

Authorized Signatory

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

Note:

1. This report is not to be reproduced wholly or in part and cannot be used as evidence in the court of law and should not be used in any advertising media without our special permission in writing.
2. The sample will be destroyed after 15 days from the date of issue of test certificate unless otherwise specified.
3. Any discrepancy in test result should be reported within 15days.
4. The above Results are related to the tested Sample Only.



Approved: by Occupational Health & Safety Management (ISO45001:2018)
Approved: by National Accreditation Board for Testing and Calibration Laboratories

Registered Office: 63/1, Kailash Vihar, Near Income Tax Office, City Center-II,
 Gwalior-474 011, M.P., India
 ☎ 0751-3566867, 2232177
 Email: aelgwalior@gmail.com, aetrlcenter@gmail.com
 Web: aetrl.com



TEST REPORT

Report No.: AETRL/ GW-25122025/02		Date:		07/01/2026	
Customer Name & Address		M/s Hira Ferro Alloys Limited (Unit - II) Plot No. 490/1, 491/2, Urla Industrial Area, Raipur (C.G.) Pin - 492003			
Date of Sample Collection	: 25/12/2025	Sampling Type	Grab		
Date of Sample Received	: 30/12/2025	Sample ID	: GW-25122025/02		
Sampling Location	: Borewell- 02, Near OHC	Sample Description	: Ground Water		
Sample Collected / Submitted by	: Lab representative	Protocol used for Sampling	: APHA 24 th Edition		
Quantity / No. of Sample	: 2Liter/1Nos.	Analysis Started On	: 30/12/2025		
Packing / Seal	: Temp. Sealed	Analysis Completed On	: 07/01/2026		
Type of Container	: Plastic Container	Environmental Condition	: Clear sky		

Water Analysis Results

S. No.	Name of Test	Method of Test	Test Result	Units	Limits as per IS:2296
Chemical Testing					
Ground Water					
1	pH	IS:3025 (Part-11)-2022	8.16	-	8.5
2	Taste	IS:3025 (Part-8)- 2023	Agreeable	-	-
3	Odour	IS:3025 (Part-5)- 2018	Odourless	-	Odour/ Odourless
4	Colour	IS:3025 (Part-4)- 2021	BLQ (< 1.0)	Hazen	10.0 (Max.)
5	Turbidity	IS:3025 (Part-10)- 2023	BLQ (< 1.0)	NTU	1.0 (Max.)
6	Total Dissolved Solids	IS:3025 (Part-16)- 2023	568	mg/L	500.0 (Max.)
7	Calcium (as Ca)	IS:3025 (Part-40)-2024	118	mg/L	80.10 (Max.)
8	Free Residual Chlorine	IS 3025 (Part-26)-2021	BLQ (< 0.08)	mg/L	-
9	Chlorides (as Cl-)	IS:3025 (Part-32)-2019	56	mg/L	250.0 (Max.)
10	Magnesium (as Mg)	IS:3025 (Part-46)-2023	17.9	mg/L	24.28 (Max.)
11	Total Alkalinity	IS:3025 (Part-23)-2023	142	mg/L	-
12	Total Hardness (as CaCO ₃)	IS:3025 (Part-21)-2023	368	mg/L	300.0 (Max.)
13	Sulphate (as SO ₄)	IS:3025 (Part-24/Sec-1) 2022	24.2	mg/L	400.0 (Max.)
14	E. Coliform	IS : 15185:2016	Absent	Per 100 ml	Shall not detectable in any 100 ml sample
15	Total Coliform	IS : 15185:2016	Absent	Per 100 ml	Shall not detectable in any 100 ml sample

Remarks BLW : Below Limit of Qualification

Authorized Signatory

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

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4. The above Results are related to the tested Sample Only.



Approved: by Occupational Health & Safety Management (ISO45001:2018)
Approved: by National Accreditation Board for Testing and Calibration Laboratories

Registered Office: 63/1, Kailash Vihar, Near Income Tax Office, City Center-II,
 Gwalior-474 011, M.P., India
 ☎ 0751-3566867, 2232177
 Email: aelgwalior@gmail.com, aetrlcenter@gmail.com
 Web: aetrl.com



TEST REPORT

Report No.: AETRL/ GW-25122025/03		Date:		07/01/2026	
Customer Name & Address		: M/s Hira Ferro Alloys Limited (Unit - II) Plot No. 490/1, 491/2, Urla Industrial Area, Raipur (C.G.) Pin - 492003			
Date of Sample Collection	: 25/12/2025	Sampling Type	: Grab		
Date of Sample Received	: 30/12/2025	Sample ID	: GW-25122025/03		
Sampling Location	: Borewell- 03, Near Crusher Area	Sample Description	: Ground Water		
Sample Collected / Submitted by	: Lab representative	Protocol used for Sampling	: APHA 24 th Edition		
Quantity / No. of Sample	: 2Liter/1Nos.	Analysis Started On	: 30/12/2025		
Packing / Seal	: Temp. Sealed	Analysis Completed On	: 07/01/2026		
Type of Container	: Plastic Container	Environmental Condition	: Clear sky		

Water Analysis Results

S. No.	Name of Test	Method of Test	Test Result	Units	Limits as per IS:2296
Chemical Testing					
Ground Water					
1	pH	IS:3025 (Part-11)-2022	7.50	-	8.5
2	Taste	IS:3025 (Part-8)- 2023	Agreeable	-	-
3	Odour	IS:3025 (Part-5)- 2018	Odourless	-	Odour/ Odourless
4	Colour	IS:3025 (Part-4)- 2021	BLQ (< 1.0)	Hazen	10.0 (Max.)
5	Turbidity	IS:3025 (Part-10)- 2023	BLQ (< 1.0)	NTU	1.0 (Max.)
6	Total Dissolved Solids	IS:3025 (Part-16)- 2023	798	mg/L	500.0 (Max.)
7	Calcium (as Ca)	IS:3025 (Part-40)-2024	124	mg/L	80.10 (Max.)
8	Free Residual Chlorine	IS 3025 (Part-26)-2021	BLQ (< 0.08)	mg/L	-
9	Chlorides (as Cl-)	IS:3025 (Part-32)-2019	60	mg/L	250.0 (Max.)
10	Magnesium (as Mg)	IS:3025 (Part-46)-2023	23.4	mg/L	24.28 (Max.)
11	Total Alkalinity	IS:3025 (Part-23)-2023	142	mg/L	-
12	Total Hardness (as CaCO3)	IS:3025 (Part-21)-2023	406	mg/L	300.0 (Max.)
13	Sulphate (as SO4)	IS:3025 (Part-24/Sec-1) 2022	26.7	mg/L	400.0 (Max.)
14	E. Coliform	IS : 15185:2016	Absent	Per 100 ml	Shall not detectable in any 100 ml sample
15	Total Coliform	IS : 15185:2016	Absent	Per 100 ml	Shall not detectable in any 100 ml sample

Remarks BLW : Below Limit of Qualification

Authorized Signatory

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

Note:

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3. Any discrepancy in test result should be reported within 15days.
4. The above Results are related to the tested Sample Only.



Approved: by Occupational Health & Safety Management (ISO45001:2018)
Approved: by National Accreditation Board for Testing and Calibration Laboratories

Registered Office: 63/1, Kailash Vihar, Near Income Tax Office, City Center-II,
 Gwalior-474 011, M.P., India
 ☎ 0751-3566867, 2232177
 Email: aelgwalior@gmail.com, aetrlcenter@gmail.com
 Web: aetrl.com



TEST REPORT

Report No.: AETRL/ SW-27122025/01	Date:	07/01/2026
Customer Name & Address	:	M/s Hira Ferro Alloys Limited (Unit - II) Plot No. 490/1, 491/2, Urla Industrial Area, Raipur (C.G.) Pin - 492003
Date of Sample Collection	:	27/12/2025
Date of Sample Received	:	30/12/2025
Sampling Location	:	Near Unit II_SAF
Sample Collected / Submitted by	:	Lab representative
Quantity / No. of Sample	:	5 Litre/1Nos.
Packing / Seal	:	Temp. Sealed
Environmental Condition during the test	:	Clear sky
Sampling Type	:	Grab
Sample ID	:	SW-27122025/01
Sample Description	:	Surface Water (CSIDC Water)
Protocol used for Sampling	:	APHA 24 th Edition
Analysis Started On	:	30/12/2025
Analysis Completed On	:	07/01/2026

Surface Water Analysis Results

S.No.	Name of Test	Method of Test	Test Result	Units	Limits as per IS:2296
1	pH	IS:3025 (Part-11)-2022	7.82	-	8.5
2	Taste	IS:3025 (Part-8)- 2023	Agreeable	-	-
3	Odour	IS:3025 (Part-5)- 2018	Odourless	-	Odour/ Odourless
4	Colour	IS:3025 (Part-4)- 2021	BLQ (< 1.0)	Hazen	10.0 (Max.)
5	Turbidity	IS:3025 (Part-10)- 2023	BLQ (< 1.0)	NTU	1.0 (Max.)
6	Total Dissolved Solids	IS:3025 (Part-16)- 2023	726	mg/L	500.0 (Max.)
7	Calcium (as Ca)	IS:3025 (Part-40)-2024	95	mg/L	80.10 (Max.)
8	Free Residual Chlorine	IS 3025 (Part-26)-2021	BLQ (< 0.08)	mg/L	-
9	Chlorides (as Cl-)	IS:3025 (Part-32)-2019	149	mg/L	250.0 (Max.)
10	Magnesium (as Mg)	IS:3025 (Part-46)-2023	26.9	mg/L	24.28 (Max.)
11	Total Alkalinity as CaCO ₃	IS:3025 (Part-23)-2023	126	mg/L	-
12	Total Hardness (as CaCO ₃)	IS:3025 (Part-21)-2023	350	mg/L	300.0 (Max.)
13	Sulphate (as SO ₄)	IS:3025 (Part-24/Sec-1) 2022	45.9	mg/L	400.0 (Max.)
14	E. Coliform	IS : 15185:2016	Absent	Per 100 ml	Shall Not detectable in any 100 ml sample
15	Total Coliform	IS : 15185:2016	Absent	Per 100 ml	Shall Not detectable in any 100 ml sample

Remarks: BLQ: below limit of quantification

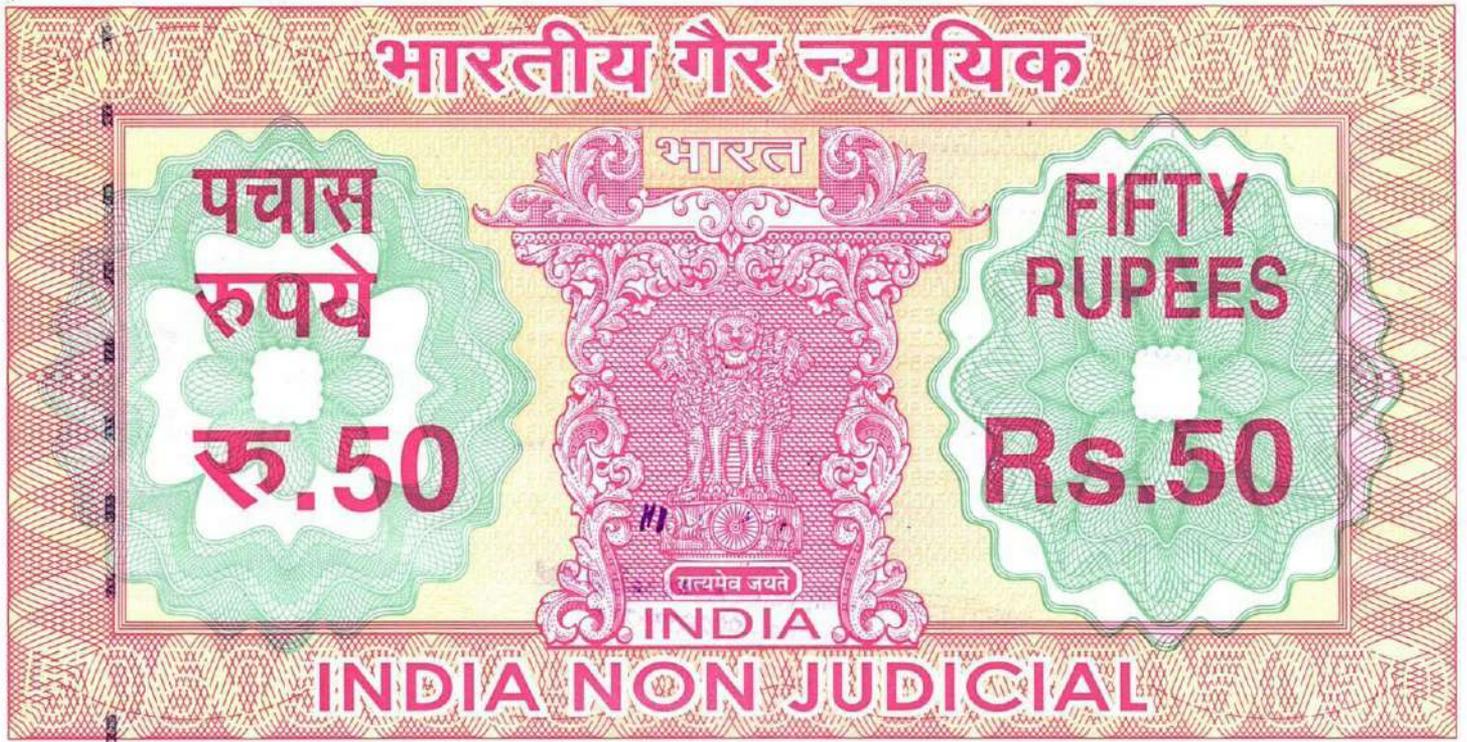
Authorized Signatory

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

Note:

1. This report is not to be reproduced wholly or in part and cannot be used as evidence in the court of law and should not be used in any advertising media without our special permission in writing.
2. The sample will be destroyed after 15 days from the date of issue of test certificate unless otherwise specified.
3. Any discrepancy in test result should be reported within 15days.
4. The above Results are related to the tested Sample Only.

Annexure XXV: Fly Ash Agreement



छत्तीसगढ़ CHHATTISGARH

AG 514300

Fly Ash Lifting Agreement

This Agreement is being entered upon 1st Day of June of 2025 by and between the parties: -

M/s Hira Ferro Alloys Limited (Unit-II), a company registered under the Companies Act 1956 having its plant and office at Plot No. 490/1, 491/2, Urla Industrial Complex, Urla, Raipur, 492003, Chhattisgarh, India through Mr. Sanjay kamble S/o Shri Puran lal Kamble, Manager(Sales and Marketing) Aged about 53 years, herein after referred as "**The Company**" (the expression shall mean and include its successors and assignees) of the One Part.

And

M/s B K R Trading, through Mr. Amarlal Kashwani GST No. 22BKKPK8636D1Z7, having its Fly Ash Bricks Manufacturing Plant at Gram - Sarona, Parthwi College ke Samne, Naya Bajar Chowk Raipur (C.G.), Herein after referred as "**The Fly Ash Brick manufacturer**" (the expression shall mean and include its successors and assignees) of the Second Part.

Hereafter, will be collectively be referred as Both Parties or Parties.

For, B.K.R. TRADING
Amarlal Kashwani
Proprietor



44631 24/07/25 5A-
 विक्रेता हरि केश प्रसाद शर्मा
 निवासी उ० ए० राय
 मार्फत यशवन्त प्रसाद
 क्रेता श्री. वी. के. झा
 निवासी ग्राम खवानी घाट
पकड़ि

07 JUL 2025
 RAIPUR JUDICIAL OFFICE

यशवन्त कुमार इडसेना, स्टाम्प डिप्लोमा विधिज्ञ
 रायपुर (छ.ग.) मोबा.- 99266387

RAIPUR JUDICIAL OFFICE

RAIPUR JUDICIAL OFFICE

Whereas, Both parties have agreed to enter upon this Agreement for mutual consideration described as follows: -

1) Scope of Work:

- (a) The Company has its Captive Power Plant located at Plot No. - 490/1, 491/2, Urla Industrial Complex, Urla, Raipur, 492003, Chhattisgarh, India and having a Generation capacity of 20MW. The Fly Ash is generated as Solid waste during the generation of Electricity.
- (b) The Fly Ash Brick manufacturer have their Brick Plant at Gram - Saron, Parthwi College ke Samne, Naya Bajar Chowk Raipur (C.G.) and is willing to lift-off/utilise the fly-ash generated at the Company's Plant site for manufacture of Fly Ash Bricks.

2) Term of Agreement:

Both Parties have agreed to enter upon this Agreement on for a period of 1 year i.e. Financial year 2025-26 and to abide by all the terms and conditions hereon. Further, if both parties are willing then they shall extend or renew the agreement as per their mutual considerations.

3) Utilisation of Fly Ash

The Fly Ash Brick manufacturer agrees to utilise the Fly Ash generated by the Company for manufacturing of Fly Ash Bricks only and to follow all the rules, norms, guidelines and regulations of the Central/ State Pollution Control Boards/ Local Authorities while lifting and utilising the fly Ash.

4) Lifting of Bad Material:

All the terms and conditions of this agreement shall have same meaning and force for lifting of Bad Material from the Company's Plant Site.

5) Transportation

- a. The Fly Ash Brick manufacturer has agreed to collect the Fly ash from the company's plant site and shall do so by their own transportation from the Company's Plant site to their Brick Plant at their own cost with prior intimation of Vehicle to the Company.
- b. The Fly Ash Brick manufacturer shall ensure and provide the appropriate trucks/vehicles in accordance with schedule given by the Company.
- c. The Fly Ash Brick manufacturer shall ensure that the trucks/vehicles sent by them is embedded with equipment of GPS and Geo-Tagging.
- d. The Fly Ash Brick manufacturer shall take appropriate measures and precautions to cover the truck/vehicle completely with High



For, B.K.R. TRADING

B.K.R. Trading
Proprietor

quality tarpaulin to avoid spillage/leakage during the transportation.

6) Liabilities of the Company:

- a. Fly Ash is a Solid waste generated at the Company's Plant during Generation of power whereas the Company is bound by environmental rules and regulations to dispose off the flyash appropriately contributing towards sustainable environment.
- b. The Company shall load the fly ash and spray water on the ash while and after loading the fly ash for transportation.
- c. The Company will keep record and weigh the quantity of flyash loaded onto the transportation vehicle.

7) Liabilities of The Fly Ash Brick manufacturer

- a. The Fly Ash Brick manufacturer shall take responsibility to follow all the rules and guidelines of the Central/ State pollution Control Boards and Local Authorities.
- b. The Fly Ash Brick manufacturer shall take appropriate measures and precautions to cover the truck/vehicle completely with high quality tarpaulin.
- c. The Fly Ash Brick manufacturer is totally responsible for safe and environment friendly transportation of the Fly Ash from Company's Plant Site to the Brick Plant.
- d. The Fly Ash Brick manufacturer will be responsible and liable for the safety and care of the workmen/labourers and Drivers involved in operation of trucks/vehicles used during the Lifting of Fly Ash at the Company's Plant Site and there after.
- e. The Fly Ash Brick manufacturer shall ensure that equipment/trucks and vehicles have proper registration, insurance and fitness as per RTO norms.
- f. The Fly Ash Brick manufacturer will ensure the Drivers have appropriate licences, fitness and necessary documents for driving of trucks/vehicles.
- g. Any Driver/Workmen/Representative of the Fly Ash Brick Manufacturer shall follow all the guidelines and safety rules of the Company. The Fly Ash Brick manufacturer shall be responsible for the conduct of their workmen/labourer/driver at the Company's site and the company may remove workmen/labourer/driver for misconduct by any of them from the Company Premises.
- h. Once, after lifting the Fly Ash the Fly Ash manufacturer shall keep the Fly Ash in their Brick Plant premises and shall not dump the same anywhere else whether authorised or unauthorised.

8) Violation of Terms of Agreement:

The Company solely reserves the rights to blacklist the Driver or Vehicle in case of violation of terms and conditions of this Agreement and if the violation continues the Company reserves the right to terminate the Agreement.



For, B.K.R. TRADING

[Signature]
Proprietor

9) Termination of Agreement:

The Company shall terminate the Agreement when deemed fit or in case of stoppage of solid waste generation.

10) Disputes and Settlement:

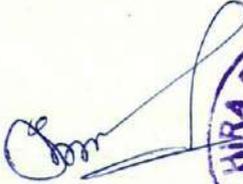
- a. Any Dispute between the Company and The Fly Ash Brick manufacturer shall be first aimed to be settled through amicable means by mutual considerations.
- b. If not resolved amicable the Dispute shall be taken to the appropriate Court/ Authority under the Jurisdiction of Raipur, C.G.

11) Severability:

If any part of the agreement violates any law or rules then that part shall be strike of and the rest of the agreement shall continue to be in force.

IN WITNESS WHEREOFF Both parties Agree to the above terms and conditions through their seal and sign:

The Company




Witness:1

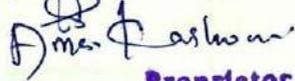


अभिमत साक्षी

6267960265

The Fly Ash Brick manufacturer

For, B.K.R. TRADING

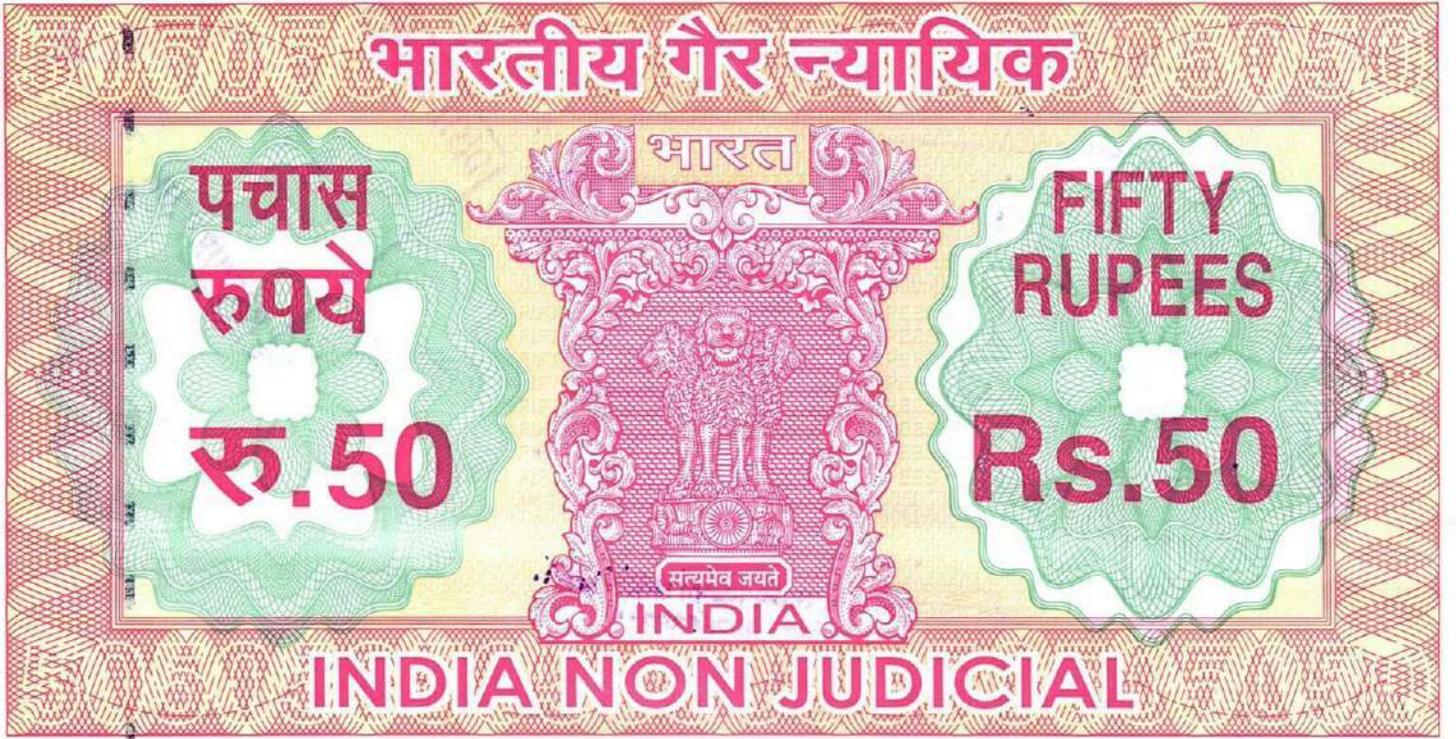

Proprietor

Witness:2



तारुण पाण्डेय

9753005521



छत्तीसगढ़ CHHATTISGARH

AG 514298

Fly Ash Lifting Agreement

This Agreement is being entered upon 1st Day of June of 2025 by and between the parties: -

M/s Hira Ferro Alloys Limited (Unit-II), a company registered under the Companies Act 1956 having its plant and office at Plot No. 490/1, 491/2, Urla Industrial Complex, Urla, Raipur, 492003, Chhattisgarh, India through Mr. Sanjay kamble S/o Shri Puran lal Kamble, Manager(Sales and Marketing) Aged about 53 years, herein after referred as "**The Company**" (the expression shall mean and include its successors and assignees) of the One Part.

