



Six Monthly (JUNE 2023) Compliance Report for Period October 2022 To March 2023 for Expansion of Integrated Steel Plant (1.0 Million TPA To 2.0 Million TPA Finished Steel) With 385 MW Captive Power Plant

1 message

ORISSA METALLURGICAL PRIVATE LIMITED <orissametallurgicalpvtltd@gmail.com>

Thu, May 25, 2023 at 5:03 PM

To: iro.kolkata-mefcc@gov.in, rdkolkata.cpcb@gov.in, ms@wbpcb.gov.in, wbpcbnet@wbpcb.gov.in
Bcc: Biswanath Sharma <biswanath@rashmigroup.com>, Bijayen Srivastava <bijayen.srivastava@rashmigroup.com>, ompl1.environment@rashmigroup.co.in

Dear Sir,

With reference to the above, we are here by submitting the six monthly compliance report for the period from October 2022 to March 2023 for EC Identification No. EC22A008WB158432 issued vide File No- IA-J-11011/56/2017-IA-II (I) dated: 11.10.2022 for Expansion of Integrated Steel Plant (1.0 Million TPA To 2.0 Million TPA Finished Steel) With 385 MW Captive Power Plant by M/s Orissa Metallurgical Industry Pvt. Ltd., located at Mouza – Amba, Mathurakismat, Ghoshalchak, Radhanagar, Serampurgia, Mollarchak, Katapole, Tarabamni And Dhularchak, Village – Gokulpur, P.O – Shyamraipur, P.S – Kharagpur (L) Dist. Paschim Medinipur, West Bengal.

As on date after obtaining valid NOC from WBPCB vide NOC no-164589 dated 30.09.2021 and NOC no-164600 dated 27.12.2021 construction work started for the project in phase manner. We assure that we will comply all the conditions laid down in the consent letter and also abide to follow all the Rules & Regulations.

Hope you will find the same in order.

Thanking you.

Yours Faithfully,

With Warm Regards,
Authorised Signatory

M/s. Orissa Metallurgical Industry Private Limited
(Wholly own subsidiary of Orissa Metaliks Pvt. Ltd.)

Room No. 3B, 1 Garstin Place, Kolkata-700001, West Bengal

Mbl. No-7044070948

 **Compliance_ OMIPL -JUNE-2023.pdf**
7416K

Ref:-OMIPL/ENV COMPL/JUNE 2023

Date: 25.05.2023

To,

**Integrated Regional Office,
Ministry of Environment, Forests & Climate Change
Kolkata IB – 198, Sector-III, Salt Lake City– 700106
West Bengal**

Sub. Six Monthly (DEC-2022) Compliance Report for Period October 2022 To March 2023 for Expansion of Integrated Steel Plant (1.0 Million TPA To 2.0 Million TPA Finished Steel) With 385 MW Captive Power Plant at Mouza: Amba, Mathurakismat, Ghoshalchak, Radhanagar, Serampurgia, Mollarchak, Katapole, Tarabamni And Dhularchak, Village – Gokulpur, P.O – Shyamraipur, P.S – Kharagpur (L) Dist. Paschim Medinipur, West Bengal

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Hope you will find the same in order.

Thanking you.

Yours Faithfully,

For, **M/s Orissa Metallurgical Industry Private Limited**

Authorized Signatory

C.C:-

1. **The Member Secretary, West Bengal Pollution Control Board, Parivesh Bhawan, 10A Block – LA, Sector – III, Kolkata – 700 91**

Enclosures:-

1. Compliance Report for EC;
2. Details of Carbon Sequestration as Annexure- I
3. Copy of water permission is attached as Annexure –II
4. Green belt development detail is enclosed as Annexure-III.
5. CAAQMS report from all the four stations as Annexure-IV.
6. Latest Ambient Air Quality Monitoring Analysis reports as Annexure-V.
7. Fugitive Emissions monitoring report as Annexure-VI.
8. Ground Water analysis report is annexed as Annexure VII
9. Ambient Noise & Source Noise Monitoring Reports is annexed as Annexure-VIII.