And

M/s Arham Bricks, through Mrs. Purva Goswami GST No. 22BLGPG1305N1ZG, having its Fly Ash Bricks Manufacturing Plant at LAXMI NARAYAN REAL ISPAT, KHASRA NO.159,GRAM BORJHARA P.H.N.29 UNNAMED ROAD RAIPUR (C.G.) 492099, Herein after referred as "**The Fly Ash Brick manufacturer**" (the expression shall mean and include its successors and assignees) of the Second Part.

Hereafter will be collectively be referred as Both Parties or Parties.



Arham Bricks
Proprietor

क्रमांक 40629, दिनांक 24/07/25 कोमती 501 -
 विक्रेता दीवोकर पलाइम (पि) पिता/पति
 निवासी 32 ला रापूर
 मार्फत चरण किशोर
 क्रेता म. आशम त्रिवेदी, लक्ष्मी नारायण राय अथवा पिता/पति
 निवासी बरभर 314 डल
 उद्देश्य जमा प्रतिफल सुलभ

DISTRICT TREASURY OFFICE
 07 JUL 2025
 RAIPUR (CHHATTISGARH)

यशवंत कुमार इंडसेना, स्टाम्प विक्रेता विधिल बोर्ड
 रायपुर (छ.ग.) मोबा. - 9926838708



Whereas, Both parties have agreed to enter upon this Agreement for mutual consideration described as follows: -

1) Scope of Work:

- (a) The Company has its Captive Power Plant located at Plot No. – 490/1, 491/2, Urla Industrial Complex, Urla, Raipur, 492003, Chhattisgarh, India and having a Generation capacity of 20MW. The Fly Ash is generated as Solid waste during the generation of Electricity.
- (b) The Fly Ash Brick manufacturer have their Brick Plant at LAXMI NARAYAN REAL ISPAT, KHASRA NO.159,GRAM BORJHARA P.H.N.29 UNNAMED ROAD RAIPUR (C.G.) 492099 and is willing to lift-off/utilise the fly-ash generated at the Company's Plant site for manufacture of Fly Ash Bricks.

2) Term of Agreement:

Both Parties have agreed to enter upon this Agreement on for a period of 1 year i.e. Financial year 2025-26 and to abide by all the terms and conditions hereon. Further, if both parties are willing then they shall extend or renew the agreement as per their mutual considerations.

3) Utilisation of Fly Ash

The Fly Ash Brick manufacturer agrees to utilise the Fly Ash generated by the Company for manufacturing of Fly Ash Bricks only and to follow all the rules, norms, guidelines and regulations of the Central/ State Pollution Control Boards/ Local Authorities while lifting and utilising the fly Ash.

4) Lifting of Bad Material:

All the terms and conditions of this agreement shall have same meaning and force for lifting of Bad Material from the Company's Plant Site.

5) Transportation

- a. The Fly Ash Brick manufacturer has agreed to collect the Fly ash from the company's plant site and shall do so by their own transportation from the Company's Plant site to their Brick Plant at their own cost with prior intimation of Vehicle to the Company.
- b. The Fly Ash Brick manufacturer shall ensure and provide the appropriate trucks/vehicles in accordance with schedule given by the Company.
- c. The Fly Ash Brick manufacturer shall ensure that the trucks/vehicles sent by them is embedded with equipment of GPS and Geo-Tagging.
- d. The Fly Ash Brick manufacturer shall take appropriate measures and precautions to cover the truck/vehicle completely with High




Proprietor

quality tarpaulin to avoid spillage/leakage during the transportation.

6) Liabilities of the Company:

- a. Fly Ash is a Solid waste generated at the Company's Plant during Generation of power whereas the Company is bound by environmental rules and regulations to dispose off the flyash appropriately contributing towards sustainable environment.
- b. The Company shall load the fly ash and spray water on the ash while and after loading the fly ash for transportation.
- c. The Company will keep record and weigh the quantity of flyash loaded onto the transportation vehicle.

7) Liabilities of The Fly Ash Brick manufacturer

- a. The Fly Ash Brick manufacturer shall take responsibility to follow all the rules and guidelines of the Central/ State pollution Control Boards and Local Authorities.
- b. The Fly Ash Brick manufacturer shall take appropriate measures and precautions to cover the truck/vehicle completely with high quality tarpaulin.
- c. The Fly Ash Brick manufacturer is totally responsible for safe and environment friendly transportation of the Fly Ash from Company's Plant Site to the Brick Plant.
- d. The Fly Ash Brick manufacturer will be responsible and liable for the safety and care of the workmen/labourers and Drivers involved in operation of trucks/vehicles used during the Lifting of Fly Ash at the Company's Plant Site and there after.
- e. The Fly Ash Brick manufacturer shall ensure that equipment/trucks and vehicles have proper registration, insurance and fitness as per RTO norms.
- f. The Fly Ash Brick manufacturer will ensure the Drivers have appropriate licences, fitness and necessary documents for driving of trucks/vehicles.
- g. Any Driver/Workmen/Representative of the Fly Ash Brick Manufacturer shall follow all the guidelines and safety rules of the Company. The Fly Ash Brick manufacturer shall be responsible for the conduct of their workmen/labourer/driver at the Company's site and the company may remove workmen/labourer/driver for misconduct by any of them from the Company Premises.
- h. Once, after lifting the Fly Ash the Fly Ash manufacturer shall keep the Fly Ash in their Brick Plant premises and shall not dump the same anywhere else whether authorised or unauthorised.

8) Violation of Terms of Agreement:

The Company solely reserves the rights to blacklist the Driver or Vehicle in case of violation of terms and conditions of this Agreement and if the violation continues the Company reserves the right to terminate the Agreement.



Arham Bricks

Proprietor

9) Termination of Agreement:

The Company shall terminate the Agreement when deemed fit or in case of stoppage of solid waste generation.

10) Disputes and Settlement:

- a. Any Dispute between the Company and The Fly Ash Brick manufacturer shall be first aimed to be settled through amicable means by mutual considerations.
- b. If not resolved amicable the Dispute shall be taken to the appropriate Court/ Authority under the Jurisdiction of Raipur, C.G.

11) Severability:

If any part of the agreement violates any law or rules then that part shall be strike of and the rest of the agreement shall continue to be in force.

IN WITNESS WHEREOFF Both parties Agree to the above terms and conditions through their seal and sign:

The Company


Witness:1 


Aditya Sahu
7389509197

The Fly Ash Brick manufacturer
Arham Bricks


Proprietor
Witness:2


9575661148
मोदीश देवान



छत्तीसगढ़ CHHATTISGARH

AG 514301

Fly Ash Lifting Agreement

This Agreement is being entered upon 1st Day of June of 2025 by and between the parties: -

M/s Hira Ferro Alloys Limited (Unit-II), a company registered under the Companies Act 1956 having its plant and office at Plot No. 490/1, 491/2, Urla Industrial Complex, Urla, Raipur, 492003, Chhattisgarh, India through Mr. Sanjay kamble S/o Shri Puran lal Kamble, Manager(Sales and Marketing) Aged about 53 years, herein after referred as "**The Company**" (the expression shall mean and include its successors and assignees) of the One Part.

And

M/s Baldau Prasad Bhale Bricks, through Mr. Baldau Prasad Bhale GST No. 22ALKPB7186R123, having its Fly Ash Bricks Manufacturing Plant at Gram - Sikola, Thana - Patan, Durg (C.G.), Raipur Herein after referred as "**The Fly Ash Brick manufacturer**" (the expression shall mean and include its successors and assignees) of the Second Part.

Hereafter, will be collectively be referred as Both Parties or Parties.



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बलदाऊ प्रसाद भाले

WM632 24/07/25 51-
कीमती

DISTRICT TREASURY OFFICE
07 JUL 2025
RAIPUR (CHHATTISGARH)

विक्रेता
निवासी
मार्फत
क्रेता
निवासी
एम्/मेर

हरि के व) एमएम विनि
32 सा रायड
यव 9 विवेदी
मे. बलदाउ ठाणे भाले ब्रह्म
म कोषा पा 2 9 डा
जेनामा प्रतिफल मूल्य

यशवंत कुमार डइसेना, स्टाम्प विक्रेता विभाग ऑफिस
रायपुर (छ.ग.) मोबा.- 9926638248



Whereas, Both parties have agreed to enter upon this Agreement for mutual consideration described as follows: -

1) Scope of Work:

- (a) The Company has its Captive Power Plant located at Plot No. – 490/1, 491/2, Urla Industrial Complex, Urla, Raipur, 492003, Chhattisgarh, India and having a Generation capacity of 20MW. The Fly Ash is generated as Solid waste during the generation of Electricity.
- (b) The Fly Ash Brick manufacturer have their Brick Plant at Gram – Sikola, Thana – Patan, Durg (C.G.) and is willing to lift-off/utilise the fly-ash generated at the Company's Plant site for manufacture of Fly Ash Bricks.

2) Term of Agreement:

Both Parties have agreed to enter upon this Agreement on for a period of 1 year i.e. Financial year 2025-26 and to abide by all the terms and conditions hereon. Further, if both parties are willing then they shall extend or renew the agreement as per their mutual considerations.

3) Utilisation of Fly Ash

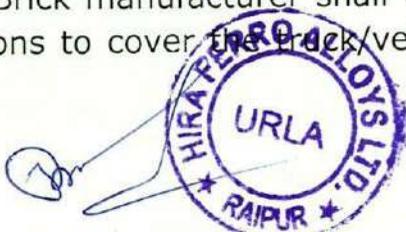
The Fly Ash Brick manufacturer agrees to utilise the Fly Ash generated by the Company for manufacturing of Fly Ash Bricks only and to follow all the rules, norms, guidelines and regulations of the Central/ State Pollution Control Boards/ Local Authorities while lifting and utilising the fly Ash.

4) Lifting of Bad Material:

All the terms and conditions of this agreement shall have same meaning and force for lifting of Bad Material from the Company's Plant Site.

5) Transportation

- a. The Fly Ash Brick manufacturer has agreed to collect the Fly ash from the company's plant site and shall do so by their own transportation from the Company's Plant site to their Brick Plant at their own cost with prior intimation of Vehicle to the Company.
- b. The Fly Ash Brick manufacturer shall ensure and provide the appropriate trucks/vehicles in accordance with schedule given by the Company.
- c. The Fly Ash Brick manufacturer shall ensure that the trucks/vehicles sent by them is embedded with equipment of GPS and Geo-Tagging.
- d. The Fly Ash Brick manufacturer shall take appropriate measures and precautions to cover the truck/vehicle completely with High



भाले ब्रिक्स
वास्ते
बलदाऊ प्रसाद भाले

quality tarpaulin to avoid spillage/leakage during the transportation.

6) Liabilities of the Company:

- a. Fly Ash is a Solid waste generated at the Company's Plant during Generation of power whereas the Company is bound by environmental rules and regulations to dispose off the flyash appropriately contributing towards sustainable environment.
- b. The Company shall load the fly ash and spray water on the ash while and after loading the fly ash for transportation.
- c. The Company will keep record and weigh the quantity of flyash loaded onto the transportation vehicle.

7) Liabilities of The Fly Ash Brick manufacturer

- a. The Fly Ash Brick manufacturer shall take responsibility to follow all the rules and guidelines of the Central/ State pollution Control Boards and Local Authorities.
- b. The Fly Ash Brick manufacturer shall take appropriate measures and precautions to cover the truck/vehicle completely with high quality tarpaulin.
- c. The Fly Ash Brick manufacturer is totally responsible for safe and environment friendly transportation of the Fly Ash from Company's Plant Site to the Brick Plant.
- d. The Fly Ash Brick manufacturer will be responsible and liable for the safety and care of the workmen/labourers and Drivers involved in operation of trucks/vehicles used during the Lifting of Fly Ash at the Company's Plant Site and there after.
- e. The Fly Ash Brick manufacturer shall ensure that equipment/trucks and vehicles have proper registration, insurance and fitness as per RTO norms.
- f. The Fly Ash Brick manufacturer will ensure the Drivers have appropriate licences, fitness and necessary documents for driving of trucks/vehicles.
- g. Any Driver/Workmen/Representative of the Fly Ash Brick Manufacturer shall follow all the guidelines and safety rules of the Company. The Fly Ash Brick manufacturer shall be responsible for the conduct of their workmen/labourer/driver at the Company's site and the company may remove workmen/labourer/driver for misconduct by any of them from the Company Premises.
- h. Once, after lifting the Fly Ash the Fly Ash manufacturer shall keep the Fly Ash in their Brick Plant premises and shall not dump the same anywhere else whether authorised or unauthorised.

8) Violation of Terms of Agreement:

The Company solely reserves the rights to blacklist the Driver or Vehicle in case of violation of terms and conditions of this Agreement and if the violation continues the Company reserves the right to terminate the Agreement. ✓



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9) Termination of Agreement:

The Company shall terminate the Agreement when deemed fit or in case of stoppage of solid waste generation.

10) Disputes and Settlement:

- a. Any Dispute between the Company and The Fly Ash Brick manufacturer shall be first aimed to be settled through amicable means by mutual considerations.
- b. If not resolved amicable the Dispute shall be taken to the appropriate Court/ Authority under the Jurisdiction of Raipur, C.G.

11) Severability:

If any part of the agreement violates any law or rules then that part shall be strike of and the rest of the agreement shall continue to be in force.

IN WITNESS WHEREOFF Both parties Agree to the above terms and conditions through their seal and sign:

The Company

Witness:1

Aditya Saun

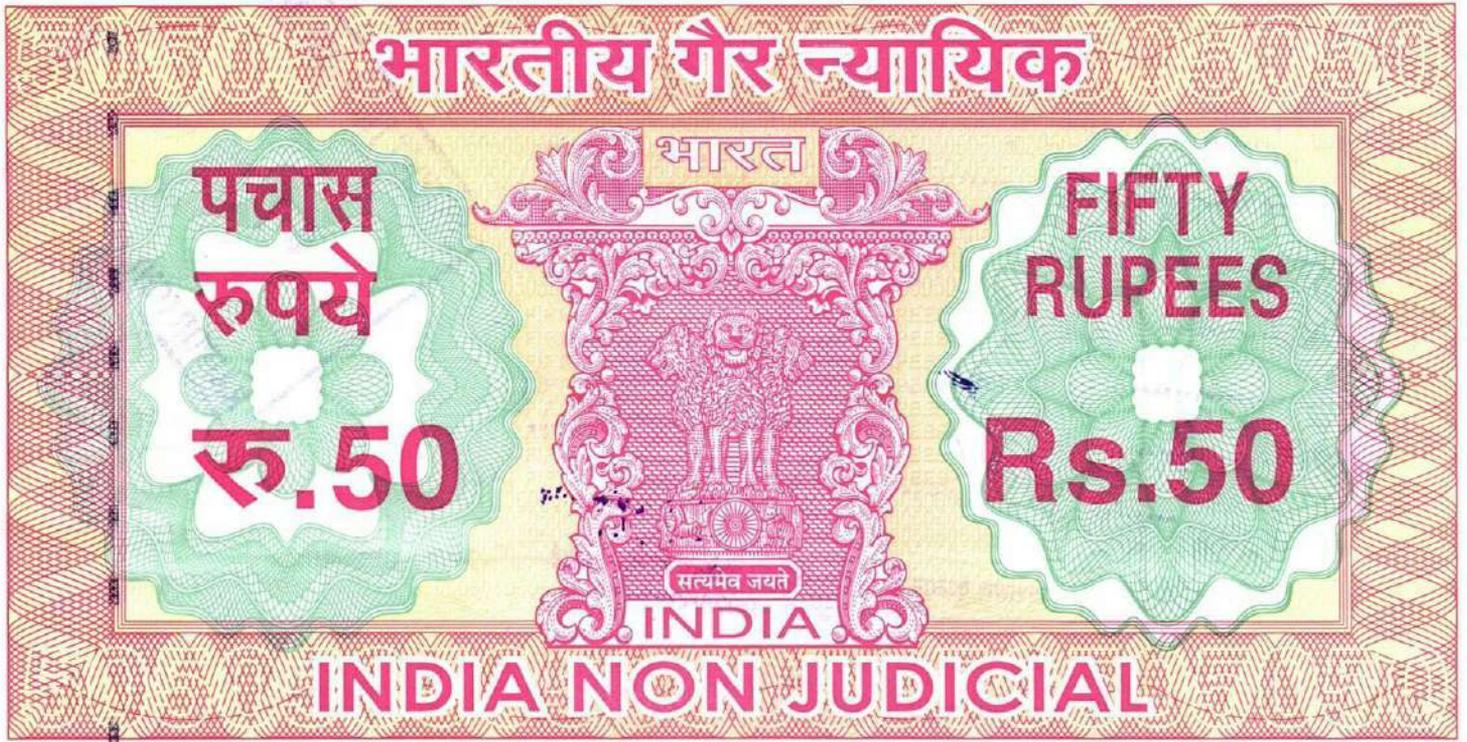
7389509197



The Fly Ash Brick manufacturer

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Witness:2

7100 87 8070



छत्तीसगढ़ CHHATTISGARH

AG 514299

Fly Ash Lifting Agreement

This Agreement is being entered upon 1st Day of June of 2025 by and between the parties: -

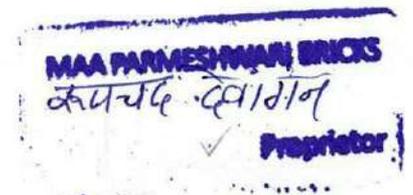
M/s Hira Ferro Alloys Limited (Unit-II), a company registered under the Companies Act 1956 having its plant and office at Plot No. 490/1, 491/2, Urla Industrial Complex, Urla, Raipur, 492003, Chhattisgarh, India through Mr. Sanjay kamble S/o Shri Puran lal Kamble, Manager(Sales and Marketing) Aged about 53 years, herein after referred as "**The Company**" (the expression shall mean and include its successors and assignees) of the One Part.

And

M/s Maa Parmeshwari Bricks, through Mr. Roop Chand Dewangan GST No. 22ASQPD2351R1ZG, having its Fly Ash Bricks Manufacturing Plant at Vill- Charbhata, Kurud, Dist - Dhamtari (C.G.), Herein after referred as "**The Fly Ash Brick manufacturer**" (the expression shall mean and include its successors and assignees) of the Second Part.

Hereafter, will be collectively be referred as Both Parties or Parties.

Whereas, Both parties have agreed to enter upon this Agreement for mutual consideration described as follows: -



44630 24/07/25 हरी-
 कामती
 विक्रेता हरी के. ए. एस. लिमि
 निवासी उरला राय डर
 मार्फत लवण विक्रेता
 क्रेता मे. मां परमेश्वरी लिवर
 निवासी चारमा 16 उरला धरमणी
 जेनामा प्रतिफल मूद्रा
 ठाकुर

DISTRICT TREASURY OFFICE
 07 JUL 2025
 RAIPUR (CHHATTISGARH)

यशवंत कुमार इइसेना, स्टाम्प विक्रेता सिविल कोर्ट
 रायपुर (छ.ग.) मोबा. - 9926628945

DISTRICT MANAGEMENT BOARD

Raipur



1) Scope of Work:

- (a) The Company has its Captive Power Plant located at Plot No. – 490/1, 491/2, Urla Industrial Complex, Urla, Raipur, 492003, Chhattisgarh, India and having a Generation capacity of 20MW. The Fly Ash is generated as Solid waste during the generation of Electricity.
- (b) The Fly Ash Brick manufacturer have their Brick Plant at Vill-Charbhata, Kurud, Dist – Dhamtari (C.G.) and is willing to lift-off/utilise the fly-ash generated at the Company's Plant site for manufacture of Fly Ash Bricks.

2) Term of Agreement:

Both Parties have agreed to enter upon this Agreement on for a period of 1 year i.e. Financial year 2025-26 and to abide by all the terms and conditions hereon. Further, if both parties are willing then they shall extend or renew the agreement as per their mutual considerations.

3) Utilisation of Fly Ash

The Fly Ash Brick manufacturer agrees to utilise the Fly Ash generated by the Company for manufacturing of Fly Ash Bricks only and to follow all the rules, norms, guidelines and regulations of the Central/ State Pollution Control Boards/ Local Authorities while lifting and utilising the fly Ash.

4) Lifting of Bad Material:

All the terms and conditions of this agreement shall have same meaning and force for lifting of Bad Material from the Company's Plant Site.

5) Transportation

- a. The Fly Ash Brick manufacturer has agreed to collect the Fly ash from the company's plant site and shall do so by their own transportation from the Company's Plant site to their Brick Plant at their own cost with prior intimation of Vehicle to the Company.
- b. The Fly Ash Brick manufacturer shall ensure and provide the appropriate trucks/vehicles in accordance with schedule given by the Company.
- c. The Fly Ash Brick manufacturer shall ensure that the trucks/vehicles sent by them is embedded with equipment of GPS and Geo-Tagging.
- d. The Fly Ash Brick manufacturer shall take appropriate measures and precautions to cover the truck/vehicle completely with High quality tarpaulin to avoid spillage/leakage during the transportation.



MAA PARMESHWARI BRICKS
रूपचक देवाडीन
Proprietor

6) Liabilities of the Company:

- a. Fly Ash is a Solid waste generated at the Company's Plant during Generation of power whereas the Company is bound by environmental rules and regulations to dispose off the flyash appropriately contributing towards sustainable environment.
- b. The Company shall load the fly ash and spray water on the ash while and after loading the fly ash for transportation.
- c. The Company will keep record and weigh the quantity of flyash loaded onto the transportation vehicle.

7) Liabilities of The Fly Ash Brick manufacturer

- a. The Fly Ash Brick manufacturer shall take responsibility to follow all the rules and guidelines of the Central/ State pollution Control Boards and Local Authorities.
- b. The Fly Ash Brick manufacturer shall take appropriate measures and precautions to cover the truck/vehicle completely with high quality tarpaulin.
- c. The Fly Ash Brick manufacturer is totally responsible for safe and environment friendly transportation of the Fly Ash from Company's Plant Site to the Brick Plant.
- d. The Fly Ash Brick manufacturer will be responsible and liable for the safety and care of the workmen/labourers and Drivers involved in operation of trucks/vehicles used during the Lifting of Fly Ash at the Company's Plant Site and there after.
- e. The Fly Ash Brick manufacturer shall ensure that equipment/trucks and vehicles have proper registration, insurance and fitness as per RTO norms.
- f. The Fly Ash Brick manufacturer will ensure the Drivers have appropriate licences, fitness and necessary documents for driving of trucks/vehicles.
- g. Any Driver/Workmen/Representative of the Fly Ash Brick Manufacturer shall follow all the guidelines and safety rules of the Company. The Fly Ash Brick manufacturer shall be responsible for the conduct of their workmen/labourer/driver at the Company's site and the company may remove workmen/labourer/driver for misconduct by any of them from the Company Premises.
- h. Once, after lifting the Fly Ash the Fly Ash manufacturer shall keep the Fly Ash in their Brick Plant premises and shall not dump the same anywhere else whether authorised or unauthorised.

8) Violation of Terms of Agreement:

The Company solely reserves the rights to blacklist the Driver or Vehicle in case of violation of terms and conditions of this Agreement and if the violation continues the Company reserves the right to terminate the Agreement.



9) Termination of Agreement:

The Company shall terminate the Agreement when deemed fit or in case of stoppage of solid waste generation.

10) Disputes and Settlement:

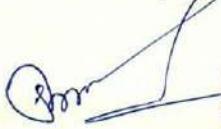
- a. Any Dispute between the Company and The Fly Ash Brick manufacturer shall be first aimed to be settled through amicable means by mutual considerations.
- b. If not resolved amicable the Dispute shall be taken to the appropriate Court/ Authority under the Jurisdiction of Raipur, C.G.

11) Severability:

If any part of the agreement violates any law or rules then that part shall be strike of and the rest of the agreement shall continue to be in force.

IN WITNESS WHEREOFF Both parties Agree to the above terms and conditions through their seal and sign:

The Company



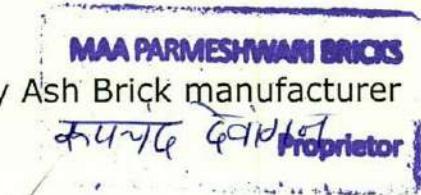
Witness:1



Aditya Sahu
7389509197



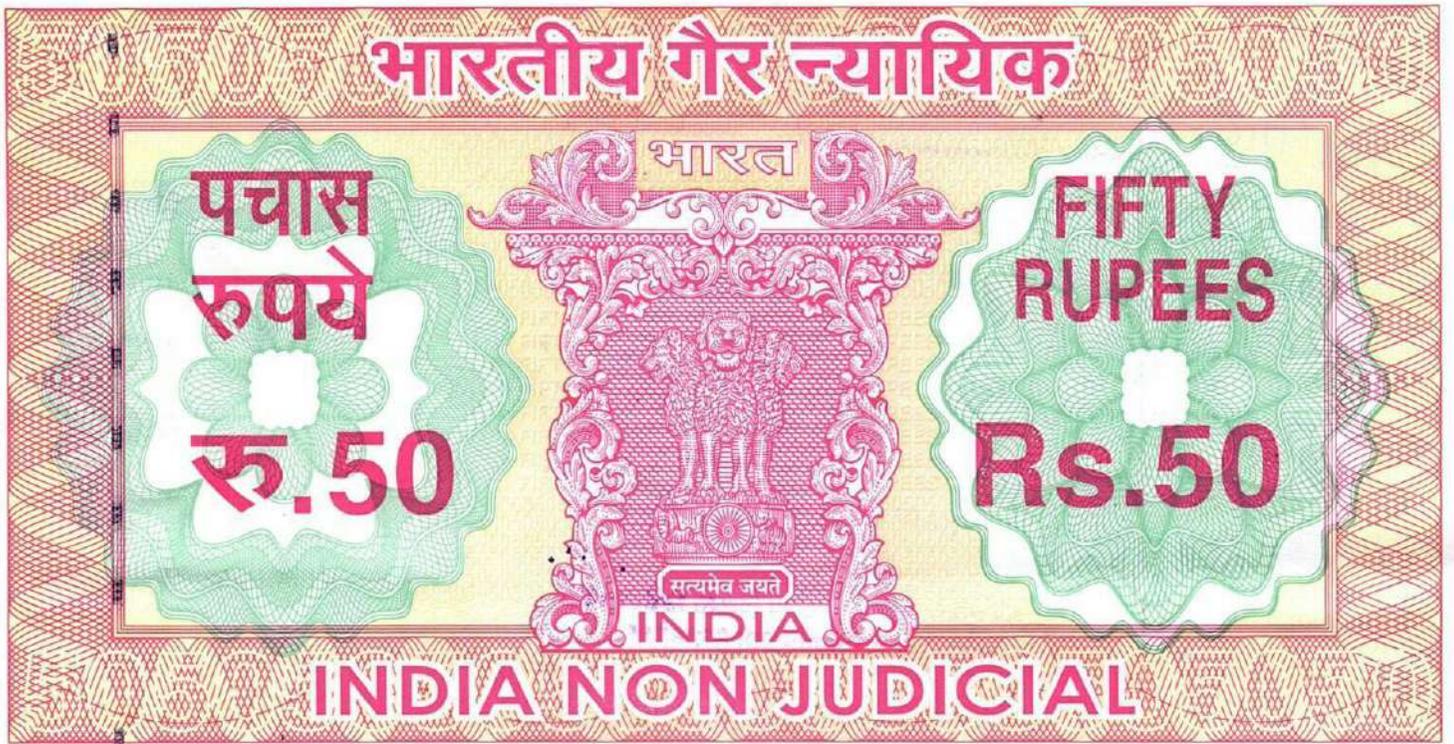
The Fly Ash Brick manufacturer



Witness:2

मनोज मिश्रा

7440253146



छत्तीसगढ़ CHHATTISGARH

AG 514297

Fly Ash Lifting Agreement

This Agreement is being entered upon 1st Day of June of 2025 by and between the parties: -

M/s Hira Ferro Alloys Limited (Unit-II), a company registered under the Companies Act 1956 having its plant and office at Plot No. 490/1, 491/2, Urla Industrial Complex, Urla, Raipur, 492003, Chhattisgarh, India through Mr. Sanjay kamble S/o Shri Puran lal Kamble, Manager(Sales and Marketing) Aged about 53 years, herein after referred as "**The Company**" (the expression shall mean and include its successors and assignees) of the One Part.

And

M/s Shri Nath Bricks, through Mr. Nitin Kumar Gajendra GST No. 22ADCFS2409J1ZC, having its Fly Ash Bricks Manufacturing Plant at Vill-Kodebor, Tehsil - Kurud, Dist - Dhamtari (C.G.), Herein after referred as "**The Fly Ash Brick manufacturer**" (the expression shall mean and include its successors and assignees) of the Second Part.

Hereafter, will be collectively be referred as Both Parties or Parties.



A handwritten signature in blue ink, appearing to be 'Nitin Kumar'.

M/s ShriNath Bricks
Nitin Kumar
Partner ✓

UN628 24/07/25 50-
कोमती

DISTRICT TREASURY OFFICE
07 JUL 2025
RAIPUR (CHHATTISGARH)

विक्रेता

निवासी

मार्फत

क्रेता

निवासी

डीरा केवी एलाडी (सी) ^{पिता/पति}
ड2पी रायड 1
मे. श्रीनाथ ^{पिता/पति} कोदेवी
कुलक समतवा
पुनकट ^{वैद्यामा प्रतिफल रूप्य}

यशवंत कुमार इडसेना, स्टाम्प विक्रेता सिविल इंजिनियर
रायपर (छ.ग.) मोबा.- 99266387**

RAIPUR

Whereas, Both parties have agreed to enter upon this Agreement for mutual consideration described as follows: -

1) Scope of Work:

- (a) The Company has its Captive Power Plant located at Plot No. – 490/1, 491/2, Urla Industrial Complex, Urla, Raipur, 492003, Chhattisgarh, India and having a Generation capacity of 20MW. The Fly Ash is generated as Solid waste during the generation of Electricity.
- (b) The Fly Ash Brick manufacturer have their Brick Plant at at Vill-Kodebor, Tehsil - Kurud, Dist – Dhamtari (C.G.) and is willing to lift-off/utilise the fly-ash generated at the Company's Plant site for manufacture of Fly Ash Bricks.

2) Term of Agreement:

Both Parties have agreed to enter upon this Agreement on for a period of 1 year i.e. Financial year 2025-26 and to abide by all the terms and conditions hereon. Further, if both parties are willing then they shall extend or renew the agreement as per their mutual considerations.

3) Utilisation of Fly Ash

The Fly Ash Brick manufacturer agrees to utilise the Fly Ash generated by the Company for manufacturing of Fly Ash Bricks only and to follow all the rules, norms, guidelines and regulations of the Central/ State Pollution Control Boards/ Local Authorities while lifting and utilising the fly Ash.

4) Lifting of Bad Material:

All the terms and conditions of this agreement shall have same meaning and force for lifting of Bad Material from the Company's Plant Site.

5) Transportation

- a. The Fly Ash Brick manufacturer has agreed to collect the Fly ash from the company's plant site and shall do so by their own transportation from the Company's Plant site to their Brick Plant at their own cost with prior intimation of Vehicle to the Company.
- b. The Fly Ash Brick manufacturer shall ensure and provide the appropriate trucks/vehicles in accordance with schedule given by the Company.
- c. The Fly Ash Brick manufacturer shall ensure that the trucks/vehicles sent by them is embedded with equipment of GPS and Geo-Tagging.
- d. The Fly Ash Brick manufacturer shall take appropriate measures and precautions to cover the truck/vehicle completely with High



[Handwritten signature]

M/s ShriNath Bricks

Nitin Kumar
Partner

quality tarpaulin to avoid spillage/leakage during the transportation.

6) Liabilities of the Company:

- a. Fly Ash is a Solid waste generated at the Company's Plant during Generation of power whereas the Company is bound by environmental rules and regulations to dispose off the flyash appropriately contributing towards sustainable environment.
- b. The Company shall load the fly ash and spray water on the ash while and after loading the fly ash for transportation.
- c. The Company will keep record and weigh the quantity of flyash loaded onto the transportation vehicle.

7) Liabilities of The Fly Ash Brick manufacturer

- a. The Fly Ash Brick manufacturer shall take responsibility to follow all the rules and guidelines of the Central/ State pollution Control Boards and Local Authorities.
- b. The Fly Ash Brick manufacturer shall take appropriate measures and precautions to cover the truck/vehicle completely with high quality tarpaulin.
- c. The Fly Ash Brick manufacturer is totally responsible for safe and environment friendly transportation of the Fly Ash from Company's Plant Site to the Brick Plant.
- d. The Fly Ash Brick manufacturer will be responsible and liable for the safety and care of the workmen/labourers and Drivers involved in operation of trucks/vehicles used during the Lifting of Fly Ash at the Company's Plant Site and there after.
- e. The Fly Ash Brick manufacturer shall ensure that equipment/trucks and vehicles have proper registration, insurance and fitness as per RTO norms.
- f. The Fly Ash Brick manufacturer will ensure the Drivers have appropriate licences, fitness and necessary documents for driving of trucks/vehicles.
- g. Any Driver/Workmen/Representative of the Fly Ash Brick Manufacturer shall follow all the guidelines and safety rules of the Company. The Fly Ash Brick manufacturer shall be responsible for the conduct of their workmen/labourer/driver at the Company's site and the company may remove workmen/labourer/driver for misconduct by any of them from the Company Premises.
- h. Once, after lifting the Fly Ash the Fly Ash manufacturer shall keep the Fly Ash in their Brick Plant premises and shall not dump the same anywhere else whether authorised or unauthorised.

8) Violation of Terms of Agreement:

The Company solely reserves the rights to blacklist the Driver or Vehicle in case of violation of terms and conditions of this Agreement and if the violation continues the Company reserves the right to terminate the Agreement.



M/s ShriNath Bricks

Nitin Kumar
Partner

9) Termination of Agreement:

The Company shall terminate the Agreement when deemed fit or in case of stoppage of solid waste generation.

10) Disputes and Settlement:

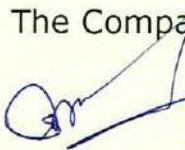
- a. Any Dispute between the Company and The Fly Ash Brick manufacturer shall be first aimed to be settled through amicable means by mutual considerations.
- b. If not resolved amicable the Dispute shall be taken to the appropriate Court/ Authority under the Jurisdiction of Raipur, C.G.

11) Severability:

If any part of the agreement violates any law or rules then that part shall be strike of and the rest of the agreement shall continue to be in force.

IN WITNESS WHEREOFF Both parties Agree to the above terms and conditions through their seal and sign:

The Company


Witness:1





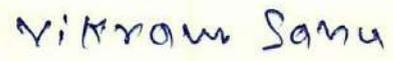
Aditya Samu
7389509197

The Fly Ash Brick manufacturer

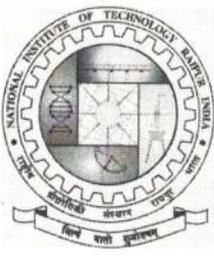
M/s ShriNath Bricks


Partner

Witness:2 ✓


9302564070

Annexure XXVI: Fly Ash Audit Report



NATIONAL INSTITUTE OF TECHNOLOGY, RAIPUR

(Institute of National Importance)

DEPARTMENT OF MINING ENGINEERING

G.E. Road, Raipur – 492010 (C.G.)

Dr. Manoj Pradhan
Professor (HAG)

No. NITRR/MiningEngg/2025/3874

Date: 28.11.2025

To
The Member Secretary
Central Pollution Control Board (CPCB)
Parivesh Bhawan, East Arjun Nagar
Delhi – 110032

Through: Speed Post / Email submission.

Subject: Submission of Fly Ash Compliance Audit Report for FY 2024–25 – **M/s Hira Ferro Alloys Limited (Unit II)**, Plot No. 490/1, 491/2, Urla Industrial Area, Urla Raipur Chhattisgarh 492003

Sir,

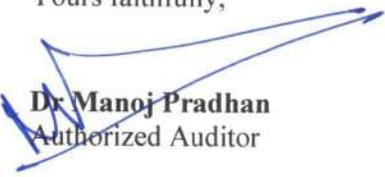
In compliance with the provisions of the *Fly Ash Notification, 2021*, we are submitting herewith the Ash Compliance Audit Report for the financial year 2024-25 pertaining to the thermal power plant of **M/s Hira Ferro Alloys Limited (Unit II)**, Plot No. 490/1, 491/2, Urla Industrial Area, Urla Raipur Chhattisgarh 492003

The report includes details on ash generation, utilization, storage, transportation, and compliance with the targets prescribed under the notification.

You are kindly requested to take the report on record.

Thanking you,

Yours faithfully,


Dr Manoj Pradhan
Authorized Auditor

Encl.: Ash Compliance Audit Report for FY 2024–25

Copy to:

1. The Member Secretary, Chhattisgarh Environment Conservation Board (CECB), Raipur.
2. The Regional Director, CPCB, Bhopal – for kind information.

Mobile: (+91) 9826540711

E-mail: mpradhan@nitrr.ac.in/pradhan_nitrr@yahoo.co.in

Report on
Annual Compliance Audit
for
Ash Disposal of Captive Thermal Power Plant of M/s Hira
Ferro Alloys Limited (Unit II), Urla Industrial Area,
Raipur for FY 2024-25

Submitted to



Central Pollution Control Board

Audited by

Dr Manoj Pradhan
Professor (HAG)

Department of Mining Engineering



National Institute of Technology, Raipur

G.E. Road, Raipur, 492010, Chhattisgarh

November - 2025

General Details about the Audit

Client : M/s Hira Ferro Alloys Limited (Unit II)
Assessment Period : FY 2024-25
Audit Location : Captive Power Plant of M/s Hira Ferro Alloys Limited (Unit II)

Work Order No. : POWER\25-26\SO\0059
Issue date : 19-08-2025
Date of site visit : 06-11-2025
Report No. : NITRR/MN/33/C-5/FLYASH/MP/25-26

Authorized Auditor : **Dr Manoj Pradhan**
Professor (HAG)
Department of Mining Engineering
National Institute of Technology, Raipur
G.E. Road, Raipur, 492010, Chhattisgarh

Report prepared by : **Mr Anupam Kaushik**
Senior Technical Assistant
Department of Mining Engineering
National Institute of Technology, Raipur
G.E. Road, Raipur, 492010, Chhattisgarh

A Report on
Annual Compliance Audit for Ash Disposal
of
M/s Hira Ferro Alloys Limited (Unit II)
[For Financial Year – 2024-2025]

Audited by

Dr Manoj Pradhan, Professor (HAG)
National Institute of Technology, Raipur

November – 2025

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Annexure 3: Sample copy of lab reports

Annexure 4: Sample copy of coal and other fuel receipts

Annexure 5: Sample copy of fly ash dispatch

1 Introduction

1.1 Brief description of the Thermal Power Plant

The report presented herewith is the report on the annual compliance audit on Ash disposal of 20 MW Captive Thermal Power plant of M/s Hira Ferro Alloys Limited (Unit II), situated at Plot No. 490/1, 491/2, Urla Industrial Area, Urla Raipur Chhattisgarh 492003, for financial year 2024-25. M/s Hira Ferro Alloys Limited (HFAL) (UNIT –II).

The details about the captive thermal power plant have been presented below :

1. Name of Thermal Power Plant : 20 MW
2. Location with full address : Plot No. 490/1, 491/2 and others, Urla Industrial area, Urla, Raipur District, and Chhattisgarh 492003.
3. Purpose of usage (Independent Power Plant supplying electricity to the grid/ Captive Power Plant supplying electricity for self-utilization/ Mixed purpose (with details) : Captive Power Plant supplying electricity for self-utilization
4. Date of issuance and validity of Environmental Clearance (EC) : The Plant was established in Aug 2006 before enforcement of EIA notification 2006, therefore, there is no requirement of EC.
5. Date of issuance and validity of Consent to Operate (CTO) : Date of Issuance: 30/12/2024.
Validity: 01/01/2025 to 31/12/2025.

Annexure-1

The Stage and Unit-wise details of commissioning / commercial operation date (COD) along with Total Installed Capacity (MWh) have been presented in **Table 1**.

Table 1: Unit-wise details of TPP

Stage	Unit No.	Capacity (MWh)	COD	Grid connected (IPP) / Captive (CPP) plant	Operational Status during FY
I	----	20 MW	01.08.2006	CPP	Operational

1.2 Location of the Thermal Power Plant

The TPP is located in Urla Industrial Area, Urla, Acholi village, Dharsiwa Tehsil of the Raipur District of the state of Chhattisgarh. The nearest railway station from the TPP is Urkura at a distance of 4.12 km towards SE direction and the site is easily accessible via road and rail networks. The nearest road from the project is NH-30 located 1.4 km towards west direction. NH-30 is further connected to the Birgaon Main Road which will also be the approach road for the plant area. Other highways and roads from the project are NH-53 located 8.15 km towards SW & NH-130B at 7.1 km towards SE direction. The exact geographical of the TPP and other relevant information regarding its surrounding have been presented below in **Table 2** and **Table 3**.

Table 2: Location of TPP

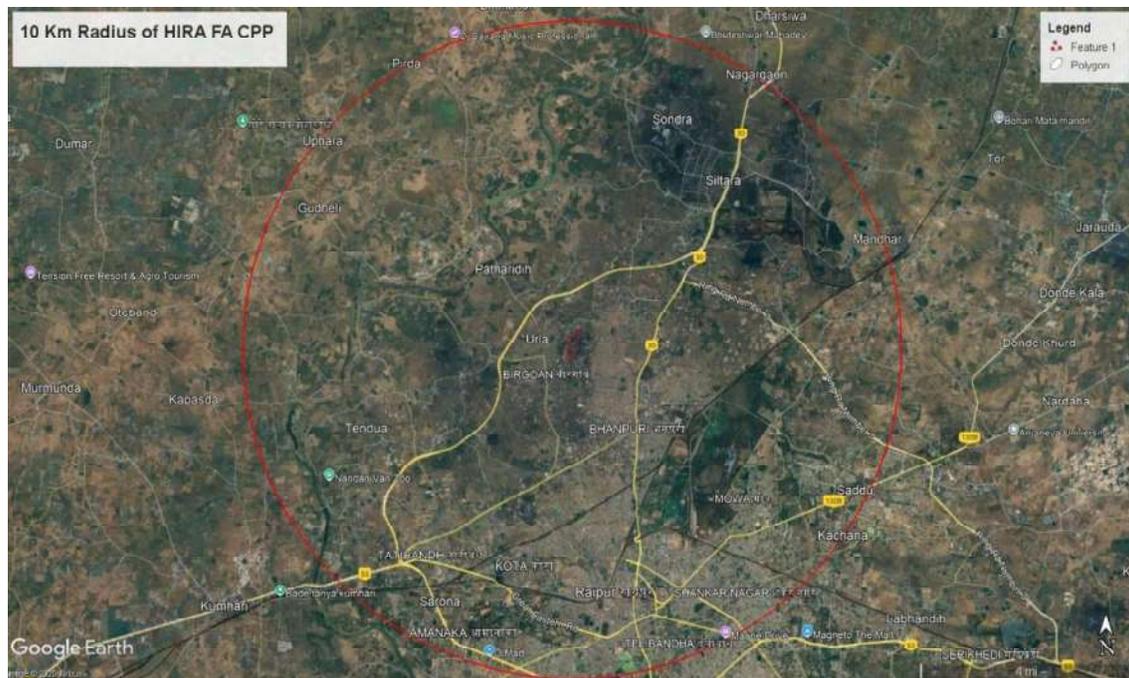
Location of TPP	East	West	North	South
Latitude	21.319067 N	21.319106 N	21.319911 N	21.318733 N
Longitude	81.618572 E	81.616603 E	81.617172 E	81.617067 E

Table 3: Major areas located around the TPP

Name of major area [#]	Direction from Ash Pond/dyke (from TPP, if no ash pond/dyke)	Aerial Distance (in km) from Ash Pond/dyke (from TPP, if no ash pond/dyke), km	Road Distance (in km) from Ash Pond/dyke (from TPP, if no ash pond/dyke), km
---------------------------------	--	--	--

Raipur City (Million plus cities, Non-attainment)	South-East	7	9.2
Birgaon (Municipality)	West	0.2	1.1
Siltara (Critically Polluted Area)	North	6	11
Kharun River	West	6	6.3
# Major areas include Million plus cities, Non-attainment, Critically/Severely/Other Polluted Areas, major cities / towns / municipality, Eco-sensitive Zones (ESZ), Reservoirs, major rivers, etc. located around the plant.			

Figure-1 represents the Google Earth Image of the TPP along with the nearby areas located within its 10



km radius (aerially).

Figure 1: Google Earth Image of the TPP and nearby areas

The mode of transportation of coal from coal mines to the plant is primarily through Road (100%).

1.3 Annual Compliance Audit

The details about the annual compliance audit regarding work award, name and designation of the authorized auditor, dates of physical visits to the TPP, and verification of physical/digital records at the plant site have been provided below.

- Work award Reference No. and : : POWER\25-26\SO\0059
Date of issue : 19.08.2025
- Name and Designation of the : **Dr. Manoj Pradhan**
Authorised Auditor Professor (HAG)
Department of Mining Engineering
- Name and Designation of Other : **Mr. Anupam Kaushik**
officials Senior Technical Assistant
Department of Mining Engineering
- Name of the Institute : **National Institute of Technology, Raipur**
- Financial Year of ash utilization : **2024-2025**
for which audit is carried out Fly ash utilization report submitted by the TPP to
concerned SPCB has been attached as **Annexure-2**.
[*Attach copy of Annual Implementation Report submitted by the TPP to concerned SPCB, MoEF&CC, CPCB, CEA*]
- Dates of physical visits to the : **06-11-2025**
plant

1.4 Scope of the Annual Compliance Audit

The scope of the audit as mentioned in the office memorandum of the Central Pollution Control Board IPC-II/TPP/CP-11/76/2022/1252, dated March 06, 2023 is as follows.

1. Verification of ash generation data pertaining to the financial year based on inspection of records of coal receipt/consumption and average ash content in coal, and comparison of this data with the information provided by the power plant in the Annual Implementation Report.
2. Verification of fly ash and bottom ash utilization data pertaining to the financial year based on inspection of records of ash supplied to the user agencies covered under permitted uses/avenues, and comparison of this data with the information provided by the power plant in the annual implementation report.
3. Verification of net ash disposal into ash ponds data pertaining to the financial year 2022-23 (i.e., difference of ash generation and ash utilization, as above), and comparison of this data with the information provided by the power plant in the annual implementation report.
4. Assessment of total ash storage in operational and un-operational ash ponds and available storage capacity for further disposal at the end of financial year based on details and drawings of ash ponds provided by the power plant and ground verification of the information provided, and comparison of the storage and available storage capacity with the information provided by the power plant in the annual implementation report.
5. Assessment of ash slurry disposal and ash water re-circulation system used during the financial year, in respect ratio of water in the ash disposed to ash ponds, water used for ash slurry disposal to ash ponds, ash water recycled through AWRS, and ash water discharged into environment, based on inspection of records provided by the power plant and ground verification, including the condition of surrounding environment in respect of ash released or breached, and comparison of the ground situation with the information provided by the power plant in the annual implementation report.
6. Any other relevant aspect by the Authorized Auditors.

2 Details of Audit Findings

2.1 Coal receipt/consumption, average ash content in coal and ash generation

The audit findings regarding consumption of fuels (i.e. various grades of Coal and Other fuels), their ash content and generation of ash have been detailed below.

- No. of units (MWh) : 186100.600
generated during the FY 2024-25
- Average plant load : 106 %
factor (PLF) (in %)
- Peak demand PLF (in %) -----
- Specific coal : 1.30 MT/MWh (as per FY 2024–25, based on the total raw material requirement, including coal and other inputs).
consumption (as per design/operational parameters of the power plant or any other data/calculations)
Per Tonnes Power Generation is depends on Various grades of Coal and theirs GVC Specifications.

- % of Ash content in coal and other fuels(*as per design/operational parameters of the power plant or any other data/calculations*)[*Attach sample copies of the test report of ultimate analysis of coal to be attached*]

Table 4: Average and range of Ash content in fuels

Fuel type	Quantity in MT	Average Ash Content (%)	Range (Min.-Max.) of Ash Content (%)
Coal	241776	34 %	35 -40 %
Rice Husk	14.94		15-22 %
De-Oiled clay	86.89		60 -65 %
Wood Waste (Biomass)	89.62		5-6 %

Annexure-3 sample copy of ultimate analysis for coal quality

- Average GCV of coal : 2787 kcal/kg received from the coal supplying companies

- Estimated quantity of requirement of coal and other fuels to produce the power generated during the FY 2024-25

S.NO.	TOTAL RATED GENERATION (in MWh)	Avg. GCV OF COAL (IN kiloCal/Kg)	COAL Qty. (IN TPA)	Coal Consump. MT/MWh)
1	175200	1700	381317.65	2.18
2	175200	1800	360133.33	2.1
3	175200	1900	341178.95	1.95
4	175200	2000	324120.00	1.85
5	175200	2200	294654.55	1.68
6	175200	2500	259296.00	1.48
7	175200	2600	249323.08	1.42
8	175200	2800	231514.29	1.32
9	175200	3000	216080.00	1.23
10	175200	3200	202575.00	1.16
11	175200	3400	190658.82	1.09
12	175200	3600	180066.67	1.03
13	175200	3800	170589.47	0.97
14	175200	4000	162060.00	0.93
15	175200	4200	154342.86	0.88

- Actual quantity of coal and other fuels consumption and ash generation during the FY 2024-25 (month wise and annual)

Actual quantity of fuel consumed :

2,41,967.45 MT

Actual quantity of Ash generated :

81,075.31 MT

- Verification of the daily/weekly/monthly coal receipt records of : Sample copies of daily, weekly, and monthly receipt records of coal and other fuels have been attached as **Annexure-4.**

the power plant with
 sample copies to be
 attached,

- Difference (in MT & %) : -----
 in total estimated vs
 total actual quantity of
 coal consumption and
 ash generation
- The unit-wise and total capacity of fly ash and bottom ash handling units, and capacity of dry fly ash silos in comparison to the prescribed capacity have been presented in Table 5.

Table 5: Unit-wise and total Prescribes and Actual capacities of Ash handling units and dry fly ash silos

Unit No.	Capacity of Fly Ash handling Unit		Capacity of Bottom Ash handling Unit		Capacity of Dry Fly Ash silos	
	Prescribed	Actual	Prescribed	Actual	Prescribed	Actual
	----	-----	----	----	----	450 MT

- Additionally, the quantities of fly ash and bottom ash actually generated in comparison to its generation as per the design of ESP/ash evacuation/ash handling units have been presented in the Table 6.