10. HIRA report and Disaster Management Plan is annexed as Annexure-IX.
11. The OHS Record is annexed as Annexure-X.
12. Company EHS Policy is annexed as Annexure XI.
13. EHS framework is annexed as Annexure-XII.
14. EC advertisement copies in newspaper are annexed as Annexure XIII.
15. Copies of intimation letters are annexed as Annexure XIV.

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[Handwritten Signature]
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**SIX MONTHLY COMPLIANCE REPORT
(June-2023)**

FOR

**Project Name- Expansion of Integrated
Steel Plant (1.0 Million TPA To 2.0
Million TPA Finished Steel) With 385
MW Captive Power Plant by M/s Orissa
Metallurgical Industry Pvt. Ltd.,**

**EC NO- IA-J-11011/56/2017-IA-II (I) dated:
11.10.2022**

**Location: - Mouza – Amba, Mathurakismat,
Ghoshalchak, Radhanagar, Serampurgia, Mollarchak,
Katapole, Tarabamni And Dhularchak, Village –
Gokulpur, P.O – Shyamraipur, P.S – Kharagpur (L)
Dist. Paschim Medinipur, West Bengal**


Authorized Signatory

M/s ORISSA METALLURGICAL INDUSTRY PVT. LTD.

**Room No. 3B, 1 Garstin Place,
Kolkata-700001, West Bengal**

Email id - orissametallurgicalpvtltd@gmail.com

Name of the Project: - Expansion of Integrated Steel Plant (1.0 Million TPA to 2.0 Million TPA Finished Steel) With 385 MW Captive Power Plant

Clearance Letter/s No. date: - EC No. EC22A008WB158432 dated 11.10.2022

Period of Compliance Report: - October 2022 to March 2023.

Sl. No.	Specific Condition	Compliance Status
i.	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.	Agreed and noted for compliance. The project is still in construction phase. All the environmental protection measures and safeguards proposed for construction phase has been taken and the same shall be complied once the project comes in operation.
ii.	The project proponent shall utilize modern technologies for capturing of carbon emitted and shall also develop carbon sink/carbon sequestration resources capable of capturing more than emitted. The implementation report shall be submitted to the IRO, MoEF&CC in this regard.	The project is still in implementation phase. The flue gas generated from Blast Furnace, Coke Oven Plant, Sinter, DRI, R.M with Pickling & Galvanising Line and Lime & Dolo Plant will be utilized in various units like in BF, Sinter, Coke Oven Plant, Ferro Plant, power generation etc up to extent possible as proposed in EIA/EMP report. Plantation is a suitable method to sequester carbon and 33% of the plant area shall be developed under greenbelt. Details of Carbon Sequestration is attached as Annexure- I
iii.	Rejects from coal washery shall only be used either in the captive power plant (or) in the Thermal Power Plants meeting emission standards.	Agreed and noted.
iv.	Solid waste utilization	
a.	PP shall install a slag crusher to convert steel slag into aggregate for use in construction industry, fine sand for use as flux in steel plant, sand in brick making and as lime in cement making.	Agreed and will be complied once the project comes in operation.