Table 6: Quantities of Ash actually generated in comparison to designed capacity

Month	Quantity of Fly ash generated, MT		Quantity of Bottom ash generated, MT	
	As per design	Actual	As per design	Actual
Apr-24	----	5394.891	----	952.040
May-24	----	5444.82	----	960.851
Jun-24	----	4267.85	----	753.150
Jul-24	----	4788.025	----	844.946
Aug-24	----	5740.288	----	1012.992
Sep-24	----	6050.955	----	1067.816
Oct-24	----	4549.387	----	802.833
Nov-24	----	6009.866	----	1060.565
Dec-24	----	7273.654	----	1283.586
Jan-25	----	6904.924	----	1218.516

Feb-25	----	5996.249	----	1058.162
Mar-25	----	6493.099	----	1145.841
Total (Annual)	----	68914.01	----	12161.30

2.2 Utilization of fly ash, bottom ash and legacy/previously stored ash

The audit findings regarding utilization of fly ash, bottom ash and legacy/previously stored ash have been detailed below. The total quantity of fly ash, bottom ash utilized by the TPP during the FY 2024-25 (in only the prescribed areas/avenues of usage) are dispatch to Bricks Manufactures and fly Ash Suppliers respectively. This sums up to the total quantity of ash utilized is 810776.21 MT. The month wise details of quantities of ash utilized along with the area of usage have been detailed in Table 7, Table 8 and Table 9.

Table 7: Quantity of fly ash utilized along with % utilization in prescribed areas of usage

Month	Quantity of fly ash utilized	Area(s)/Avenue(s) of usage (% of quantity utilized in each area)
Apr-24	5394.891	Brick manufacturing (100%)
May-24	5444.82	Brick manufacturing (100%)
Jun-24	4267.85	Brick manufacturing (100%)
Jul-24	4788.025	Brick manufacturing (100%)
Aug-24	5740.288	Brick manufacturing (100%)
Sep-24	6050.955	Brick manufacturing (100%)
Oct-24	4549.387	Brick manufacturing (100%)
Nov-24	6009.866	Brick manufacturing (100%)
Dec-24	7273.654	Brick manufacturing (100%)
Jan-25	6904.924	Brick manufacturing (100%)
Feb-25	5996.249	Brick manufacturing (100%)
Mar-25	6493.099	Brick manufacturing (100%)
Total (Annual)	68914.01	Brick manufacturing (100%)

Table 8: Quantity of bottom ash utilized along with % utilization in prescribed areas of usage

Month	Quantity of bottom ash utilized	Area(s)/Avenue(s) of usage (% of quantity utilized in each area)
Apr-24	952.040	Brick manufacturing (100%)
May-24	960.851	Brick manufacturing (100%)
Jun-24	753.150	Brick manufacturing (100%)
Jul-24	844.946	Brick manufacturing (100%)
Aug-24	1012.992	Brick manufacturing (100%)
Sep-24	1067.816	Brick manufacturing (100%)
Oct-24	802.833	Brick manufacturing (100%)
Nov-24	1060.565	Brick manufacturing (100%)
Dec-24	1283.586	Brick manufacturing (100%)
Jan-25	1218.516	Brick manufacturing (100%)
Feb-25	1058.162	Brick manufacturing (100%)
Mar-25	1145.841	Brick manufacturing (100%)
Total (Annual)	12161.30	Brick manufacturing (100%)

Table 9: Quantity of legacy ash utilized along with % utilization in prescribed areas of usage

Month	Quantity of legacy ash utilized	Area(s)/Avenue(s) of usage (% of quantity utilized in each area)
Apr-24	NIL	NA
May-24	NIL	NA
Jun-24	NIL	NA
Jul-24	NIL	NA
Aug-24	NIL	NA
Sep-24	NIL	NA
Oct-24	NIL	NA
Nov-24	NIL	NA
Dec-24	NIL	NA
Jan-25	NIL	NA
Feb-25	NIL	NA
Mar-25	NIL	NA
Total (Annual)	NIL	NA

The details about the ash receiving units and their proximity with the TPP have been presented in Table 10.

Table 10: Details about Ash receiving units

S.No.	Name of the Ash Receiving Unit	Full address of the ash receiving Unit	Direction from the TPP	Approximate Distance from TPP
1	M/s Maa Parmeshwari Bricks	Vill - Charbhata, Kurud, Dist - Dhamtari (C.G.)	63 KM	South East
2	M/s Sarweshwar Bricks	Ring Road No. 02, Bhanpuri, Raipur, C.G.	5.4 KM	South West
3	M/s Bhale Bricks	Ward No. 12, Patan , Durg, C.G.	43 KM	South West
4	M/s Arham Bricks	Khasra No. 159, Gram Borjhara, Raipur, C.G.	3.7 KM	South West

The records for ash utilization in the permitted avenues during the FY 2024-25 either by the ash receiving units (user agencies) or within the plant, were physically verified or matched with the ash dispatch records, receipts/declaration from the receiving end. The samples of dispatch records and receipts, etc. have been attached as **Annexure-5**.

The total current ash utilization during the FY 2024-25 by the TPP is **81075.31 MT** achieving 100% compliance utilization against the prescribed minimum annual percent utilization target i.e. >80% Whereas, the cumulative ash utilization during the ongoing compliance cycle till the FY 2024-25 has been summarized in Table 11.

Table 11: Summary of cumulative ash utilization during ongoing compliance cycle till FY 2024-25

Quantity of Ash	FY 2022-23	FY 2023-24	FY 2024-25
Ash Generation	4919.00 MT	61,311.650 MT	81,075.30 MT
Ash Utilized	4919.00 MT	61,311.650 MT	81,075.30 MT
Cumulative Ash generation	4919.00 MT	66,230 MT	1,47,305.30 MT
Cumulative Ash Utilization	4919.00 MT	66,230 MT	1,47,305.30 MT

The quantity of un-utilized ash stored/disposed in **the FY 2024-25 is Nil MT**. Accordingly, the estimated amount of environmental compensation for not meeting the prescribed percent utilization target during the compliance cycle **is Rs Nil**.

2.3 Effects of storage and transportation of ash on environment, condition of surrounding environment, and steps taken for improvement of environmental condition

- Status of fugitive emission monitoring and control measures i.e. water sprinklers, water spraying tankers/fogging cannons, covering of vehicles, camera etc. at different ash generation, handling, storage, transportation places - location, nos., frequency, operational status, adequate placement, tyre cleaning, etc., around Dry Ash Silo/ash evacuating area, ash handling area including bulkers loading area, at ash ponds/dykes and its approach roads, bulkers/transport vehicles etc.).

Status was found in good condition

.The status of compliance of CPCB's "Guidelines for disposal/utilisation of Fly Ash for reclamation of Low-Lying Areas and in stowing of Abandoned mines/Quarries" in case of utilization of ash in low-lying area with prior permission from concerned SPCB only, (*Improper/disposal of ash in low-lying area without permission of concerned SPCB shall not be considered as utilization, and remarks regarding such violations shall also be included*).

Not Applicable

- Comments on Environmental status/ any adverse impact on roads/ roadsides/ river bodies/ etc. nearby plant with images based on physical observations,

Not observed.

- Comments on Effects of Ash Ponds/dykes O&M, storage and transportation of ash on environment.

Not Applicable

3 Audit Summary/Conclusions

• **Coal Consumption and Ash Generation**

The plant reported coal consumption of 2,41,776.00 MT and total ash generation of 81,075.31 MT, comprising fly ash 68,914.01 MT and bottom ash 12,161.30 MT, as per the fly ash utilization report submitted to the CECB. Based on verification of supporting documents, the data was found to be correct.

• **Compliance Cycle and Applicable Ash Utilization Target**

As per annual ash utilization report submitted to CECB or other authority on ash utilization for FY 2021–22, the plant achieved 100 % utilization. Accordingly, the plant falls under the 3-year

compliance cycle with a minimum annual utilization target of >80 % as per the Ash Notification, 2021.

- **Current Year Ash Utilization**

Details of current year ash utilization are given below:

Ash type	Quantity generated, MT	Quantity utilized. MT	% Utilization	Prescribed Min Utilization,	Compliance status
Fly ash	68914.01 MT	68914.01 MT	100%	80 %	complied
Bottom ash	12161.30 MT	12161.30 MT			
Legacy ash	Nil	NA	NA	NA	NA
Previously unutilised stored ash if any	Nil	NA	NA	NA	NA

- **Sector-wise Utilization Pattern**

Share of major ash utilization sectors during the audit period is as follows:

Sector	Quantity (MT)	% Share
Brick Making	81,075.31 MT (Fly ash+ Bottom ash)	100 %

- **Cumulative Ash Utilization in Current Cycle**

Cumulative ash utilization till the end of the financial year stands at 1,47,305.95 MT corresponding to 100 % utilization against the cycle's cumulative target of 100 %.

- **Ash Storage Status**

Ash storage position during the financial year is as follows:

Description	Quantity (MT)
-----	Nil

- **Status of Ash Data Uploading**

The plant has uploaded monthly, yearly, and auxiliary ash data on the CPCB/CEA portal. Observed discrepancies, if any: Nil

- **Submission of Annual Implementation Report (AIR)**

The plant has not submitted the Annual Implementation Report for FY 2024-25. However, they have submitted fly ash utilization report to SPCB (CECB).

- **Environmental Compensation Estimate**

Based on the shortfall in achieving the prescribed annual utilization target, the estimated environmental compensation as per CPCB methodology is ₹ Nil.

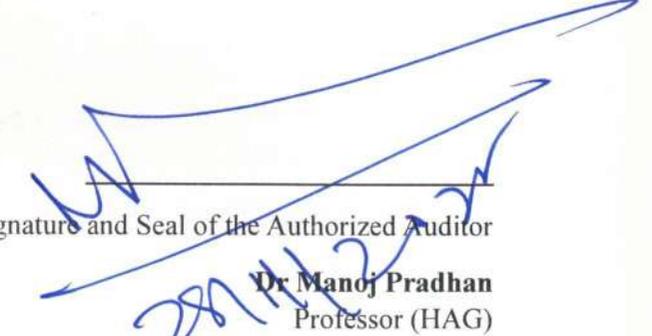
- **Compliance with Ash Notification Provisions**

The provisions of the Ash Notification 2021 are being complied by the plant except submission of Annual Implementation Report for FY 2024-25.

4 Recommendations for improvement

The plant management is advised to submit the Annual Implementation Report to CPCB. They are also advised to maintain proper records of ash utilization and to ensure that the ash being supplied is utilized in an environmentally sound manner and only in the areas specified under the Ash Notification. They should also obtain receipts from the parties to whom the ash is supplied.

Signature and Seal of the Authorized Auditor



Dr. Manoj Pradhan
Professor (HAG)

Department of Mining Engineering
National Institute of Technology, Raipur
G.E. Road, Raipur, 492010, Chhattisgarh

डॉ. मनोज प्रधान/Dr. Manoj Pradhan
प्राध्यापक (स.शै.प्र.)/Professor (HAG)
खनन अभियांत्रिकी विभाग/Dept. of Mining Engineering
राष्ट्रीय प्रौद्योगिकी संस्थान/National Institute of Technology
रायपुर (छत्तीसगढ़)/Raipur (Chhattisgarh)

Figure 2: Photographs taken during site visit

 <p>Raipur, Chhattisgarh, India Plot Nos. 567, B, 568 & 553 B, Urla Industrial Complex, Birgoan, Raipur, Chhattisgarh 492003, India Lat 21.315385° Long 81.615496° Thursday, 06/11/2025 09:56 AM GMT +05:30</p>	 <p>Raipur, Chhattisgarh, India B/c8+7/6, Urla Industrial Complex, Birgoan, Raipur, Chhattisgarh 492003, India Lat 21.319608° Long 81.618177° Thursday, 06/11/2025 10:47 AM GMT +05:30</p>
<p>Entry Gate</p>	<p>Water Sprinkling Near Fly Ash Silo</p>
 <p>Raipur, Chhattisgarh, India B/c8+7/6, Urla Industrial Complex, Birgoan, Raipur, Chhattisgarh 492003, India Lat 21.318752° Long 81.617069° Thursday, 06/11/2025 10:55 AM GMT +05:30</p>	 <p>Raipur, Chhattisgarh, India B/c8+7/6, Urla Industrial Complex, Birgoan, Raipur, Chhattisgarh 492003, India Lat 21.319363° Long 81.617954° Thursday, 06/11/2025 10:56 AM GMT +05:30</p>
<p>Turbine</p>	<p>Control Room</p>
 <p>Raipur, Chhattisgarh, India B/c8+7/6, Urla Industrial Complex, Birgoan, Raipur, Chhattisgarh 492003, India Lat 21.318336° Long 81.617069° Thursday, 06/11/2025 10:53 AM GMT +05:30</p>	 <p>Raipur, Chhattisgarh, India B/c8+7/6, Urla Industrial Complex, Birgoan, Raipur, Chhattisgarh 492003, India Lat 21.319268° Long 81.618181° Thursday, 06/11/2025 10:48 AM GMT +05:30</p>
<p>ESP</p>	<p>Fly ash Dispatch and Bottom Ash Dispatch Silo</p>

ANNEXURES



CHHATTISGARH ENVIRONMENT CONSERVATION BOARD
Paryavas Bhawan, North Block, Sector - 19,
Nava Raipur Atal Nagar, District - Raipur (C.G.)
E-mail - hocecb@gmail.com

No. 8679 /TS/CECB/2024
To,

Nava Raipur Atal Nagar, Dated 30/12/ 2024

M/s Hira Ferro Alloys Limited (Unit-II),
Plot No.- 491/1, 491/2 and other,
Urla Industrial Area, Raipur,
District - Raipur (C.G.)

Sub: - Renewal of the consent of the Board under section 25 of the Water (Prevention and Control of Pollution) Act, 1974 and under section 21 of the Air (Prevention and Control of Pollution) Act, 1981.

- Ref: -
1. Consent of the Board issued under section 25 of the Water (Prevention and Control of Pollution) Act, 1974 vide letter no. 4014/TS/CECB/2006 Raipur, dated: 08/08/2006 and under section 21 of the Air (Prevention and Control of Pollution) Act, 1981 vide letter no. 4016/TS/CECB/2006 Raipur, dated: 08/08/2006.
 2. Last Renewal of the Board issued under section 25 of the Water (Prevention and Control of Pollution) Act, 1974 and under section 21 of the Air (Prevention and Control of Pollution) Act, 1981 vide letter no. 7368/TS/CECB/2023 Nava Raipur Atal Nagar, dated: 19/01/2023.
 3. Your online application dated: 26/10/2024 (online application no. 17042514).

--:: 00 ::--

With reference to your above application, consents under section 25 of the Water (Prevention and Control of Pollution) Act, 1974 and under section 21 of the Air (Prevention and Control of Pollution) Act, 1981 are hereby renewed for period of one year i.e. from 01/01/2025 to 31/12/2025, subject to the fulfillment of the terms and conditions incorporated in the water consent letter no. 4014/TS/CECB/2006 Raipur, dated: 08/08/2006 and air consent letter no. 4016/TS/CECB/2006 Raipur, dated: 08/08/2006, subsequent renewal of consent issued by the Board and additional conditions mentioned below.

This renewal of consent is valid for production capacity of: -

S.No.	Name	Production Capacity
01	Captive Power Plant	20 MW (Twenty Megawatt)
02	Ferro Alloys	50,000 Metric Tonnes Per Annum (Fifty Thousand Metric Tonnes Per Annum)
	or	or
	Pig Iron	70,000 Metric Tonnes Per Annum (Seventy Thousand Metric Tonnes Per Annum)

Additional Conditions

A. Water (Prevention and Control of Pollution) Act, 1974

- 1- Industry shall operate and maintain the effluent treatment system effectively and regularly. Industry shall ensure the treated effluent quality within the standards prescribed by Board published in Gazette Notification dated 25.03.88. Industry shall not discharge any treated/untreated effluent in to the river or any surface water bodies. No effluent shall be discharged outside of the factory premises in any circumstances; hence zero discharge condition outside the factory premises shall be maintained at all the time.
- 2- Industry shall ensure specific water consumption within standards prescribed by Ministry of Environment, Forest and Climate Change, Government of India regarding.
- 3- Industry shall ensure the fly ash utilization as per the notification of Ministry of Environment, Forest and Climate Change, Government of India vide letter dated 31/12/2021.
- 4- Industry shall ensure use of fly ash in the fly ash brick / block / products. Industry shall also install brick manufacturing machine within the plant premises for proper utilization of ash generated.
- 5- All fuel shall be stored above ground level in pucca platform in covered shed. Industry shall provide safe and scientific arrangement for collection, storage, transportation and disposal of all solid wastes such as fly ash, bottom ash, slag etc. generated. Solid wastes (Slag) shall be stored above ground level in pucca platform in covered area for few days only and not for longer period.
- 6- Industry shall adopt dry ash extraction and dry ash disposal system. Ash generated from plant shall not be stored on land in open areas in any circumstances. The ash generated shall be stored in closed silos only. The ash generated shall be collected in dry form in storage silos as temporary storage and it shall be utilized 100% for other beneficial uses such as brick making, road construction, cement making, filling in low-lying areas and abandoned mines etc. Industry shall provide ash storage silos of sufficient capacity. If at any point of time all the storage silos completely filled with ash, then in that case industry shall shut down the plant till such time the ash disposed to other beneficial uses. Industry shall also reclaim the ash dumping area with a cover of soil and plantation without delay. Industry shall ensure transportation of fly ash/bottom ash for back filling / beneficial uses by covered vehicles to prevent emission during transportation.
- 7- All internal roads shall be maintained black topped (pucca). Good housekeeping practices shall be adopted by the industry.
- 8- Industry shall ensure transportation of raw materials / waste by properly covered vehicles. Vehicles used for transporting the wastes / sludge shall be covered with tarpaulins and optimally loaded. Vehicular emissions shall be kept under control and regularly monitored. Industry shall also ensure use of mechanically covered vehicles for transportation of raw materials, fuel, dust generating products on or before 12/07/2023.
- 9- Industry shall use fly ash brick, fly ash block and fly ash based products in the construction/repairing activities.

- 10- Wide green belt of broad leaf local species shall be maintained all along the plant premises. As far as possible maximum area of open spaces shall be utilized for plantation purposes. Industry shall maintain plantation in at-least 33% area of the total area.
- 11- Industry shall submit Environment Statement to this Board as per provision of Environment (Protection) amendment Rule, 1993 for the previous year ending 31st March on or before 30th September every year.
- 12- Industry shall follow the terms and conditions stipulated in the Chhattisgarh Environment Conservation Board's order no. 7261/TS/CECB/2015, Raipur dated 06/02/2015. In case of non compliance of any terms and conditions mentioned above or mentioned in the above order, this renewal of the consent may be cancelled.
- 13- This renewal of consent is being issued under the "Scheme of Auto-Renewal of Consent" of the Board issued vide office order no. 5937 dated 29/01/2018 as per self certificate submitted by authorized signatory Mr. Ajay Dubey, Director of M/s Hira Ferro Alloys Limited (Unit-II), Plot No.- 491/1, 491/2 and other, Urla Industrial Area, Raipur, District - Raipur (C.G.).
- 14- In case, if the capital investment is increased by such amount that the total investment exceeds the range for which renewal fees has been paid, the industry shall have to pay the difference amount of renewal fees for the corresponding block years.
- 15- In case, the prescribed fee payable is amended in future, the industry shall be liable to pay the difference amount for corresponding block years.
- 16- Chhattisgarh Environment Conservation Board reserves the rights to revoke the consent / renewal of consent at any time for any violation/non-compliance.

B. Air (Prevention and Control of Pollution) Act, 1981

1. Industry shall operate and maintain the existing pollution control systems regularly. Industry shall ensure the emission of air pollutants within the prescribed emission limit all the time. Effective steps shall be taken to control fugitive emission inside the factory premises. Industry shall ensure particulate matter emission less than 50 mg/Nm³ by proper operating the pollution control equipment. Industry shall also maintain the ambient air quality within the factory premises within prescribed limits.
2. Industry shall ensure specific gaseous emission within standards prescribed by Ministry of Environment, Forest and Climate Change, Government of India regarding.
3. Industry shall ensure the fly ash utilization as per the notification of Ministry of Environment, Forest and Climate Change, Government of India vide letter dated 31/12/2021.
4. Industry shall ensure use of fly ash in the fly ash brick / block / products. Industry shall also install brick manufacturing machine within the plant premises for proper utilization of ash generated.
5. All fuel shall be stored above ground level in pucca platform in covered shed. Industry shall provide safe and scientific arrangement for collection, storage, transportation and disposal of all solid wastes such as fly ash, bottom ash, slag etc. generated. Solid wastes (Slag) shall be stored above

ground level in pucca platform in covered area for few days only and not for longer period.

6. Industry shall adopt dry ash extraction and dry ash disposal system. Ash generated from plant shall not be stored on land in open areas in any circumstances. The ash generated shall be stored in closed silos only. The ash generated shall be collected in dry form in storage silos as temporary storage and it shall be utilized 100% for other beneficial uses such as brick making, road construction, cement making, filling in low-lying areas and abandoned mines etc. Industry shall provide ash storage silos of sufficient capacity. If at any point of time all the storage silos completely filled with ash, then in that case industry shall shut down the plant till such time the ash disposed to other beneficial uses. Industry shall also reclaim the ash dumping area with a cover of soil and plantation without delay. Industry shall ensure transportation of fly ash/bottom ash for back filling / beneficial uses by covered vehicles to prevent emission during transportation.
7. Industry shall ensure regular running of Continuous Online Air Pollutant(s) Monitoring Systems for monitoring the emission from the stack(s) and calibration and data validation shall be carried out ensure availability of real time data in CECB server.
8. All internal roads shall be maintained black topped (pucca). Good housekeeping practices shall be adopted by the industry.
9. Industry shall ensure transportation of raw materials / waste by properly covered vehicles. Vehicles used for transporting the wastes / sludge shall be covered with tarpaulins and optimally loaded. Vehicular emissions shall be kept under control and regularly monitored. Industry shall also ensure use of mechanically covered vehicles for transportation of raw materials, fuel, dust generating products on or before 12/07/2023.
10. Wide green belt of broad leaf local species shall be maintained all along the plant premises. As far as possible maximum area of open spaces shall be utilized for plantation purposes. Industry shall maintain plantation in at-least 33% area of the total area.
11. Industry shall submit Environment Statement to this Board as per provision of Environment (Protection) amendment Rule, 1993 for the previous year ending 31st March on or before 30th September every year.
- 17- Industry shall follow the terms and conditions stipulated in the Chhattisgarh Environment Conservation Board's order no. 7261/TS/CECB/2015, Raipur dated 06/02/2015. In case of non compliance of any terms and conditions mentioned above or mentioned in the above order, this renewal of the consent may be cancelled.
- 18- This renewal of consent is being issued under the "Scheme of Auto-Renewal of Consent" of the Board issued vide office order no. 5937 dated 29/01/2018 as per self certificate submitted by authorized signatory Mr. Manohar Khatri, Director of M/s Hira Ferro Alloys Limited (Unit-II), Plot No.- 491/1, 491/2 and other, Urla Industrial Area, Raipur, District - Raipur (C.G.).
- 19- In case, if the capital investment is increased by such amount that the total investment exceeds the range for which renewal fees has been paid, the industry shall have to pay the difference amount of renewal fees for the corresponding block years.

- 20- In case, the prescribed fee payable is amended in future, the industry shall be liable to pay the difference amount for corresponding block years.
- 21- Chhattisgarh Environment Conservation Board reserves the rights to revoke the consent / renewal of consent at any time for any violation/non-compliance.

Member Secretary

Chhattisgarh Environment Conservation Board
Nava Raipur Atal Nagar
District - Raipur (C.G.)

Endt. No. 8680 /TS/CECB/2024

Nava Raipur Atal Nagar, Dated 30/12/ 2024

Copy to: -

Regional Officer, Regional Office, Chhattisgarh Environment Conservation Board, Raipur (C.G.). Please inspect the industry and ensure compliance of consent / renewal condition(s) and take action as per law, if any condition/conditions are violated by the industry.

Sd/-

Member Secretary

Chhattisgarh Environment Conservation Board
Nava Raipur Atal Nagar
District - Raipur (C.G.)

HFAL/ENV/2025-26/40

DATE: - 10.05.2025

10 MAY 2025

To
The Regional Officer
Chhattisgarh Environment Conservation Board,
New Office Building, Ring Road No. - 02
Tatibandh, Raipur (C.G.)

Subject: Submission of Fly Ash Generation and Utilization Report for the period of 01.04.2024 to 31.03.2025 (FY 2024-25).

**Reference: 1. Your Letter No. 93/RO/CECB/2025 Raipur dated 04.04.2025.
2. Divisional Headquarters letter number 239 dated 03.04.2025.**

Respected Sir,

This is in reference to above cited subject matter, we are submitting here with Fly Ash Generation and Utilization report for the period of 01.04.2024 to 31.03.2025 (FY 2024-25) of our 20 MW Captive Power Plant at **M/s Hira Ferro Alloys Limited (Unit-II)**, situated at Plot No. 490/1, 491/2, Urla Industrial Area, Urla Raipur Chhattisgarh-492003. Report of the same is enclosed in your given format as **Annexure-I**.

Kindly acknowledge the receipt of the same.

Thanking You

Your Faithfully

For, HIRA FERRO ALLOYS LTD.



Authorized Signatory



10 MAY 2025

C/c: - Member Secretary, Chhattisgarh Environment Conservation Board, Sector-19, Paryawas Bhawan, Atal Nagar, Naya Raipur (C.G.).

Hira Ferro Alloys Limited

An ISO 9001:2008, ISO 14001:2004 and OHSAS 18001:2007 certified company

CIN : U27101CT1984PLC005837

Registered Office and Works: No. 567-B, 568 & 553-B, Urla Industrial Complex, Raipur - 492003, Chhattisgarh, India

P: +91 771 4082450-51 **F:** +91 771 4082452

Corporate Office: Ground Floor, Hira Arcade, Near New Bus Stand, Pandri, Raipur - 492004, Chhattisgarh, India

P: +91 771 4082470, **F:** +91 771 4082742

www.hfal.in, www.hiragroup.com

HIRA FERRO ALLOYS LTD. (Unit - II)

Plot No.490/1, 491/2, Urla Industrial Complex Urla Raipur - 492003 Chhattisgarh

Annexure - I

स्थापित कोल आधारित थर्मल पावर प्लांट उद्योगों से उत्पन्न फ्लाइं ऐश की उपयोगिता की स्थिति के संबंध में जानकारी

(दिनांक 01.04.2024 से 31.03.2025 तक की अवधि का विवरण)
(मात्रा मीट्रिक टन में)

क्रमांक	थर्मल पावर उद्योग का नाम एवं पता	क्षमता (मेगा वॉट में)	उत्पन्न फ्लाइं ऐश की मात्रा (दिनांक 01.04.2024 से दिनांक 31.03.2025 तक की अवधि में)										कुल	प्रतिशत उपयोग				
			माह	मात्रा	सीमेंट प्लांट को प्रदाय / उपयोग	ईट निर्माण	भू. भराव	ऐश डाइक रजिग रजिग / निर्माण	कृषि कार्य हेतु	खदान में भराव	अन्य (जिस प्रयोजन में फ्लाइं ऐश का उपयोग किया गया है, उसकी संक्षिप्त जानकारी दे)	0						
1	Hira Ferro Alloys Limited (Unit-II), situated at Plot No.490/1, 491/2, Urla Industrial Complex Urla Raipur - 492003 Chhattisgarh	20 MW (Captive Power Plant)	Apr-24	6346.93	0	6346.93	0	0	0	0	0	0	0	0	0	6346.93	100%	
			May-24	6405.67	0	6405.67	0	0	0	0	0	0	0	0	0	0	6405.67	100%
			Jun-24	5021.00	0	5021.00	0	0	0	0	0	0	0	0	0	0	5021.00	100%
			Jul-24	5632.97	0	5632.97	0	0	0	0	0	0	0	0	0	0	5632.97	100%
			Aug-24	6753.28	0	6753.28	0	0	0	0	0	0	0	0	0	0	6753.28	100%
			Sep-24	7118.77	0	7118.77	0	0	0	0	0	0	0	0	0	0	7118.77	100%
			Oct-24	5352.22	0	5352.22	0	0	0	0	0	0	0	0	0	0	5352.22	100%
			Nov-24	7070.43	0	7070.43	0	0	0	0	0	0	0	0	0	0	7070.43	100%
			Dec-24	8557.24	0	8557.24	0	0	0	0	0	0	0	0	0	0	8557.24	100%
			Jan-25	8123.44	0	8123.44	0	0	0	0	0	0	0	0	0	0	8123.44	100%
			Feb-25	7054.41	0	7054.41	0	0	0	0	0	0	0	0	0	0	7054.41	100%
			Mar-25	7638.94	0	7638.94	0	0	0	0	0	0	0	0	0	0	7638.94	100%
			Total	81075.30	0	81075.30	0	81075.30	0	0	0	0	0	0	0	0	0	81075.30



(Signature)

AUTHORIZED SIGNATORY

NAME: NIKET KHANDLWAL (GM - CORPORATE AFFAIRS)

CONTACT: 9981233000

E-MAIL: niket.khandelwal@hiragroup.com

N. G. LOGISTIC & QUALITY COAL PRIVATE LIMITED

(N. G. Coal Laboratories)

Office & Lab Address: Plot No. 13, GajananNagari, MIDC, Chandrapur-442406 (M.S.)

E-Mail: nggroup9@gmail.com, Website: www.ngcoalab.com, Mob. 8888347437, 9226497160



Reg. No.
U74909MH2023PTC413506

SAMPLE ANALYSIS REPORT			
Date:	30.07.2024	Sample Receipt Date:	28.07.2024
Test Report No.:	NGL/NA/2024-25/07/44/dated 30.07.2024		
Client Name & Address:	Hira Ferro Alloy, Siltara, Raipur, Chhattisgarh, - 493223 (C.G.)		
Sample Description:	01 sample of Coal (250g approx. 212µ size)		Ref No:
Parameters Tested:	M, ASH, VM, FC, & GCV		N/A

Sr. No.	Lab Sample ID	Customer Sample ID	Analysis Start date	Analysis Completion Date	Air dried basis (ADB)				
					M (%)	ASH (%)	VM (%)	FC (%)	GCV (kcal/kg)
1	NGL/NA/C/07/63/24	July 2024	28.07.2024	29.07.2024	6.49	51.30	20.18	22.03	2935

*M: Moisture, VM: Volatile Matter, GCV: Gross Calorific Value

Notes:

- Total Moisture, Ash, Volatile Matter, Equilibrated Moisture tested as per IS 1350 (Part 1) 1984 RA 2019
- GCV tested as per IS 1350 (Part 2) 2022
- Samples shall be disposed of after one month from the date of issue of test report.
- The result relates only to the items tested.
- This test report shall not be reproduced except in full, without written approval from the laboratory.



Reviewed & Verified by
Authorized Signatory

Mr. Ganesh Mandal
(Technical Manager)

End of The Test Report

HIRA FERRO ALLOYS LIMITED(Power Division).

PLOT NO : 490/1,490/2 & 491 URLA INDUSTRIAL COMPLEX Phone : 493223ChhattisgarhINDIA
 Phone : 0771-4082450 Telefax : 0771-4082452 Email : support.its@hfal.in

Purchase Voucher

Voucher No. : POWER\24-25\PI\015

Date : 29/11/2024

Finance Book : POWER DIVISION - TRANSACTION FB

	Particulars	Debit Amount		Credit Amount	
		Rs.	P.	Rs.	P.
By	RICE HUSK (STOCK)	76	00		
By	RAW MATERIAL PURCHASE PROVISION A/C	20672	00		
To	GANPATI SALES (S/S)			20748	00
Narration : Being Invoice (Material) received for Purchase Of . RICE HUSK 5.460 M.T. @ Rs 3800.00 Per M.T. ,from GANPATI SALES vide Invoice No. 418 dt. 26/11/2024 against PO No. POWER\24-25\PO(RM)\0068 ,GRN No. POWER\24-25\GRN(RM)\3945 ,					
	Account Name	Ref. No.	Ref. Date	Amount (in Rs.)	DueDate
	GANPATI SALES (S/S)	418	26/11/2024	20748.00 Cr.	11/12/2024
Rupees : Twenty Thousand Seven Hundred Forty-Eight Only				20748	00
				20748	00

Arun Kumar Soni
(Prepared by)

Arun Kumar Soni
(Authorized by)

(Approved by)

(Authorized Signatory)



HIRA FERRO ALLOYS

HIRA FERRO ALLOYS LIMITED(POWER DIVISION).

PLOT NO : 490/1,490/2 & 491URLA INDUSTRIAL COMPLEX Pincode : 493223ChhattisgarhINDIA

Phone : 0771-4082450 Telefax : 0771-4082452 Email : support.its@hfal.in

Purchase InvoiceGANPATI SALES
A-202, CROSS WINDS,DALDAL
SINVNI,MOWA,RAIPUR,CHHATTISGARH,INDIABill No. : POWER\24-25\PB(RM)\1169
Date : 29/11/2024
Party Bill No. : 418
Party Bill Date : 26/11/2024
Party Bill Amt. : 20748.00

Sl. No.	Challan No.	Challan Date	GRN No.	GRN Date/ Creat. Date/ Auth. Date	PO/ WO No.	PO/ WO Date
1	GS/002	15/11/2024	POWER\24-25\GRN(RM)\39 45	15/11/2024 19/11/2024 19/11/2024	POWER\24-25\PO(RM)\0068	14/11/2024

Due Date : 11/12/2024

CostCenter : RM FOR PRODUCTION

Rs. In Words : **Twenty Thousand Seven Hundred Forty-Eight Only**

Basic Amount

Total

Passed Bill Amount

20748.00

20748.00

20748.00

For,HIRA FERRO ALLOYS LIMITED(POWER DIVISION).

BHAGIRAM DAHRIYA

(Prepared By)

(Checked By)

(Approved By)

PAN No. AGDPA4755F

GANPATI SALES

A-202, CROSS WINDS, DALDAL SIVNI, MOWA, RAIPUR (C.G.)

No. **418**

Date: 26/11/24

M/s. Hira ferro Alloys Ltd.

Plot NO-490/1 vada Industrial Area Raipur (Ch)

PARTICULARS	QTY.	RATE	AMOUNT	
			Rs	P.
Supply of Rice Husk	5.460 mt.	3800/- pmt.	20748/-	
TOTAL			20748/-	

DOCUMENT RECEIVED
Name (1610)
Division
Date: 20/11/24
SIGN. *[Signature]*

GANPATI SALES
A/C 50200008274490
IFSC: HDFC0003656
HDFC BANK, MOWA RAIPUR C.G.)

E.&O.E.

For, *[Signature]*
GANPATI SALES



HIRA FERRO ALLOYS LIMITED(POWER DIVISION).

Original Copy

PLOT NO : 490/1,490/2 & 491URLA INDUSTRIAL COMPLEXPincode :
493223ChhattisgarhINDIA

Acknowledgement

Gate Entry No.	: POWER\15-11-24\GE(RM)\001	Gate Entry Date	: 15/11/2024
Supplier Name & Address	: GANPATI SALES A-202, CROSS WINDS,DALDAL SINVNI,MOWA,RAIPUR,CHHATTISGARH,IN DIA		
Challan No.	: GS/002	Challan Date	: 15/11/2024
Item Description	: 0121010001 RICE HUSK		
Vehicle No.	: CG04JD7710		
Driver Name	: MAHENDAR		
Arrival Time	:	Departure Time	:
Weigh Bridge Name	: HIRA FERRO ALLOYS LTD (9.6 MVA)		
Weigh Bridge Slip No.	: 26191	Weigh Bridge Slip Date	: 15/11/2024
Challan Qty.	: 5.460		
Received Qty.	: 5.440		
Short/Excess Qty.	: (-)0.02		
Other Description (If Applicable)			

Authorised By 



HIRA FERRO ALLOYS LIMITED(POWER DIVISION).

Transporter Copy

PLOT NO : 490/1,490/2 & 491URLA INDUSTRIAL COMPLEXPincode :
493223ChhattisgarhINDIA

Phone : 0771-4082450 Telefax : 0771-4082452 Email : support.its@hfal.in

Acknowledgement

Gate Entry No.	: POWER\15-11-24\GE(RM)\001	GateEntry Date	: 15/11/2024
Supplier Name & Address	: GANPATI SALES A-202, CROSS WINDS,DALDAL SINVNI,MOWA,RAIPUR,CHHATTISGA RH,INDIA		
Challan No.	: GS/002	Challan Date	: 15/11/2024
Item Description	: 0121010001 RICE HUSK		
Vehicle No.	: CG04JD7710		
Driver Name	: MAHENDAR		
Arrival Time	:	Departure Time	:
Weigh Bridge Name	: HIRA FERRO ALLOYS LTD (9.6 MVA)		
Weigh Bridge Slip No.	: 26191	Weigh Bridge Slip Date	: 15/11/2024
Challan Qty.	: 5.460		
Received Qty.	: 5.440		
Short/Excess Qty.	: (-)0.02		
Other Description (If Applicable)			

Authorised By 

M - I - R - N - P - D - R - U

SOFT COMPUTERS DHERMANKANTA BOKARI NO. 542520344

RECEIVED
CUSTOMER :
COMMODITY : RUBBER

VEHICLE NO : DG04JD-7740
ADDRESS : NEEPAJ
SOURCE :

GROSS WT : 11000 kg Date: 15/11/2024 Time: 13:02
TARE WT : 5000 kg Date: 15/11/2024 Time: 10:45
NET WT : 5900 kg FIVE FOUR SIX TWO kg

Charges(1) : Rs. 0 Charges(2) : Rs. 0 Charges(3) : Rs. 0

OPERATOR'S SIGNATURE:

HIRA FERRO ALLOYS LTD.
PLOT NO. 490/1, URLA INDUSTRIAL AREA RAIPUR (C.G.)
WEIGHMENT SLIP

RST No. 26191

Vehicle No. CG04 JD 7710

Vehicle Type

Party Name

Material	
Gross (Kg)	11110
Tare (Kg)	5670
Net (Kg)	5440

Address
Gross Time 15/11/2024 04:23 PM
Transaction Time 15/11/2024 05:11 PM

Operator 11MVAWB
Tare Time 15/11/2024 05:11 PM

Remarks

Sign

Driver :
 Officer :

No responsibility of weight once the truck leaves weighbridge.


Depositor :



MIRA FERRO ALLOYS LTD. (UNIT-II)
INCOMING MATERIAL
Date: 15/11/24 Time: 16:00
Security Sign: [Signature]

HIRA FERRO ALLOYS LTD.
PLOT NO. 490/1, URLA INDUSTRIAL AREA RAIPUR (C.G.)
WEIGHMENT SLIP

RST No. 26191

Vehicle No. CG04 JD 7710

Vehicle Type

Party Name

Material	
Gross (Kg)	11110
Tare (Kg)	5670
Net (Kg)	5440
Transaction Time	15/11/2024 05:11 PM

Address

Gross Time 15/11/2024 04:23 PM

Tare Time 15/11/2024 05:11 PM

Remarks

Operator 11MVAWB

Sign

Driver :

Officer :

No responsibility of weight once the truck leaves weighbridge.

Depositor :



~~Signature~~
~~Signature~~
12/11/11

and
17/11/11


ALLIYS LID. (UNIT-11)
INCLUDING MATERIAL
Date 15/11/11 Time 16:00

ADJUTANT



HIRA FERRO ALLOYS LIMITED(Power Division).

PLOT NO : 490/1,490/2 & 491 URLA INDUSTRIAL COMPLEX Phone : 493223ChhattisgarhINDIA
Phone : 0771-4082450 Telefax : 0771-4082452 Email : support.its@hfal.in

Purchase Voucher

Voucher No. : POWER\24-25\PM008

Date : 15/10/2024

Finance Book : POWER DIVISION - TRANSACTION FB

	Particulars	Debit Amount		Credit Amount	
		Rs.	P.	Rs.	P.
By	RAW MATERIAL PURCHASE PROVISION A/C	632631	88		
By	CGST INPUT TAX CREDIT	15228	61		
By	SGST INPUT TAX CREDIT	15228	61		
By	CESS INPUT ON COAL (GST)	138108	00		
To	SOUTH EASTERN COALFIELDS LIMITED(DIPKA LINKAGE 2024-2034) RM			777709	63
To	COAL (STOCK)			23487	47
<p>Narration : Being Invoice (Material) received for Purchase Of . BITUMINUS COAL (F GRADE) 37.020 M.T. @ Rs 1764.25 Per M.T. ,BITUMINUS COAL (F GRADE) 38.200 M.T. @ Rs 1764.26 Per M.T. ,BITUMINUS COAL (F GRADE) 39.160 M.T. @ Rs 1764.26 Per M.T. ,BITUMINUS COAL (F GRADE) 39.300 M.T. @ Rs 1764.26 Per M.T. ,BITUMINUS COAL (F GRADE) 39.220 M.T. @ Rs 1764.26 Per M.T. ,BITUMINUS COAL (F GRADE) 37.880 M.T. @ Rs 1764.26 Per M.T. ,BITUMINUS COAL (F GRADE) 39.040 M.T. @ Rs 1764.25 Per M.T. ,BITUMINUS COAL (F GRADE) 38.090 M.T. @ Rs 1764.26 Per M.T. ,BITUMINUS COAL (F GRADE) 37.360 M.T. @ Rs 1764.25 Per M.T. ,from SOUTH EASTERN COALFIELDS LIMITED(DIPKA LINKAGE FSA NO 82148) vide Invoice No. SECL241121010712 dt. 05/10/2024 against PO No. POWER\24-25\PO(RM)\0047 ,GRN No. POWER\24-25\GRN(RM)\3387 ,POWER\24-25\GRN(RM)\3384 ,POWER\24-25\GRN(RM)\3389 ,POWER\24-25\GRN(RM)\3385 ,POWER\24-25\GRN(RM)\3390 ,POWER\24-25\GRN(RM)\3386 ,POWER\24-25\GRN(RM)\3383 ,POWER\24-25\GRN(RM)\3391 ,POWER\24-25\GRN(RM)\3388 ,</p>					
	Account Name	Ref. No.	Ref. Date	Amount (in Rs.)	DueDate
	SOUTH EASTERN COALFIELDS LIMITED(DIPKA LINKAGE 2024-2034) RM	SECL24112101 0712	05/10/2024	777709.63 Cr.	15/10/2024
Rupees : Eight Lakh One Thousand One Hundred Ninety-Seven And Ten Paise Only				801197	10

Arun Kumar Soni
(Prepared by)

Arun Kumar Soni
(Authorized by)

(Approved by)

(Authorized Signatory)



HIRA FERRO ALLOYS

HIRA FERRO ALLOYS LIMITED(POWER DIVISION).

PLOT NO : 490/1,490/2 & 491URLA INDUSTRIAL COMPLEXPincode : 493223ChhattisgarhINDIA

Phone : 0771-4082450 Telefax : 0771-4082452 Email : support.its@hfal.in

Purchase InvoiceSOUTH EASTERN COALFIELDS LIMITED(DIPKA LINKAGE
FSA NO 82148)
DIPKA MINES,DIPKA AREA,SEEPAT
ROAD,BILASPUR,Chhattisgarh,INDIABill No. : POWER\24-25\PB(RM)\0759
Date : 15/10/2024
Party Bill No. : SECL241121010712
Party Bill Date : 05/10/2024
Party Bill Amt. : 777709.63

Sl. No.	Challan No.	Challan Date	GRN No.	GRN Date/ Creat. Date/ Auth. Date	PO/ WO No.	PO/ WO Date
1	56012532C201	05/10/2024	POWER\24-25\GRN(RM)\3388	06/10/2024 09/10/2024 09/10/2024	POWER\24-25\PO(RM)\0047	22/08/2024
	56012532C201	05/10/2024	POWER\24-25\GRN(RM)\3385	06/10/2024 09/10/2024 09/10/2024	POWER\24-25\PO(RM)\0047	22/08/2024
3	56012532C201	05/10/2024	POWER\24-25\GRN(RM)\3390	06/10/2024 09/10/2024 09/10/2024	POWER\24-25\PO(RM)\0047	22/08/2024
4	56012532C201	05/10/2024	POWER\24-25\GRN(RM)\3387	06/10/2024 09/10/2024 09/10/2024	POWER\24-25\PO(RM)\0047	22/08/2024
5	56012532C201	05/10/2024	POWER\24-25\GRN(RM)\3384	06/10/2024 09/10/2024 09/10/2024	POWER\24-25\PO(RM)\0047	22/08/2024
6	56012532C201	05/10/2024	POWER\24-25\GRN(RM)\3386	06/10/2024 09/10/2024 09/10/2024	POWER\24-25\PO(RM)\0047	22/08/2024

SOUTH EASTERN COALFIELDS LIMITED(DIPKA LINKAGE
FSA NO 82148)
DIPKA MINES,DIPKA AREA,SEEPAT
ROAD,BILASPUR,Chhattisgarh,INDIA

Bill No. : POWER\24-25\PB(RM)\0759
Date : 15/10/2024
Party Bill No. : SECL241121010712
Party Bill Date : 05/10/2024
Party Bill Amt. : 777709.63

Sl. No.	Challan No.	Challan Date	GRN No.	GRN Date/ Creat. Date/ Auth. Date	PO/ WO No.	PO/ WO Date
7	56012532C208	05/10/2024	POWER\24-25\GRN(RM)\3389	06/10/2024 09/10/2024 09/10/2024	POWER\24-25\PO(RM)\0047	22/08/2024
8	56012532C208	05/10/2024	POWER\24-25\GRN(RM)\3383	06/10/2024 09/10/2024 09/10/2024	POWER\24-25\PO(RM)\0047	22/08/2024
	56012532C208	05/10/2024	POWER\24-25\GRN(RM)\3391	06/10/2024 09/10/2024 09/10/2024	POWER\24-25\PO(RM)\0047	22/08/2024

Due Date : 15/10/2024

CostCenter :

Basic Amount	609144.41
Compensation Cess	138108.00
CGST @ 2.5%	15228.61
SGST @ 2.5%	15228.61
TDS @ 0.10%	0.00
Total	777709.63

Rs. In Words : Seven Lakh Seventy-Seven Thousand Seven Hundred Ten | Passed Bill Amount 777709.63

For, HIRA FERRO ALLOYS LIMITED(POWER DIVISION).

BHAGIRAM DAHRIYA

(Prepared By)

(Checked By)

(Approved By)

Tax Invoice
Original for Buyer



PO BOX NO. 60, SEEPAT ROAD
BILASPUR, CHATTISGARH INDIA,
Postal Code-495006
077-52246321 077-52246471
WWW.SECL.NIC.IN

Supplier Legal Name: South
Eastern Coalfields Limited
Supplier Address : SECL, DIPKA AREA
Supplier City : DIPKA
Supplier State : Chhattisgarh
Supplier Pincode : 495452
Supplier GSTIN : 22AADCS2066E9ZL

Area Code :S011
Area Description :DIPKA
Legacy FSA No. :82148
Invoice number :SECL241121010712
SAP Ref. Inv. No. :9800499475
Invoice Date :Oct 5, 2024
Contract Reference:3080019907
Sales Order :3330048831
Sale Order Date :Jul 22, 2024
Mode of Dispatch :ROAD
Delivery No. :8003653021
Contract type: FSA Linkage



IRN No: 37a68aff156d1204a0a47ea67331926d98dda679affae49bc262202edbe28266
Acknowledgment Number : 182417372059562

Receiver (Billed To)		Consignee (Shipped to)		Details of Dispatch	
Name : HIRA FERRO ALLOYS LIMITED	Name : HIRA FERRO ALLOYS LIMITED	Grade : G11			
Party Code : 2000000026	Party Code : 2000000026	GCV : 4001-4300			
Address : PLOT NOS. 490/1, 490/2, 491 URLA INDUSTRIAL COMPLEX RAIPUR RAIPUR	Address : PLOT NOS. 490/1, 490/2, 491 URLA INDUSTRIAL COMPLEX RAIPUR	Size : -250 MM			
City : RAIPUR	City : RAIPUR	STC Distance : 3.000			
Pincode : 492003	Pincode : 492003	Dispatch date: Oct 5, 2024			
State code : Chhattisgarh	State code : Chhattisgarh				
Phone number :	Phone number :				
GSTIN : 22AAACH5697M2Z6	GSTIN : 22AAACH5697M2Z6				
E-Mail ID : rm@hfal.in	E-Mail ID : rm@hfal.in				

Mines	Material	Grade/Size	Material Description	HSN Code	UOM	Billed Quantity	STC Charges	Basic rate	Basic Price	STC Price	Forest tax	Terminal Tax
DIPKA OC (8852)	41000000 00	G11/-250 MM	NON-COKING COAL	27011200	TE	345.270	50.00	1324.00	457137.48	17263.50	1968.04	476.47

PARTICULARS

Pricing Description	Rate Per TE (INR)	Amount (INR)
Sizing Charges	56.00	19335.12
Evac Facility Charge	60.00	20716.20
Royalty Charges (14% of Basic Price)	185.36	63999.25
NMET Charges (2% of Royalty)	3.71	1279.99
DMF (30% of Royalty)	55.61	19199.78
Adho Sanrachna Vikas	11.25	3884.29
Pariyavaran Upkar	11.25	3884.29
Assessable Value	1764.26	609144.41
CGST (2.5%)	44.11	15228.61
SGST (2.5%)	44.11	15228.61
Gross Comp Cess	400.00	138108.00
Gross Bill Value	2252.47	777709.63
Net Value	2252.47	777709.63



Remarks/Note/ Declaration Total Amount: 777709.63

Reverse Charge Applicable: No

Certified that the particulars given above are true and correct and the amount indicated represents the price actually charged and that there is no flow of additional consideration directly or indirectly from the buyer.

Total Bill Value In words : SEVEN LAKH SEVENTY SEVEN THOUSAND SEVEN HUNDRED NINE RUPEES SIXTY THREE PAISE

Area : DIPKA
Telephone :
Fax Number :
E-Mail Address :

This is digitally verified document hence manual/ physical signature is not required



HIRA FERRO ALLOYS

HIRA FERRO ALLOYS LIMITED(POWER DIVISION).

Original Copy

PLOT NO : 490/1,490/2 & 491URLA INDUSTRIAL COMPLEXPincode :
493223ChhattisgarhINDIA

Acknowledgement

Gate Entry No.	: POWER\06-10-24\GE(RM)\009	Gate Entry Date	: 06/10/2024
Supplier Name & Address	: SOUTH EASTERN COALFIELDS LIMITED(DIPKA LINKAGE FSA NO 82148) DIPKA MINES,DIPKA AREA,SEEPAT ROAD,BILASPUR,Chhattisgarh,INDIA		
Challan No.	: 56012532C2081258	Challan Date	: 05/10/2024
Item Description	: 0102010005 BITUMINUS COAL (F GRADE)		
Vehicle No.	: CG10BK1165	Departure Time	:
Driver Name	: RAHUL	Weight Bridge Slip No.	: 23293
Arrival Time	:	Challan Qty.	: 37.020
Weight Bridge Name	: HIRA FERRO ALLOYS LTD (9.6 MVA)	Received Qty.	: 37.230
Weight Bridge Slip No.	: 23293	Short/Excess Qty.	: +0.21
Challan Qty.	: 37.020	Other Description (If Applicable)	
Received Qty.	: 37.230		
Short/Excess Qty.	: +0.21		
Other Description (If Applicable)			
			Weight Bridge Slip Date : 06/10/2024
			Authorised By

Authorised By

SOUTH EASTERN COALFIELDS LIMITED

CIN:

Delivery Challan

Original For Buy
Duplicate for Transport
Triplicate for Supply

Weight Serial No. : 1000DIPBB072209268923

Weighbridge No. : DIP_WB32

Name & Address of Mine:
DIPKA EXP PROJECT
DIPKA AREA, KORBA (CG)

Buyer:
HIRA FERRO ALLOYS LIMITED
PLOT NOS. 490/1, 490/2, 491

Invoice#:
5601253202081258
Date: 05-10-2024 Time: 15:42:39
EPN#: 0078500

BSTN: 22AADCS2060EYZL
State Code: 22

GSIN: 22AAACH5697M2Z6
State Code: 22

Mining Pass#:
Reverse Charge: No

DU No. & Date	DU Valid Upto	Delivery Point	DU Qty	Balance Qty to be lifted	Customer Code
3330048831 22-08-2024	05-10-2024	DIPKA PROJECT	1215.00MT Issue No: 3330048831	37.36MT	2000000026 Prog: 1177.6

Destination (Consignee) : URLA, RAIPUR, CG CG
 Spec. of Goods : COAL
 HSN Code : 27011200
 Size : 800 (250mm)
 Grade : G11
 Type of Consumer : NON-POWER
 Weight : 52.84MT Date : 05-10-2024 Time : 15:42:39
 15.82MT Date : 03-10-2024 Time : 19:08:37
 37.02MT
 Rate : 1324.00 / MT

6122311

Sl. No.	Description	Rate	Quantity	Amount
1.	Coal Value			49014.48
2.	Sizing Charges	56.00 / MT		2073.12
3.	SILO Charges	0.00 / MT		0.00
4.	STC Charge	50.00 / MT		1851.00
5.	Dumping Charge	0.00 / MT		0.00
6.	Royalty	185.36 / MT		6862.03
7.	DMF @ 30.00% of 6 above			2058.61
8.	NMET @ 2.00 % of 6 above			137.24
9.	Stowing Excise Duty	0.00 / MT		0.00
10.	Terminal tax	1.38 / MT		51.09
11.	Forest Cess	57.00 / MT		2110.14
12.	MP Sadak tax	0.00 / MT		0.00
13.	CG Paryavaran & Vikas Upkar	22.50 / MT		832.95
14.	Pre Charges One	0.00 / MT		0.00
15.	Pre Charges Two	0.00 / MT		0.00
16.	Other Charges	60.00 / MT		2221.20

Taxable Value (A) [1 to 16]		: 67211.85 (Sixty Seven Thousand Two Hundred Eleven)
S.G.S.T	2.5% on (A)	: 1680.00 (One thousand Six Hundred Eighty)
C.G.S.T	2.5% on (A)	: 1680.00 (One thousand Six Hundred Eighty)
I.G.S.T	0.0% on (A)	: 0.00 ()
State Compensation cess	400.00 / MT	: 14808.00 (Fourteen Thousand Eight Hundred Eight)
17. post Charges One	0.00 / MT	: 0.00
18. post Charges Two	0.00 / MT	: 0.00
Gross Sale Value (e)		: 85379.85 (Eighty Five thousand Three Hundred Seventy)

**Certified that particulars given above are true and correct.

Truck No. For Dipka Exp

CG10BK1165  proj

(Verified By)

(Authorised Signato



GOVERNMENT OF CHHATTISGARH

MINERAL RESOURCES DEPARTMENT

(Korba District)

Copy For : Purchaser / Consignee (प्रति : क्रेता / परेषिती (माल पानेवाला))

FORM-1 See Rule 4 (1) Mineral Transit Pass (for Mineral Concession Holders)
 रूप-1 (नियम-4 (1) देखिये) खनिज अभिवहन पास (खनिज रियायत धारकों के लिए)

Transit Pass Number (अभिवहन पास क्रमांक) :



TP_NO_15525107

District (जिला)	Korba
Issue Date Of Mineral (खनिज प्रेषण का दिनांक)	05-10-2024
Issue Time Of Mineral (खनिज प्रेषण का समय)	04:08:33 PM
Permit No. (ई-पोर्टल क्र.)	EP_NO_0078500
Vehicle Number/Date (if applicable) (यदि लागू हो तो दिनांक)	3330048831 22/08/2024
Vehicle Type (वाहन का प्रकार)	Trailer
Vehicle No.(वाहन क्रमांक)	CG10BK1165
Port of Registration No. of Vehicle (वाहन का पोर्टल पंजीकरण क्रमांक)	VPI04235
Licensee/Holder's Name (अनुज्ञप्ति / पट्टेधारी का नाम)	South Eastern Coalfields Limited- Area Dipika : 1999-42-2171008903 (Within State)
License/Mining Area Details (अनुज्ञप्ति/ खान क्षेत्र का विवरण)	Ratija / Pali / Korba
Village/Tensi/District (ग्राम / तहसील / जिला)	1999-42
Area in Hectare (रकबा हेक्टेयर में)	13/03/2010 to
Valid Period (अनुज्ञप्ति / पट्टा अवधि)	Coal
Mineral Name (खनिज का नाम)	Non Coking-ROM
Name of the Mineral being transported (Mineral form viz. Lumps/Block etc.) (खनिज की श्रेणी (खनिज प्रकार जैसे लम्प / फाईन्स / स्टीम / ब्लॉक / अन्य रूप))	ROM- G11 (Above 4001 to 4300 GCV/Killo Calories)
Price (दर)	Rs 1324.00 / Metric Tonne
Sale value of the Mineral (In Rs per Metric Tonne) (खनिज का बिक्रय मूल्य (रु. प्रति मीट्रिक टन))	15.82 Metric Tonne
Gross Weight of the Vehicle (वाहन का टैयर वेट (मीट्रिक टन))	52.84 Metric Tonne
Net Weight of the Vehicle (वाहन का ग्राँस वेट (मीट्रिक टन))	37.02 Metric Tonne
Net Weight of Mineral being transported (परिवहन किये जा रहे खनिज की मात्रा (मीट्रिक टन))	HIRA FERRO ALLOYS LIMITED-3230001475 (Within State)
Purchaser/Recipient's Name (क्रेता / प्राप्तकर्ता का नाम)	MANJEET SINGH GAMBHIR (9302781000)
Purchaser/Recipient's Name & Contact Number (क्रेता/प्राप्तकर्ता का नाम एवं दूरभाष क्रमांक)	RAHUL (9644309562)
Purchaser/Recipient's Contact Number (क्रेता/प्राप्तकर्ता का नाम एवं दूरभाष क्रमांक)	Road
Mode of Transportation (परिवहन पथ का प्रकार)	N/A
Mode of Transportation (व्यापार)	hira ferro alloys ltd urla industrial area raipur urla industrial area raipur,Raipur,Chhattisgarh -492003
Destination (स्थान)	Not Applicable
Other (Remarks) (अन्य टिप्पणियाँ)	Generated Time : 05-10-2024 04:08 33 PM

DISP UNIT SECL DIPA
 G.N. 07-Sub
 Date: 05/10/24
 Time: 1646
 Sing: A

e-Way Bill



1. E-WAY BILL Details

eWay Bill No: 8814 5630 8841

Generated Date: 05/10/2024 06:06 PM

Generated By: 22AAA CH569 7M2Z6

Valid Upto: 06/10/2024

Mode: Road

Approx Distance: 186km

Type: Inward - Others-TRANSPORTATION

Document Details: Others - TP-15525107 -
05/10/2024

Transaction type: Regular

2. Address Details

From

GSTIN : 22AAD CS206 6E9ZL
SOUTH EASTERN COALFIELDS LIMITED
CHHATTISGARH

Dispatch From ::
SECL DIPKA
DIPKA
DIPKA,CHHATTISGARH-495452

To

GSTIN : 22AAA CH569 7M2Z6
HIRA FERRO ALLOYS LIMITED
CHHATTISGARH

Ship To ::
plot No. 491/1, 492/2,491/2 u
UrJaRaipur
Raipur,CHHATTISGARH-492003

3. Goods Details

HSN Code	Product Name & Desc.	Quantity	Taxable Amount Rs.	Tax Rate (C+S+I+Cess+Cess Non.Advol)
27011200	COAL & DIPKA	37.02 MTS	67211.85	2.500+2.500+NE+0.000+400.00

Tot. Tax'ble Amt	CGST Amt	SGST Amt	IGST Amt	CESS Amt	CESS Non.Advol Amt	Other Amt	Total Inv.Amt
67211.85	1680.00	1680.00	0.00	0.00	14808.00	0.00	85379.85

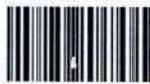
Transportation Details

Transporter ID & Name : 22AAACH5697M2Z6 & HIRA FERRO ALLOYS LIMITED

Transporter Doc. No & Date : TP15525107 & 05/10/2024

5. Vehicle Details

Mode	Vehicle / Trans Doc No & Dt.	From	Entered Date	Entered By	CEWB No. (If any)	Multi Veh.Info (If any)
Road	CG10BK1165 & TP15525107 & 05/10/2024	DIPKA	05/10/2024 06:06 PM	22AAACH5697M2Z6	-	-



881456308841

Note: If any discrepancy in information please try after sometime.

**HIRA FERRO ALLOYS LTD.
PLOT NO. 490/1, URLA INDUSTRIAL AREA RAIPUR (C.G.)
WEIGHMENT SLIP**

RST No. 23293

Vehicle No. CG10 BK 1165

Vehicle Type

Party Name

Material

Gross (Kg) 53120

Tare (Kg) 15890

Net (Kg) **37230**

Transaction Time 06/10/2024 12:01 PM

Gross Time 06/10/2024 10:53 AM

Tare Time 06/10/2024 12:01 PM

Remarks

Operator 11MVAWB

Sign

Driver :

Officer :

No responsibility of weight once the truck leaves weighbridge.

Depositor :



out
18/15


HIRA FERRO ALLOYS LTD. (UNIT-II)
INCOMING MATERIAL
Date: 06/10/24 Time: 09:45
 SECURITY SIGN.

GOV OF CHHATTISGARH
MONEY CHECK POST
RAHUL CHIT KORBA (C.G.)
05 OCT 2024
Register Pas. No.
Serial No. Time 7.45 AM
Sign. CA Incharge



HIRA FERRO ALLOYS

HIRA FERRO ALLOYS LIMITED(POWER DIVISION).

Original Copy

PLOT NO : 490/1,490/2 & 491URLA INDUSTRIAL COMPLEXPincode :
493223ChhattisgarhINDIA

Acknowledgement

Gate Entry No.	: POWER\06-10-24\GE(RM)\010	Gate Entry Date	: 06/10/2024
Supplier Name & Address	: SOUTH EASTERN COALFIELDS LIMITED(DIPKA LINKAGE FSA NO 82148) DIPKA MINES,DIPKA AREA,SEEPAT ROAD,BILASPUR,Chhattisgarh,INDIA		
Challan No.	:56012532C2081230	Challan Date	: 05/10/2024
Item Description	:0102010005 BITUMINUS COAL (F GRADE)		
Vehicle No.	:CG10BQ1165	Departure Time	:
Driver Name	:RAMAYAN	Weight Bridge Slip Date	: 06/10/2024
Arrival Time	:		
Weight Bridge Name	:HIRA FERRO ALLOYS LTD (9.6 MVA)		
Weight Bridge Slip No.	:23292		
Challan Qty.	: 38.200		
Received Qty.	: 38.680		
Short/Excess Qty.	:+0.48		
Other Description (If Applicable)			

APB
Authorized By

SOUTH EASTERN COALFIELDS LIMITED
CIN:

Original for Buyer
Duplicate for Transport
Triplicate for Supplier

Delivery Challan

Weighment Serial No. : 1000DIPBB0/22092/1917

Weighbridge No. : DIP_W832

Name & Address of Mine:
DIPKA EXP PROJECT
DIPKA AREA, KORBA (GG)

Buyer:
HIRA FERRO ALLOYS LIMITED
PLOT NOS. 490/1, 490/2, 491

Invoice#:
5601253202001230
Date: 05-10-2024 Time: 12:04:51
EPN#: 0078500
Mining Pass#: _____
Reverse Charge: No

GSTN: 22AADCS2066E9ZL
State Code: 22

GSTN: 22AAACH369/M226
State Code: 22

DO No. & Date	DO Valid Upto	Delivery Point	DO Qty	Balance Qty to be lifted	Customer Code
3330048831 22-08-2024	05-10-2024	DIPKA PROJECT	1215.00MT Issue No: 3330048831	152.72MT	2000000026 Prog. 1062.

Destination (Consignee)	: URLA, RAIPUR, CG CG
Specification of Goods	: COAL
HSN Codes	: 27011200
Size	: RDM (-250MM)
Grade	: G11
Type of Consumer	: NON-POWER
Gross Weight	: 53.99MT Date : 05-10-2024 time : 12:04:51
Tare Weight	: 15.79MT Date : 04-10-2024 time : 05:47:50
Net Weight	: 38.20MT
Rate	: 1324.00 / MT
1. Coal Value	: 50576.80
2. Sizing Charges	56.00 / MT : 2139.20
3. SILD Charges	0.00 / MT : 0.00
4. SIC Charge	50.00 / MT : 1910.00
5. Dumping Charge	0.00 / MT : 0.00
6. Royalty	185.36 / MT : 7089.75
7. DMI	@ 30.00% of 6 above : 2124.23
8. NMET	@ 2.00 % of 6 above : 141.62
9. Stowing Excise Duty	0.00 / MT : 0.00
10. Terminal tax	1.38 / MT : 52.72
11. Forest Cess	57.00 / MT : 2177.40
12. MP Sadak tax	0.00 / MT : 0.00
13. C. & P. & Vikas Upkar	22.50 / MT : 859.50
14. 6121999 One	0.00 / MT : 0.00
15. Charges Two	0.00 / MT : 0.00



साउथ ईस्टर्न कोलफील्ड्स लिमिटेड
South Eastern Coalfields Limited

16. State Compensation cess	2.5% on (A) : 15280.00 (Fifteen Thousand Two Hundred Eighty)
17. Post Charges One	0.00 / MT : 0.00
18. Post Charges Two	0.00 / MT : 0.00
Gross Sale Value	: 80102.21 (Eighty Eight Thousand One Hundred Two)

I hereby certify that particulars given above are true and correct.
(Verified By)

Truck No. For Dipka Exp
CG10B01165 pro

(Authorised Signat)



GOVERNMENT OF CHHATTISGARH
MINERAL RESOURCES DEPARTMENT
(Korba District)

Copy For : Purchaser / Consignee (प्रति : क्रेता / परेषिती(मान पानेवाला))

FORM-1 See Rule 4 (1) Mineral Transit Pass (for Mineral Concession Holders) प्ररूप -२ (नियम -४ (२) देखिये) खनिज अभिवहन पास (खनिज रियायत धारकों के लिए)	Transit Pass Number (अभिवहन पास क्रमांक) :  TP_NO_15523260
District (जिला)	Korba
Issue Date Of Mineral (खनिज प्रेषण का दिनांक)	05-10-2024
Issue Time Of Mineral (खनिज प्रेषण का समय)	12:33:12 PM
E-Permit No. (ई-परमिट क्र.)	EP_NO_0078500
D.O Number/Date (If Applicable) (डी.ओ. क्रमांक / दिनांक (यदि लागू हो))	3330048831 22/08/2024
Vehicle Type (वाहन का प्रकार)	Trailer
Vehicle No(वाहन क्रमांक)	CG10BQ1165
Portal Registration No. of Vehicle(वाहन का पोर्टल पंजीकरण क्रमांक)	VPI31344
License /Lessee's Name (अनुज्ञप्ति / पट्टेधारी का नाम)	South Eastern Coalfields Limited- Area Dipika - 1999.42-2171008903 (Within State)
License/Mining Area Details (अनुज्ञप्ति/ खान क्षेत्र का विवरण) Village/Tehsil/District (ग्राम / तहसील / जिला)	Ratija / Pali / Korba
Area in Hectare (रकबा हेक्टेयर में)	1999.42
Lease Validity Period (अनुज्ञप्ति / पट्टा अवधि)	13/03/2010 to
Mineral Name (खनिज का नाम)	Coal
Category of the Mineral being transported (Mineral form viz. lump/fines/steam/slack etc.) (परिवहन किये जा रहे खनिज की श्रेणी (खनिज प्रकार जैसे लम्प / फाईन्स / स्टीम / स्लैक / अन्य))	Non Coking-ROM
Grade (ग्रेड)	ROM- G11 (Above 4001 to 4300 GCV/Killo Calories)
Sale value of the Mineral (In Rs per Metric Tonne) (खनिज का विक्रय मूल्य (रु. प्रति मीट्रिक टन))	Rs 1324.00 / Metric Tonne
Tare Weight of the Vehicle (वाहन का टैयर वेट (मीट्रिक टन))	15.79 Metric Tonne
Gross Weight of the Vehicle (वाहन का ग्राँस वेट (मीट्रिक टन))	53.99 Metric Tonne
Net Weight of Mineral being transported (परिवहन किये जा रहे खनिज की मात्रा (मीट्रिक टन))	38.20 Metric Tonne
Mineral Purchaser/ Recipient's Name (खनिज क्रेता / प्राप्तकर्ता का नाम)	HIRA FERRO ALLOYS LIMITED-3230001475 (Within State)
Owner (Transporter) Name & Contact Number (वाहन मालिक (परिवहनकर्ता) का नाम एवं दूरभाष क्रमांक)	MANJEET SINGH GAMBHIR (9302781000)
Driver Name & Contact Number (वाहन चालक का नाम एवं दूरभाष क्रमांक)	RAMAYAN (8959634133)
Mode of Transportation (परिवहन पथ का प्रकार)	Road
Route (परिवहन मार्ग (व्याप))	N/A
Destination (गंतव्य)	hira ferro alloys ltd urla industrial area raipur urla industrial area raipur,Raipur,Chhattisgarh -492003
Other (Remarks) (अन्य (टिप्पणियाँ))	Not Applicable
This is a system generated e-Transit Pass. So physical signature is not required. Generated Time : 05-10-2024 12:33:12 PM	

STATE OF OREGON
MAILING CHECK POST
HADUM DIST. KORBA (C.G.)

05 OCT 2024

Register Pas. No.
Serial No. Time 11 AM/PM
Sign. CP Incharge

e-Way Bill



1. E-WAY BILL Details

eWay Bill No: 8414 5630 6971

Generated Date: 05/10/2024 06:03 PM

Generated By: 22AAA CH569 7M2Z6

Valid Upto: 06/10/2024

Mode: Road

Approx Distance: 186km

Type: Inward - Others-TRANSPORTATION

Document Details: Others - TP-15523260 -
05/10/2024

Transaction type: Regular

2. Address Details

From

GSTIN : 22AAD CS206 6E9ZL
SOUTH EASTERN COALFIELDS LIMITED
CHHATTISGARH

:: Dispatch From ::

SECL DIPKA
DIPKA
DIPKA,CHHATTISGARH-495452

To

GSTIN : 22AAA CH569 7M2Z6
HIRA FERRO ALLOYS LIMITED
CHHATTISGARH

:: Ship To ::

plot No. 491/1, 492/2,491/2 u
UrtaRaipur
Raipur,CHHATTISGARH-492003

3. Goods Details

HSN Code	Product Name & Desc.	Quantity	Taxable Amount Rs.	Tax Rate (C+S+I+Cess+Cess Non.Advol)
27011200	COAL & DIPKA	38.20 MTS	69354.21	2.500+2.500+NE+0.000+400.00

Tot. Tax'ble Amt	CGST Amt	SGST Amt	IGST Amt	CESS Amt	CESS Non.Advol Amt	Other Amt	Total Inv.Amt
69354.21	1734.00	1734.00	0.00	0.00	15280.00	0.00	88102.21

4. Transportation Details

Transporter ID & Name : 22AAACH5697M2Z6 & HIRA FERRO ALLOYS LIMITED

Transporter Doc. No & Date : TP15523260 & 05/10/2024

5. Vehicle Details

Mode	Vehicle / Trans Doc No & Dt.	From	Entered Date	Entered By	CEWB No. (If any)	Multi Veh.Info (If any)
Road	CG10BQ1165 & TP15523260 & 05/10/2024	DIPKA	05/10/2024 06:03 PM	22AAACH5697M2Z6	-	-



841456306971

HIRA FERRO ALLOYS LTD.
PLOT NO. 490/1, URLA INDUSTRIAL AREA RAIPUR (C.G.)
WEIGHMENT SLIP

RST No. 23292

Vehicle No. CG10 BQ 1165

Vehicle Type

23292
0
0
0

Party Name

Material

Gross (Kg) 54370

Tare (Kg) 15690

Net (Kg) 38680

Transaction Time 06/10/2024 11:59 AM

Gross Time 06/10/2024 10:51 AM

Tare Time 06/10/2024 11:59 AM

Operator 11MVAWB

Remarks

Sign

Driver :

Officer :

Depositor :

No responsibility of weight once the truck leaves weighbridge.



HIRA FERRO ALLOYS LID. (UNIT-II)
INCOMING MATERIAL
Date: 10/24/24
SECURITY

out
12:15





HIRA FERRO ALLOYS

HIRA FERRO ALLOYS LIMITED(POWER DIVISION).

Original Copy

PLOT NO : 490/1,490/2 & 491URLA INDUSTRIAL COMPLEXPincode :
493223ChhattisgarhINDIA

Acknowledgement

Gate Entry No.	: POWER\06-10-24\GE(RM)\011	Gate Entry Date	: 06/10/2024
Supplier Name & Address	: SOUTH EASTERN COALFIELDS LIMITED(DIPKA LINKAGE FSA NO 82148) DIPKA MINES,DIPKA AREA,SEEPAT ROAD,BILASPUR,Chhattisgarh,INDIA		
Challan No.	: 56012532C2081221	Challan Date	: 05/10/2024
Item Description	: 0102010005 BITUMINUS COAL (F GRADE)		
Vehicle No.	: CG04NS4131	Departure Time	:
Driver Name	: NEPAL SINGH	Weight Bridge Slip Date	: 06/10/2024
Arrival Time	:		
Weight Bridge Name	: HIRA FERRO ALLOYS LTD (9.6 MVA)		
Weight Bridge Slip No.	: 23332		
Challan Qty.	: 39.160		
Received Qty.	: 39.290		
Short/Excess Qty.	: +0.13		
Other Description (If Applicable)			

Arabe
Authorized By

SOUTH EASTERN COALFIELDS LIMITED
CIN:
Delivery Challan

Original for Buy
Duplicate for Transport
Triplicate for Supplier

Weighment Serial No. : 1000DIPBB072209269037

Weighbridge No. : DIP_WB32

Name & Address of Mine:
DIPKA EXP PROJECT
DIPKA AREA, KORBA (CG)

Buyer:
HIRA FERRO ALLOYS LIMITED
PLOT NOS. 490/1, 490/2, 491

Invoice#:
56012532C2081221
Date: 05-10-2024 Time: 11:46:21
EPN#: 0078500
Mining Pass#:
Reverse Charge: No

GSTN: 22AADCS2066E9ZL
State Code: 22

GSTN: 22AAACH5697M2Z6
State Code: 22

DO No. & Date	DO Valid Upto	Delivery Point	DO Qty	Balance Qty	Customer Code
3330048831 22-08-2024	05-10-2024	DIPKA PROJECT	1215.00MT Issue No: 3330048831	to be lifted 307.39MT	2000000026 Prog. 907.61

Destination (Consignee)	: URLA, RAIPUR, CG CG
Specification of Goods	: COAL
HSN Code	: 27011200
Size	: RDM (-250MM)
Grade	: G11
Type Of Consumer	: NON-POWER
Gross Weight	: 54.92MT Date : 05-10-2024 Time : 11:46:21
Tare Weight	: 15.76MT Date : 03-10-2024 Time : 19:28:21
Net Weight	: 39.16MT
Rate	: 1524.00 / MT
1. Coal Value	: 51847.84
2. Sizing Charges	56.00 / MT : 2192.96
3. SILO Charges	0.00 / MT : 0.00
4. STC Charge	50.00 / MT : 1958.00
5. Dumping Charge	0.00 / MT : 0.00
6. Royalty	185.36 / MT : 7258.70
7. DMF @ 30.00% of 6 above	: 2177.61
8. NMET @ 2.00 % of 6 above	: 145.17
9. Stowing Excise Duty	0.00 / MT : 0.00
10. Terminal Tax	1.38 / MT : 54.04
11. Forest Cess	57.00 / MT : 2232.12
12. MP Sadak Tax	0.00 / MT : 0.00
13. CG Paryavaran & Vikas Upkar	22.50 / MT : 881.10
14. Pre Charges One	0.00 / MT : 0.00
15. Pre Charges Two	0.00 / MT : 0.00
16. Other Charges	60.00 / MT : 2349.60

Taxable Value (A) [1 to 16]	: 71097.14 (Seventy One Thousand Ninety Seven)
S.G.S.T 2.5% on (A)	: 1777.00 (One Thousand Seven Hundred Seventy Seven)
C.G.S.T 1% on (A)	: 710.97 (One Thousand Seven Hundred Seventy Seven)
I.G.S.T 0.0% on (A)	: 0.00 ()
State Compensation cess 400.00/ MT	: 15664.00 (Fifteen Thousand Six Hundred Sixty Four)
17. post Charges One	0.00 / MT : 0.00
18. post Charges Two	0.00 / MT : 0.00
Gross Sale Value	: 90315.14 (Ninety Thousand Three Hundred Fifteen)

**Certified that particulars given above are true and correct.
roj

Truck No. For Dipka Exp
CG04NS4131 proj

(Verified By)

(Authorised Signato



**GOVERNMENT OF CHHATTISGARH
MINERAL RESOURCES DEPARTMENT
(Korba District)**

Copy For : Purchaser / Consignee (प्रति : क्रेता / परेषिती (माल पानेवाला))

<p>FORM-I See Rule 4 (1) Mineral Transit Pass (for Mineral Concession Holders) प्ररूप-1 (नियम-4 (1) देखिये); खनिज अभिवहन पास (खनिज रियायत धारकों के लिए)</p>		<p align="center">Transit Pass Number (अभिवहन पास क्रमांक) :-</p>
		 TP_NO_15522968
District (जिला)	Korba	
Issue Date Of Mineral (खनिज प्रेषण का दिनांक)	05-10-2024	
Issue Time Of Mineral (खनिज प्रेषण का समय)	12:00:47 PM	
EP/Permit No. (परमिट नं.)	EP_NO_0078500	
D.O Number/Date (If Applicable) (डी.ओ. क्रमांक/दिनांक (यदि लागू हो))	3330048831 22/08/2024	
Vehicle Type (वाहन का प्रकार)	Trailer	
Vehicle No.(वाहन क्रमांक)	CG04NS4131	
Portal Registration No. of Vehicle(वाहन का पोर्टल पंजीकरण क्रमांक)	VP94017	
Licensee/ Lessee's Name (अनुज्ञप्ति / पट्टेधारी का नाम)	South Eastern Coalfields Limited- Area Dipika : 1999.42-2171008903 (Within State)	
Concess./Mining Area Details (अनुज्ञप्ति/ खान क्षेत्र का विवरण)	Katija / Pali / Korba	
Village/Block/District (ग्राम / तहसील / जिला)		
Area to Declare (रकबा हेतु देपर में)	1999.42	
Issue Validity Period (अनुज्ञप्ति / पट्टा अवधि)	13/03/2010 to	
Mineral Name (खनिज का नाम)	Coal	
Category of the Mineral being transported (Mineral form viz. lump/lump/steenslack etc.) (परिवहन किये जा रहे खनिज की श्रेणी (खनिज प्रकार जैसे लम्प / फाईन्स / स्टीम / स्लैक अन्य))	Non Coking-ROM	
Grade (ग्रेड)	ROM- GH (Above 4001 to 4300 GCV/Killo Calories)	
Unit value of the Mineral (In Rs per Metric Tonne) (खनिज का विक्रय मूल्य (रु. प्रति मीट्रिक टन))	Rs 1324.00 / Metric Tonne	
Gross Weight of the Vehicle (वाहन का टैपर वेट (मीट्रिक टन))	15.76 Metric Tonne	
Gross Weight of the Vehicle (वाहन का ग्राँस वेट (मीट्रिक टन))	54.92 Metric Tonne	
Net Weight of Mineral being transported (परिवहन किये जा रहे खनिज की मात्रा (मीट्रिक टन))	39.16 Metric Tonne	
Mineral Purchaser/ Recipient's Name (खनिज क्रेता / प्राप्तकर्ता का नाम)	HIRA FERRO ALLOYS LIMITED-3230001475 (Within State)	
(Swear (Transporter) Name & Contact Number (वाहन मालिक (परिवहनकर्ता) का नाम एवं दूरभाष क्रमांक)	SATISH SHRIWASTAV (8889554410)	
Driver Name & Contact Number (वाहन चालक का नाम एवं दूरभाष क्रमांक)	nepal (9669662314)	
Mode of Transportation (परिवहन पथ का प्रकार)	Road	
Route (परिवहन मार्ग (स्थान))	PALI	
Destination (संज्ञक)	hira ferro alloys ltd urla industrial area raipur urla industrial area raipur Raipur,Chhattisgarh -492003	
Other Remarks (अन्य टिप्पणियाँ)	Not Applicable	

Date : 05/10/24
Time : 12:59
Sig : 

 GOVT. OF CHHATTISGARH
MINING CHECK POST
RAHADIH, DISTT.-KORBA (C.G.)

06 OCT 2024

Register Pas. No.
Serial No. Time 5:45 AM/PM
Sign. CP Incharge

e-Way Bill



1. E-WAY BILL Details

eWay Bill No: 8314 5633 6230

Generated Date: 05/10/2024 06:59 PM

Generated By: 22AAA CH569 7M2Z6

Valid Upto: 06/10/2024

Mode: Road

Approx Distance: 186km

Type: Inward - Others-TRANSPORTATION

Document Details: Others - TP-15522968 -
05/10/2024

Transaction type: Regular

2. Address Details

From

GSTIN : 22AAD CS206 6E9ZL
SOUTH EASTERN COALFIELDS LIMITED
CHHATTISGARH

patch From ::

SECL DIPKA

DIPKA

DIPKA,CHHATTISGARH-495452

To

GSTIN : 22AAA CH569 7M2Z6
HIRA FERRO ALLOYS LIMITED
CHHATTISGARH

:: Ship To ::

plot No. 491/1, 492/2, 491/2 u

UrlaRaipur

Raipur,CHHATTISGARH-492003

3. Goods Details

HSN Code	Product Name & Desc.	Quantity	Taxable Amount Rs.	Tax Rate (C+S+I+Cess+Cess Non.Advol)
27011200	COAL & DIPKA	39.16 MTS	71097.14	2.500+2.500+NE+0.000+400.00

Tot. Tax'ble Amt	CGST Amt	SGST Amt	IGST Amt	CESS Amt	CESS Non.Advol Amt	Other Amt	Total Inv.Amt
71097.14	1777.00	1777.00	0.00	0.00	15664.00	0.00	90315.14

4. Transportation Details

Transporter ID & Name : 22AAACH5697M2Z6 & HIRA FERRO ALLOYS LIMITED

Transporter Doc. No & Date : TP15522968 & 05/10/2024

5. Vehicle Details

Mode	Vehicle / Trans Doc No & Dt.	From	Entered Date	Entered By	CEWB No. (If any)	Multi Veh.Info (If any)
Road	CG04NS4131 & TP15522968 & 05/10/2024	DIPKA	05/10/2024 06:59 PM	22AAACH5697M2Z6	-	-



831456336230

Note*: If any discrepancy in information please try after sometime.

**HIRA FERRO ALLOYS LTD.
PLOT NO. 490/1, URLA INDUSTRIAL AREA RAIPUR (C.G.)
WEIGHMENT SLIP**

RST No. 23332

Vehicle No. CG04 NS 4131

Vehicle Type

Party Name

Material
Gross (Kg) 55080
Tare (Kg) 15790
Net (Kg) 39290

Address

Gross Time 06/10/2024 03:16 PM

Transaction Time 06/10/2024 03:41 PM

Tare Time 06/10/2024 03:40 PM

Operator 11MVAWB

Driver :
No responsibility of weight once the truck leaves weighbridge.

Officer :

Depositor :



dd

HIRA FERRC ALLOYS LTD. (UNIT-10)
INCOMING MATERIAL
Date: 06/10/24 Time: 14:30
SECURITY SIGN.

out
16:00
[Signature]



HIRA FERRO ALLOYS

HIRA FERRO ALLOYS LIMITED(POWER DIVISION).

Original Copy

PLOT NO : 490/1,490/2 & 49/UURLA INDUSTRIAL COMPLEXPincode :
493223ChhattisgarhINDIA

Acknowledgement

Gate Entry No.	: POWER106-10-24\GE(RM)\1012	Gate Entry Date	: 06/10/2024
Supplier Name & Address	: SOUTH EASTERN COALFIELDS LIMITED(DIPKA LINKAGE FSA NO 82148) DIPKA MINES,DIPKA AREA,SEEPAT ROAD,BILASPUR,Chhattisgarh,INDIA		
Challan No.	: 56012532C2081231	Challan Date	: 05/10/2024
Item Description	: 0102010005 BITUMINUS COAL (F GRADE)		
Vehicle No.	: CG07CG5839	Departure Time	:
Driver Name	: DHARMENDRA	Weight Bridge Slip Date	: 06/10/2024
Arrival Time	:		
Weight Bridge Name	: HIRA FERRO ALLOYS LTD (9.6 MVA)		
Weight Bridge Slip No.	: 23298		
Challan Qty.	: 39.300		
Received Qty.	: 39.650		
Short/Excess Qty.	: +0.35		
Other Description (If Applicable)			

Authorized By

Delivery Challan

Weightment Serial No. : 1000DIPBB072209268911

Weighbridge No. : DIP_WB32

Name & Address of Mine:
DIPKA EXP PROJECT
DIPKA AREA, KURBA (CG)

Buyer:
HIRA FERRO ALLOYS LIMITED
PLOT NOS. 490/1, 490/2, 491

Invoice#:
5601253202081231
Date: 05-10-2024 Time: 12:11:12
EPN#: 0078500
Mining Pass#:
Reverse Charges No

GSTIN: 22AADCS2066E9ZL
State Code: 22

GSTIN: 22AAACH5697M2Z6
State Code: 22

DO No. & Date	DO Valid Upto	Delivery Point	DO Qty	Balance Qty to be lifted	Customer Code
3330048831 05-10-2024	05-10-2024	DIPKA PROJECT	1215.00MT Issue No: 3330048831	152.72MT	2000000026 Prog.1062.2

Destination (Consignee)	: URLA, RAIPUR, CG CG
Specification of Goods	: COAL
HSN Code	: 27011200
Size	: ROM (-250mm)
Grade	: G11
Type of Consumer	: NON-POWER
Gross Weight	: 54.98MT Date : 05-10-2024 Time : 12:11:12
Tare Weight	: 15.68MT Date : 03-10-2024 Time : 19:07:04
Net Weight	: 39.30MT
Rate	: 1324.00 / MT
1. Coal Value	: 52033.20
2. Sizing Charges	54.00 / MT : 2200.80
3. SILD Charges	0.00 / MT : 0.00
4. STC Charge	50.00 / MT : 1965.00
5. Dumping Charge	0.00 / MT : 0.00
6. Royalty	185.36 / MT : 7284.65
7. DMF	@ 30.00% of 6 above : 2185.39
8. MNET	@ 2.00 % of 6 above : 145.69
9. Slowing Excise Duty	0.00 / MT : 0.00
10. Terminal Tax	1.38 / MT : 54.23
11. Forest Cess	57.00 / MT : 2240.10
12. MF Sadak Tax	0.00 / MT : 0.00
13. CG Paryavaran & Vikas Upkar	22.50 / MT : 884.25
14. 6122000 One	0.00 / MT : 0.00
15. Pre Charges Two	0.00 / MT : 0.00

Taxable Value	1784.00 (One thousand Seven Hundred Eighty Four)
CGST @ 2.3%	41.03 (Forty One)
SGST @ 2.3%	41.03 (Forty One)
IGST @ 0.9%	16.06 (Sixteen)
State Compensation Cess @ 0.02%	0.36 (Zero)
17. Post Charges One	0.00 / MT : 0.00
18. Post Charges Two	0.00 / MT : 0.00
Gross Sale Value	: 90639.32 (Ninety thousand Six Hundred thirty Nine)

I certify that particulars given above are true and correct. Truck No. For Dipka Expn
CB07CG5839 project

Verified By: (Authorised Signator)



GOVERNMENT OF CHHATTISGARH
MINERAL RESOURCES DEPARTMENT
(Korba District)

Copy For : Purchaser / Consignee (प्रति : क्रेता / परेषिती(माल पानेवाला))

FORM-1 See Rule 4 (1) Mineral Transit Pass (for Mineral Concession Holders) - प्ररूप - १ (नियम - ४ (१) देखिये) खनिज अभिवहन पास (खनिज रियायत धारकों के लिए)		Transit Pass Number (अभिवहन पास क्रमांक) :  TP_NO_15523276
District (जिला)	Korba	
Issue Date Of Mineral (खनिज प्रेषण का दिनांक)	05-10-2024	
Issue Time Of Mineral (खनिज प्रेषण का समय)	12:34:31 PM	
E-Permit No. (ई-परमिट क्र.)	EP_NO_0078500	
P.O Number/Date (If applicable) (डी.ओ. क्रमांक / दिनांक (यदि लागू हो))	3330048831 22/08/2024	
Vehicle Type (वाहन का प्रकार)	Trailer	
Vehicle No.(वाहन क्रमांक)	CG07CG5839	
Portal Registration No. of Vehicle(वाहन का पोर्टल पंजीकरण क्रमांक)	VP92556	
License/Lessee's Name (अनुज्ञप्ति / पट्टेधारी का नाम)	South Eastern Coalfields Limited- Area Dipika - 1999-42-2171008903 (Within State)	
License/Mining Area Details (अनुज्ञप्ति/ खान क्षेत्र का विवरण)	Ratija / Pali / Korba	
Village/Tehsil/District (ग्राम / तहसील / जिला)		
Area in Hectare (रकबा हेक्टेयर में)	1999 42	
Lease Validity Period (अनुज्ञप्ति / पट्टा अवधि)	13/03/2010 to	
Mineral Name (खनिज का नाम)	Coal	
Category of the Mineral being transported (Mineral form viz. lump/lines/steam/stack etc.) (परिवहन किये जा रहे खनिज की श्रेणी (खनिज प्रकार जैसे लम्प / फाईन्स / स्टीम / स्लैक / अन्य))	Non Coking-ROM	G.N. 07. Out Date : <u>05/10/24</u> Time : <u>13:22</u> Sing : <u>A</u>
Grade (ग्रेड)	ROM- G11 (Above 4001 to 4300 GCV/Killo Calories)	
Sale value of the Mineral (In Rs per Metric Tonne) (खनिज का विक्रय मूल्य (रु. प्रति मीट्रिक टन))	Rs 1324.00 / Metric Tonne	
Tare Weight of the Vehicle (वाहन का टैयर वेट (मीट्रिक टन))	15.68 Metric Tonne	
Gross Weight of the Vehicle (वाहन का ग्राँस वेट (मीट्रिक टन))	54.98 Metric Tonne	
Net Weight of Mineral being transported (परिवहन किये जा रहे खनिज की मात्रा (मीट्रिक टन))	39.30 Metric Tonne	
Mineral Purchaser/ Recipient's Name (खनिज क्रेता / प्राप्तकर्ता का नाम)	HIRA FERRO-ALLOYS LIMITED-3230001475 (Within State)	
Owner (Transporter) Name & Contact Number (वाहन मालिक (परिवहनकर्ता) का नाम एवं दूरभाष क्रमांक)	sadaram komrc (7089985785)	
Driver Name & Contact Number (वाहन चालक का नाम एवं दूरभाष क्रमांक)	DHARMENDRA (9644309562)	
Mode of Transportation (परिवहन पथ का प्रकार)	Road	
Route (परिवहन मार्ग (व्यापार))	PALI	
Destination (गंतव्य)	hira ferro alloys ltd urla industrial area raipur urla industrial area raipur, Raipur, Chhattisgarh -492003	
Other (Remarks) (अन्य (टिप्पणियाँ))	Not Applicable	

This is a system generated e-Transit Pass. No physical signature is not required. Generated Time : 05-10-2024 12:34:31 PM

REGISTRY OF CIVIL SUPPLY
NAGPUR CHECK POST
PUNJAB DISTT. KORBA (C.G.)

05 OCT 2024

Regist. No.
Serial No. Time 7.10 AM PM
Sign. C. Anand

1555
05/10/24

e-Way Bill



1. E-WAY BILL Details

eWay Bill No: 8314 5633 0331

Generated Date: 05/10/2024 06:46 PM

Generated By: 22AAA CH569 7M2Z6

Valid Upto: 06/10/2024

Mode: Road

Approx Distance: 186km

Type: Inward - Others-TRANSPORTATION

Document Details: Others - TP-15523276 -
05/10/2024

Transaction type: Regular

2. Address Details

From

GSTIN : 22AAD CS206 6E9ZL
SOUTH EASTERN COALFIELDS LIMITED
CHHATTISGARH

:: Dispatch From ::

SECL DIPKA
DIPKA
DIPKA,CHHATTISGARH-495452

To

GSTIN : 22AAA CH569 7M2Z6
HIRA FERRO ALLOYS LIMITED
CHHATTISGARH

:: Ship To ::

plot No. 491/1, 492/2,491/2 u
UrlaRaipur
Raipur,CHHATTISGARH-492003

3. Goods Details

HSN Code	Product Name & Desc.	Quantity	Taxable Amount Rs.	Tax Rate (C+S+I+Cess+Cess Non.Advol)
27011200	COAL & DIPKA	39.30 MTS	71351.32	2.500+2.500+NE+0.000+400.00

Tot. Tax'ble Amt	CGST Amt	SGST Amt	IGST Amt	CESS Amt	CESS Non.Advol Amt	Other Amt	Total Inv.Amt
71351.32	1784.00	1784.00	0.00	0.00	15720.00	0.00	90639.32

4. Transportation Details

Transporter ID & Name : 22AAACH5697M2Z6 & HIRA FERRO ALLOYS LIMITED

Transporter Doc. No & Date : TP15523276 & 05/10/2024

5. Vehicle Details

Mode	Vehicle / Trans Doc No & Dt.	From	Entered Date	Entered By	CEWB No. (If any)	Multi Veh.Info (If any)
Road	CG07CG5839 & TP15523276 & 05/10/2024	DIPKA	05/10/2024 06:46 PM	22AAACH5697M2Z6	-	-



831456330331

Note*: If any discrepancy in information please try after sometime.

HIRA FERRO ALLOYS LTD.
PLOT NO. 490/1, URLA INDUSTRIAL AREA RAIPUR (C.G.)
WEIGHMENT SLIP

RST No. 23298

Vehicle No. CG07 CG 5839

Vehicle Type

Party Name

0
0
0

Material

Gross (Kg) 55300

Tare (Kg) 15650

Net (Kg) 39650

Address

Transaction Time 06/10/2024 12:18 PM

Gross Time 06/10/2024 11:06 AM

Tare Time 06/10/2024 12:18 PM

Operator

11MVAWB

Remarks

Sign

Driver :

Officer :

No responsibility of weight once the truck leaves weighbridge.

Depositor :

H.P.D

out
12:35


HIRA FERRO ALLOYS LTD. (UNIT-11)
INCOMING MATERIAL
09:45
Date: 06/10/24
SECURITY SIGN


Delivery Challan

ORIGINAL FOR RECIPIENT

(issued under Rule 55 of CGST Rules, 2017)

GSTIN No. : 22AAACH5697M2Z6 CIN No. : U27101CT1984PLC005837

Delivey Challan No.: HFAL(FLY ASH)\24-25\3374 Delivery Challan Date: 29/01/2025

Receiver		Range : IV	
Name : BHALE BRICKS	Address : 115 GROUND FLOOR WARD NUMBER 12,PATAN,DURG,Chhattisgarh,INDIA	Range Code :	Division :
State : Chhattisgarh	State Code : 22	EWay Bill No. :	Eway Bill Date :
GSTIN No. : 22ALKPD7186R1ZJ	PAN No. : ALKPB7186R	LUT No. :	

Place Of Supply : DURG	GSTIN No. : 22AAACH5697M2Z6
Name Of State : Chhattisgarh	PAN No. : AAACH5697M

Order No. : Dated : Through : DIRECT

S No.	Description Of Goods	HSN Code	UOM	Qty	Rate	Amount
1	0301010001 FLY ASH	26211000	MT	16.370		

Total: 16.370 Basic Value: 0.00
Rs. (In Words) : only Total Amount: 0.00

CGST (In Words) :
SGST (In Words) :
IGST (In Words) :

Vehicle No : CG04JD/3067	Transporter Name : SELF TRANSPORT
LR No./R.R. No. : Dt.-	From RAIPUR To RAIPUR

Time of Preparation :	Driver Name :
Time of Removal :	Driving License No. :

Remarks : REMOVED WITHOUT CONSIDERATION

All disputes are subject to RAIPUR JURISDICTION.

Material Received For HIRA FERRO ALLOYS LIMITED (POWER DIVISION).



Received By: AADITYA SAHU Prepared By: KAMLESH JHARIYA Authorized By



HIRA FERRO ALLOYS

HIRA FERRO ALLOYS LIMITED

PLOT NO : 490/1,490/2 & 491URLA INDUSTRIAL COMPLEX Pincode : 493223

Chhattisgarh INDIA

Phone : 0771-4082450 Telefax : 0771-4082452 Email : support.its@hfal.in

Delivery Challan

ORIGINAL FOR RECIPIENT

(Issued under Rule 55 of CGST Rules, 2017)

GSTIN No. : 22AAACH5697M2Z6

CIN No. : U27101CT1984PLC005837

Delivery Challan No.: HFAL(FLY ASH)\24-25\4135

Delivery Challan Date: 30/03/2025

Receiver

Name : BHALE BRICKS
 Address : 115 GROUND FLOOR WARD NUMBER
 12, PATAN, DURG, Chhattisgarh, INDIA
 State : Chhattisgarh
 State Code : 22
 GSTIN No. : 22ALKPB7186R1ZJ
 PAN No. : ALKPB7186R

Range : IV
 Range Code :
 Division :
 EWay Bill No. :
 Eway Bill Date :
 LUT No. :

Place Of Supply : DURG
 Name Of State : Chhattisgarh

GSTIN No. : 22AAACH5697M2Z6
 PAN No. : AAACH5697M

Order No. :

Dated : Through : DIRECT

S No.	Description Of Goods	HSN Code	UOM	Qty	Rate	Amount
1	0301010001 FLY ASH	26211000	MT	15.840		

Total:

15.840 Basic Value: 0.00

Rs. (In Words) : only

Total Amount: 0.00

CGST (In Words) :

SGST (In Words) :

IGST (In Words) :

Vehicle No : CG04JD/3067

Transporter Name : SELF TRANSPORT

LR No./R.R. No. : Dt.-

From RAIPUR To RAIPUR

Time of Preparation :

Driver Name :

Time of Removal :

Driving License No. :

Remarks : REMOVED WITHOUT CONSIDERATION

All disputes are subject to RAIPUR JURISDICTION.

Material Received

For HIRA FERRO ALLOYS LIMITED (POWER DIVISION).

Received By

AADITYA SAH
Prepared BySHIV KUMAR VERMA
Authorized By

Delivery Challan

TRIPLICATE FOR SUPPLIER

(issued under Rule 55 of CGST Rules, 2017)

GSTIN No. : 22AAACH5697M2Z6 CIN No. : U27101CT1984PLC005837

Delivey Challan No.: HFAL(FLY ASH)\24-25\4140 Delivery Challan Date: 30/03/2025

Receiver		Range : IV
Name : SARWESHWAR BRICKS	Address : SARWESHWAR BRICKS 101/29, NEAR GAURAV RANG UDYOG UMIYA MARKET, RING ROAD NO 02, BHANPURI, RAIPUR, Chhattisgarh, INDIA	Range Code : Division : EWay Bill No. : Eway Bill Date : LUT No. :
State : Chhattisgarh	State Code : 22	
GSTIN No. : 22AYDPK5616K1ZI	PAN No. : AYDPK5616K	

Place Of Supply : RAIPUR	GSTIN No. : 22AAACH5697M2Z6
Name Of State : Chhattisgarh	PAN No. : AAACH5697M

Order No. :	Dated : Through : DIRECT
-------------	--------------------------

S No.	Description Of Goods	HSN Code	UOM	Qty	Rate	Amount
1	0301010001 FLY ASH	26211000	MT	22.340		

Total: 22.340 Basic Value: 0.00

Rs. (In Words) : only Total Amount: 0.00

CGST (In Words) :

SGST (In Words) :

IGST (In Words) :

Vehicle No : CG04MS/7780	Transporter Name : SELF TRANSPORT
LR No./R.R. No. : Dt.-	From RAIPUR To RAIPUR

Time of Preparation :	Driver Name :
Time of Removal :	Driving License No. :

Remarks : REMOVED WITHOUT CONSIDERATION

All disputes are subject to RAIPUR JURISDICTION.

Material Received	For HIRA FERRO ALLOYS LIMITED (POWER DIVISION).
Received By	SHIV KUMAR VERMA Authorized By
AADITYA SAH Prepared By	



**Annexure XXVII: Bag Filter & ESP Performance
report**



Approved: by Occupational Health & Safety Management (ISO45001:2018)

Approved: by National Accreditation Board for Testing and Calibration Laboratories

Registered Office: 63/1, Kailash Vihar, Near Income Tax Office, City Center-II,

Gwalior-474 011, M.P., India

☎ 0751-3566867, 2232177

Email: aelgwalior@gmail.com, aetrlcenter@gmail.com

Web: aetrl.com



TESTREPORT

Report No.: AETRL/ BF-27012025/01		Date: 07/01/2026	
Customer Name & Address	:	M/s Hira Ferro Alloys Limited (Unit - II) Plot No. 490/1, 491/2, Urla Industrial Area, Raipur (C.G.) Pin - 492003	
Date of Sample Collection	:	27/01/2025	Sampling Type : Isokinetic
Date of Sample Received	:	30/12/2025	Sample ID : BF-27012025/01
Sampling Location	:	Bag Filter (7.5 MVA Furnace)	Sample Description : Inlet & Outlet side of Bag Filter
Sample Collected / Submitted by	:	Lab Team	Protocol used for Sampling : CPCB Guideline
Plant condition	:	Operating	Analysis Started On : 30/12/2025
Packing / Seal	:	Temp. Sealed	Analysis Completed On : 07/01/2026
Environmental Condition during the test		Clear Sky	

Bag Filter Performance Test

Sr. No.	Parameter	Unit	Desing parameter	Operating Condition	Remarks/Observation
1	Bag Filter Chambers	Nos.	10	10	No deviation
2	Filter Bags per Chamber	Nos.	70	70	No deviation
3	Total Filter Bags	Nos.	700	700	No deviation
4	Filter Bag Material	–	Polyester Needle Felt	Polyester Needle Felt	No deviation
5	Filter Bag Size (Dia × Length)	mm	220 × 5000	220 × 5000	No deviation
6	Cleaning System	–	Reverse Air System	Reverse Air System	Less affective
7	ID Fan Flow Rate	Nm ³ /hr	110000	96880	Flow rate reduced due to one chamber not in operation
8	ID Fan Speed	RPM	980	890	Corresponds to reduced system load
9	Bag Filter Outlet Static Pressure	mmWC	365	320	Lower pressure due to reduced flow
10	Bag Filter Inlet Static Pressure	mmWC	–	78	Low suction pressure observed at bag filter inlet
11	Differential Pressure across Bag Filter	mmWC	120	260	DP on the higher side, indicating partial choking / inefficient cleaning
12	Bag Filter Inlet Temperature	°C	RTD need to provide	132	Design inlet temperature not available at site
13	Bag Filter Outlet Temperature	°C	RTD need to provide	66	False air ingress observed from bag filter top access doors
14	Bag Filter Inlet Dust Concentration	mg/Nm ³	–	38.8	Inlet dust load relatively low
15	Bag Filter Outlet Dust Concentration	mg/Nm ³	50	27.4	Stack emissions well within prescribed limits

Note:


Authorized Signatory

1. This report is not to be reproduced wholly or in part and cannot be used as evidence in the court of law and should not be used in any advertising media without our special permission in writing.
2. The sample will be destroyed after 15 days from the date of issue of test certificate unless otherwise specified.
3. Any discrepancy in test result should be reported within 15days.
4. The above Results are related to the tested Sample Only.



Approved: by Occupational Health & Safety Management (ISO45001:2018)
Approved: by National Accreditation Board for Testing and Calibration Laboratories

Registered Office: 63/1, Kailash Vihar, Near Income Tax Office, City Center-II,
 Gwalior-474 011, M.P., India
 ☎ 0751-3566867, 2232177
 Email: aetgwalior@gmail.com, aetrlcenter@gmail.com
 Web: aetrl.com



TEST REPORT

Report No.: AETRL/ BF-27012025/02		Date:		07/01/2026
Customer Name & Address		M/s Hira Ferro Alloys Limited (Unit - II) Plot No. 490/1, 491/2, Urla Industrial Area, Raipur (C.G.) Pin - 492003		
Date of Sample Collection	: 27/01/2025	Sampling Type	: Isokinetic	
Date of Sample Received	: 30/12/2025	Sample ID	: BF-27012025/02	
Sampling Location	: 11 MVA -A Furnace	Sample Description	: Bag Filter	
Sample Collected / Submitted by	: Lab representative	Protocol used for Sampling	: CPCB Guideline	
Plant condition	: Operating	Analysis Started On	: 30/12/2025	
Packing / Seal	: Temp. Sealed	Analysis Completed On	: 07/01/2026	
Environmental Condition during the test		Clear Sky		

Bag Filter Performance Test

Sr. No.	Parameter	Unit	Design Parameter	Operating Condition	Remarks / Observation
1	Bag Filter Chambers	Nos.	01	01	-
2	Filter Bags per Chamber	Nos.	01	01	-
3	Total Filter Bags	Nos.	882	882	-
4	Filter Bag Material	-	Polyester Needle Felt	Polyester Needle Felt	-
5	Filter Bag Size (Dia × Length)	mm	220 × 5000	220 × 5000	-
6	Cleaning System	-	Reverse air system	Reverse air system	-
7	ID Fan Flow Rate	Nm ³ /hr	145000	137000	-
8	ID Fan Speed	RPM	980	940	-
9	Bag Filter Outlet Static Pressure	mmWC	365	340	Lower than design due to reduced airflow – Acceptable
10	Bag Filter Inlet Static Pressure	mmWC	-	80	Measured value reasonable
11	Differential Pressure across Bag Filter	mmWC	120	210	Low section pressure at bag filter
12	Bag Filter Inlet Temperature	°C	RTD need to install	144	Within polyester bag limit (<180°C) – Safe
13	Bag Filter Outlet Temperature	°C	-	74.2	Indicates effective cooling after filtration
14	Bag Filter Inlet Dust Concentration	mg/Nm ³	-	32.2	Moderate dust loading – Normal
15	Bag Filter Outlet Dust Concentration	mg/Nm ³	50	27.9	Complies with CPCB/SPCB emission limits

Authorized Signatory

Note:

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2. The sample will be destroyed after 15 days from the date of issue of test certificate unless otherwise specified.
3. Any discrepancy in test result should be reported within 15days.
4. The above Results are related to the tested Sample Only.



Approved: by Occupational Health & Safety Management (ISO45001:2018)
Approved: by National Accreditation Board for Testing and Calibration Laboratories

Registered Office: 63/1, Kailash Vihar, Near Income Tax Office, City Center-II,
 Gwalior-474 011, M.P., India
 ☎ 0751-3566867, 2232177
 Email: aetgwalior@gmail.com, aetrcenter@gmail.com
 Web: aetri.com



TEST REPORT

Report No.: AETRL/ BF-27012025/02		Date: 07/01/2026	
Customer Name & Address		M/s Hira Ferro Alloys Limited (Unit - II) Plot No. 490/1, 491/2, Urla Industrial Area, Raipur (C.G.) Pin - 492003	
Date of Sample Collection	: 27/01/2025	Sampling Type	: Isokinetic
Date of Sample Received	: 30/12/2025	Sample ID	: BF-27012025/02
Sampling Location	: 11MVA-B Furnace	Sample Description	: Bag Filter
Sample Collected / Submitted by	: Lab representative	Protocol used for Sampling	: CPCB Guideline
Plant condition	: Operating	Analysis Started On	: 30/12/2025
Packing / Seal	: Temp. Sealed	Analysis Completed On	: 07/01/2026
Environmental Condition during the test		Clear Sky	

Bag Filter Performance Test

Sr. No.	Parameter	Unit	Desing parameter	Operating Condition	Remarks/Observation
1	Bag Filter Chambers	Nos.	08	08	No deviation
2	Filter Bags per Chamber	Nos.	168	168	No deviation
3	Total Filter Bags	Nos.	1344	1344	No deviation
4	Filter Bag Material	-	Polyester Needle Felt	Polyester Needle Felt	No deviation
5	Filter Bag Size (Dia × Length)	mm	150 × 4800	150 × 4800	No deviation
6	Cleaning System	-	Pulse jet	Pulse Jet	Less affective
7	Solenoid Valve Size	mm	40	40	No deviation
8	Mode of Operation	-	DP	Time	Bag filter operating in timer mode instead of DP
9	Solenoid Valves in Operation	Nos.	96	96	Solenoid valves operating
10	Operating Air Pressure	kg/cm ²	5	5	Moisture/oil filters not installed for solenoid valve
11	ID Fan Flow Rate	Nm ³ /hr	160000	142560	-
12	ID Fan Speed	RPM	980	936	-
13	Bag Filter Outlet Static Pressure	mmWC	365	320	-
14	Bag Filter Inlet Static Pressure	mmWC	-	120	Low pressure
15	Differential Pressure across Bag Filter	mmWC	120	180	DP is high side
16	Bag Filter Inlet Temperature	°C	RTD need to install	144	Within polyester bag limit (<180°C) – Safe
17	Bag Filter Outlet Temperature	°C	-	74.2	-
19	Bag Filter Inlet Dust Concentration	mg/Nm ³	-	32.2	Moderate dust load
19	Bag Filter Outlet Dust Concentration	mg/Nm ³	50	27.9	Complies CPCB/SPCB emission limits

Authorized Signatory

Note:

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2. The sample will be destroyed after 15 days from the date of issue of test certificate unless otherwise specified.
3. Any discrepancy in test result should be reported within 15days.
4. The above Results are related to the tested Sample Only.



Approved: by Occupational Health & Safety Management (ISO45001:2018)
Approved: by National Accreditation Board for Testing and Calibration Laboratories

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TEST REPORT

Report No.: AETRL/ BF-26012025/01	Date:	07/01/2026
Customer Name & Address	M/s Hira Ferro Alloys Limited (Unit - II) Plot No. 490/1, 491/2, Urla Industrial Area, Raipur (C.G.) Pin - 492003	
Date of Sample Collection	26/01/2025	Sampling Type : Isokinetic
Date of Sample Received	30/12/2025	Sample ID : BF-26012025/01
Sampling Location	Power Plant (ESP)	Sample Description : ESP
Sample Collected / Submitted by	Lab Team	Protocol used for Sampling : CPCB Guideline
Quantity / No. of Sample	1Nos.	Analysis Started On : 30/12/2025
Packing / Seal	Temp. Sealed	Analysis Completed On : 07/01/2026
Environmental Condition during the test	Clear Sky	

ESP Performance Test

Sr. No.	Parameter	Unit	Design Parameter	Operating Condition	Remarks / Observation
1	ESP No of Field	Nos.	03	03	All field are operating
2	Field 1-TR set voltage	KVP	105	48	No spark observed and found ok
3	Field 2-TR set voltage	KVP	105	55	No spark observed and found ok
4	Field 3-TR set voltage	KVP	105	54	No spark observed and found ok
5	Field 1-TR set current	MA	500	62	Current setting OK
6	Field 2-TR set current	MA	700	114	Current setting OK
7	Field 3-TR set current	MA	500	158	Current setting OK
8	Rapping system	Nos.	47	47	Rapping system are operating
9	Rapping operational condition	Yes/No	-	Yes	All rapping lift intensity found ok
10	ESP field spark rate	Nos.	0	0	Zero spark observed in ESP
11	Gas flow	m ³ /hr	225000	224000	NA
12	Fan speed	RPM	980	752	NA
13	ESP inlet concentration	mg/Nm ³	50	44.2	NA

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TEST REPORT

Report No.: AETRL/ BF-26012025/01	Date:	07/01/2026			
Customer Name & Address	:	M/s Hira Ferro Alloys Limited (Unit - II) Plot No. 490/1, 491/2, Urla Industrial Area, Raipur (C.G.) Pin - 492003			
Date of Sample Collection	:	26/01/2025	Sampling Type	:	Isokinetic
Date of Sample Received	:	30/12/2025	Sample ID	:	BF-26012025/01
Sampling Location	:	Power Plant (ESP)	Sample Description	:	ESP
Sample Collected / Submitted by	:	GECPL Team	Protocol used for Sampling	:	CPCB Guideline
Quantity / No. of Sample	:	1Nos.	Analysis Started On	:	30/12/2025
Packing / Seal	:	Temp. Sealed	Analysis Completed On	:	07/01/2026
Environmental Condition during the test	Clear Sky				

ESP Performance Test

Sr. No.	Parameter	Unit	Design Parameter	Operating Condition	Remarks / Observation
1	ESP Outlet dust concentration	mg/Nm	50	27.8	Dust Emission is well within the Standard
2	Sulphur Dioxide (SO ₂)	mg/Nm	600	176	Dust Emission is well within the Standard
3	Nitrogen Dioxide (NO ₂)	mg/Nm	300	88	Dust Emission is well within the Standard
4	Oxygen	%	-	4.6	-

Authorized Signatory

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

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TEST REPORT

Report No.: AETRL/ TCLP-25122025/01	Date:	07/01/2026
ULR No.		
Name & Address of Customer	M/s Hira Ferro Alloys Limited (Unit - II) Plot No. 490/1, 491/2, Urla Industrial Area, Raipur (C.G.) Pin - 492003	
Sample Collection Date & Time	28/12/2025	Sampling Type : USEPA METHOD – 1311
Sample Receipt Date	30/12/2025	Sample ID : TCLP-28122025/01
Sampling Location	Silica quartz in dust At SAF Area	Sample Description : Bag filter Dust Particles
Sample Collected / Submitted by	Lab representative	Protocol used for monitoring : NA
Quantity / No. of Sample	250 gm	Analysis Started On : 30/12/2025
Packing / Seal	Seal Pack	Analysis Completed On : 07/01/2025
Environmental Condition during the test	Clear sky	

TEST REPORT OF

SR.NO.	PARAMETER	UNIT	METHOD OF TEST	As per Factory Act	RESULT
1	Particles of Silica quartz in Ferro Dust	mg/m3	USEPA METHOD – 1311	10	1.52

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

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Annexure XXVIII: CO Sensor PO

HIRA FERRO ALLOYS LIMITED

PLOT NO : 490/1,490/2 & 491 URLA INDUSTRIAL COMPLEX
CIN No :- U27101CT1984PLC005837

Purchase Order

Portal PO No : 030673

Details Of Supplier

SWAN ENVIRONMENTAL PVT LTD
PLOT NO 922 AND 935, SWAMI AYYAPPA COOPERATIVESOCIETY,
MADHAPUR, Hyderabad, Telangana,
500081, HYDERABAD, Telangana, INDIA
State Name : Telangana State Code :
GSTIN : **36AADCS4126R1ZW**
PAN No. : AADCS4126R
Contact Detail : Mo.No : 9642225061 | Ph.No :
Email : service.enviro@swanenviron.in

Order No. : _____ **Date :** **06/01/2026**
Amend No. : 0 **Date :** **06/01/2026**
Party Ref. No. : _____
Party Ref. Date : _____
Indent No. : FERRO\25-26\PRQ\1897 (06/01/2026), FERRO\25-26\PRQ\1898 (06/01/2026)

Delivery Address

HIRA FERRO ALLOYS LIMITED
PLOT NO : 490/1,490/2 & 491 URLA INDUSTRIAL COMPLEX
State Name : Chhattisgarh State Code :
GSTIN : **22AAACH5697M2Z6**
PAN No. : AAACH5697M CIN : U27101CT1984PLC005837
Contact Detail : 0771-4082450

Billing Address
PLOT NO : 490/1,490/2 & 491 URLA INDUSTRIAL COMPLEX
State Name : Chhattisgarh State Code :
GSTIN : **22AAACH5697M2Z6**
PAN No. : AAACH5697M CIN : U27101CT1984PLC005837
Contact Detail : 0771-4082450

SNo.	Description of Goods	Order Qty.	UOQ	Rate(Per Unit)	Tax on Amount	CGST	SGST	IGST	CESS	Net Amount
#				Discount		Value	Value	Value	Value	
1	SIGNAL ISOLATOR DUAL CHANNEL MAKE SEPL Make: GENERAL Delivery Date : 15/03/2026 HSN/SAC No. : 8482	2.000	NOS	10000.0000	20000.00			18.00 3600.00		23600.00
2	ONLINE CARBON MONOXIDE (CO) GAS DETECTOR MODEL NO : AG210,PART NO : GD D 003,RANGE : 0 TO 1000 PPM ADVANCED GAS SENSORSFAST RESPONSE WITH A LONG LIFESPAN,SAFE AND MORE RELIABLE,LCD DISPLAY WITH LED INDICATOR, Model No: AG210 Part No: GD D 003 HSN No: 90271000 Make: AIYI Technoloziies Range: 0-1000 ppm Features: * Advanced gas sensors, fast response with a long lifespan, safer and more reliable. * IP65 design with body material in stainless steel and aluminum alloy, suitable for harsh environments. * LCD display, with LED indicators. * Built-in 3 relay output * Full English menu, remote control operation. * Complete product certification Make: Delivery Date : 15/03/2026 HSN/SAC No. : 8482	2.000	NOS	115000.0000	230000.00			18.00 41400.00		271400.00
3	ANALOG TO DIGITAL CONVERTER MAKE SEPL Make: Delivery Date : 15/03/2026 HSN/SAC No. : 8482	2.000	NOS	35000.0000	70000.00			18.00 12600.00		82600.00
4	DATA LOGGING AND UPLOADING SOFTWARES FOR BOTH CECB / CPCB FOR 1 YEAR MAKE SEPL Make: Delivery Date : 15/03/2026 HSN/SAC No. : 8482	1.000	NOS	60000.0000	60000.00			18.00 10800.00		70800.00
Total		7.00			380000.00			68400.00		
						INTEGRATED GST		68400.0000		
						Total GST Value		68400.00		
Total Invoice Value (In Words)		Rs. Four Lac Forty Eight Thousand Four Hundred				Total Invoice Value		448400.00		

Remarks
FOR STP, FOR STP

Payment Terms
Down Payment -- 20.00 % on Net Amount within 7 Days
Down Payment - PI -- 70.00 % on Net Amount within 7 Days

HIRA FERRO ALLOYS LIMITED

PLOT NO : 490/1,490/2 & 491 URLA INDUSTRIAL COMPLEX
CIN No :- U27101CT1984PLC005837

Purchase Order

Portal PO No : 030673

Against Bill -- 10.00 % on Balance Amount within 7 Days

Terms & Condition

Freight Type : FOR
WARRANTY : AGAINST QUALITY/ MANUFACTURING DEFECT
INSURANCE : NA
TEST CERTIFICATE : SUBMIT ALL THE NECESSARY DOCUMENTS ALONG WITH MATERIAL/TAX INVOICE
FREIGHT (DELIVERY TERM) : FORM OUR PLANT
INSPECTION : INSPECTION WILL BE DONE BY OUR SITE .
PACKAGING & FORWARDING : INCLUSIVE
LOADING & UNLOADING CHARGES : INCLUSIVE
LD CLAUSE : LD APPLICABLE BY (The day the advance is sent will be the first day and LD clues will start 56 days after that.If you are unable to deliver the material within 56 days, then 0.5% per week amount will be deducted from the basic amount.
REMARKS : PLEASE MENTION REFFERANCE PURCHASE ORDER NUMBER IN YOUR TAX INVOICE.

SPECIAL TERMS AND CONDITIONS :-

- 1.All Challan with suppliers should bear our order references,full descriptions of items,item code.
- 2.Rejection on account of quality,specification,delivery will be on your A/c.
- 3.Reject materials must be collected from our work immediately on receipt of rejection advice.
- 4.TRANSIT INSURANCE : To be converted by you/us.please inform dispatch particular by fax immediately.
- 5.The supplier is expected to scrutinize the purchase order immediately on receipt thereof.
- 6.No objection regarding errors & ommision,if any,shall not be entertained after the expiry of 10 days from date of the receipt of order.
- 7.Bank commission on your account.
- 8.BANKERS:(1) SBI Comm.Branch, Pachpedi Naka, Raipur (C.G)
- 9.All disputes are subject to Raipur jurisdiction.

GENERAL TERMS AND CONDITIONS :-

CANCELLATION OF ORDER: The Company reserves the right to cancel this order unilaterally, either partially or in full. In case of deliveries fail to meet the schedule specified, quality standards , performance of the solution / equipment in this order or any subsequent amendments , the Company may also exercise this right. This clause remains effective regardless of any liquidated damages provisions included in this order.

RISK PURCHASE: If you fail to execute the Order to our satisfaction and within the delivery period indicated in the supply order or any amendment there of subsequently issued, without valid and acceptable reasons, this company shall arrange procurement of undelivered items at your risk and cost and such undelivered items shall automatically be treated as cancelled from the purchase Order placed on you.

INSPECTION: The material shall be subject to inspection at firm's place/at consignee's place before dispatch/on receipt at consignee's place. The rejected materials will be subject to replacement/ removal by you at your risk, cost and responsibility. In case of outstation firm, unaccepted goods shall be returned freight to pay after dues, if any, like freight, Octroi etc. paid by the Company are refunded by you.

WARRANTY: Goods / articles to be supplied under this purchase order shall be of the best quality and workmanship and shall be strictly in accordance with the specifications and particulars mentioned in the purchase order. Further, these shall be covered under the warranty that goods / articles under this order would continue to conform to the specifications and quality mentioned in the supply order for a period of 12 month from the date of receipt/delivery of goods by the Company/supplier, notwithstanding the fact that the Company inspector may have initially inspected or approved the goods on receipt. If during the period of warranty of the goods are found to be not conforming to the specifications/ quality mentioned in the supply order or found to have deteriorated prematurely it shall be binding on the supplier to replace the goods immediately and within a period of the month of receipt of intimation from the Company or refund the total cost of the goods including Octroi , freight charges etc. to the Company at our discretion.

PERFORMANCE GUARANTEE: All goods / articles under this order shall be subject to a guarantee for satisfactory performance for a period of One year from the date of satisfactory receipt and in case any manufacturing defect is noticed during this guarantee period the goods/ articles shall be subject to free rectification/ replacement within a period of one month.

REJECTION CLAUSE: Any item rejected due to deviation in specification or material defect/ dimensional defect or due to any major deviation on the Purchase Order terms, HIRA has the sole authority to decide in the matter. After getting intimation of the rejection note on any supply, the supplier should immediately arrange lifting of the item free of cost and if the item is not lifted from HIRA plant premises within a maximum of three months (90 days), HIRA has the right to dispose-off the item at supplier's risk and cost.

DELIVERY INSTRUCTION: The goods should be securely packed and dispatched / delivered to the consignee along with challan in triplicate by Train / Truck / Any other mode mutually decided. The goods should reach in properly packed condition and any damage during transit shall be at supplier's risk unless insurance in transit is bore by buyer specifically mentioned.

TAXES: If payable extra, the purchase orders to be shown / claimed separately. Your GST Registration No. should be quoted on the bill. Your bill for the supply should bear reference to this purchase order and be submitted in triplicate to the Purchase Department after the Order has been fully executed.

In case dispatch documents are to be negotiated through Bank, intimation about the same should invariably be sent to this Office in advance along with a copy of your bill in the absence of which the documents shall not be cleared by the Company Wharfage / Demurrage charges levied on account of late receipt of intimation of RR / Advance Copy of bill etc. shall be debited to supplier, bank charges shall be to your account.

DISPUTE: The court of the place from where this purchase order has been issued shall alone have jurisdiction to decide any dispute arising out of or in respect of this purchase order.

ARBITRATION: Both the parties shall try to resolve their differences or disputes pertaining to this purchase in an amicable manner, failing which the difference or dispute may be referred to an Arbitrator as per procedure laid down under the Arbitration and Conciliation Act 1996. The outcome of Arbitration shall be final and binding upon both parties. The venue of Arbitration shall be at Raipur (Chhattisgarh), India.

FORCE MAJEURE CLAUSE : In the event of force majeure the obligations of both seller and buyer will be suspended until after the end of thereof. If the force majeure lasts longer than 60 days either party shall be entitled to cancel, by means of a written declaration and without court intervention, whole or part of the Agreement, in case of force majeure Buyer and Seller shall not be liable for any losses suffered as a result thereof by the other party or its business relations.

In any event Parties shall be able to claim force majeure in case of strike, lock-outs, labour disputes, sabotage, storm, floods and other natural phenomena, explosion, accidents, fire, war or acts of war, international conflicts, civil commotion, riot, insurrection, piracy, terrorism, blockade, epidemic, quarantine, embargo, mobilization, restraints of whichever kind, export or import restrictions or prohibitions, institutions, of quota and /or other measures or acts of any government, international organization or agency thereof.

Receipt of the Purchase Order may kindly be acknowledged.

For HIRA FERRO ALLOYS LIMITED

HIRA FERRO ALLOYS LIMITED

PLOT NO : 490/1,490/2 & 491 URLA INDUSTRIAL COMPLEX
CIN No :- U27101CT1984PLC005837

Purchase Order

Portal PO No : 030673



CHETAN SAHU

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