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	b.	PP shall recycle/reuse solid waste generated in the plant as far as possible.	Agreed and will be complied once the project comes in operation. Currently 2 x 500 + 2 x 350 TPD DRI is under commissioning stage and dolochar generated from the kiln will be used for power generation in associate company of the Group till CFBC is being constructed. APC dust will be used for land levelling and brick making.
	c.	Used refractories shall be recycled as far as possible.	Agreed and will be complied once the project comes in operation.
v.		Sinter Plant shall be equipped with Sinter cooler waste recovery system and suitable technology for control of dioxins and furans emissions from the plant.	Agreed and will be complied once the project comes in operation
vi.		Tar shall be recovered from producer gas and shall be sold to registered processors and Phenolic water from PGP shall be treated for phenol, tar and cyanide.	Agreed and will be complied once the project comes in operation
vii.		Coke oven plant shall be equipped with modified wet quenching system.	Agreed Plant/Process design will be made keeping in record the said condition. The stipulated conditions will be complied by the project proponent
viii.		Blast Furnaces shall be equipped with Top Recovery Turbine (capacity more than 450 m ³), dry gas cleaning plant, stove waste heat recovery, cast house and stock house ventilation system and slag granulation facility.	Agreed. The said condition will be taken care of at the time of finalizing the plant /process design.
ix.		Basic Oxygen Furnace (BOF) gas shall be cleaned dry.	Agreed. The said condition will be complied once the project comes in operation.
x.		EAF shall be closed type and fourth hole extraction system shall be included for fume control from these furnaces	Agreed. The said condition will be taken care of at the time of finalizing the plant /process design.
xi.		85-90 % of billets shall be rolled directly in hot stage. RHF shall operate using only Light Diesel Oil or Mixed BF/CO gas/Producer gas.	Agreed and will be complied once the project comes in operation.

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xii.	Cold Rolling Mill (CRM), color coating and galvanizing plants shall have CETP to treat and recycle the treated water from CRM complex. Sludge generated at CRM ETP shall be sent to TSDF. Acid recovery plant shall be provided in CRM.	Agreed and will be complied once the project comes in operation.
xiii.	Dust emission from Steel Plant stacks shall be up to 30 mg/Nm ³ .	Agreed and will be complied. As stated in point iv (b) , currently 2 x 500 + 2 x 350 TPD DRI is under commissioning stage & APCD are designed to meet the latest emission norms of less than 30 mg/Nm ³ .
xiv.	Performance test shall be conducted on all pollution control systems every year and report shall be submitted to Regional Office of the MoEF&CC.	Agreed and will be complied once the commercial operation of the units started.
xv.	Recuperator shall be installed to recover heat from BF stove waste gas and used for stove gas reheating reducing requirement of fuel gas.	Agreed. The said condition will be taken care of at the time of finalizing the plant/process design.
xvi.	The company shall also undertake rain water harvesting measures as per the plan submitted and reduce water dependence from the outside source.	Agreed a Rainwater harvesting structure is proposed for the plant and has already been implemented for EC accorded project.  RAIN WATER HARVESTING STRUCTURE 

		Total area demarcated for rain water harvesting is 20.90 acres.
xvii.	85% of raw materials and finished goods shall be transported by dedicated railway siding facility. In the event of delay in establishment of dedicated railway line, PP shall use another railway siding facility of Rashmi Group.	Agreed and will be complied.
xviii.	The total water requirement of 13,200 KLD will be obtained from Kansabati River & rain water harvesting structure. No ground water abstraction is permitted.	<p>Agreed</p> <p>The raw water would be sourced from Kansabati river (13,200 KLD @ 342 days) and Rain Water Harvesting pond (13,200 @ 23 days).</p> <p>Water permission obtained from Irrigation & water Department, West Bengal from Kansai River Bed (22,248 KLD for 08 months or 243 days) vide letter no- 167-I/I-4M-05/14(Pt.II) dated 16.10.2020 in name of M/s Orissa Metaliks Pvt. Ltd. (Holding company of M/s Orissa Metallurgical Industry Pvt. Ltd.).</p> <p>After taking into consideration the interest and financial share cost, laying of pipeline, infrastructure development for water project had been done by holding company for meeting the water demand of M/s Orissa Metallurgical Industry Pvt. Ltd.</p> <p>Copy of water permission and schematic water distribution pattern among the associate company of the Group is attached as Annexure -II.</p>
xix.	02 Nos. rain water harvesting pond exist is within project site. Also, Kansabati River, other rainwater harvesting structures and ponds exists within the study area of 10 km from the project site. The water bodies shall not be disturbed. A robust and full proof Drainage Conservation scheme to protect the natural drainage and its flow parameters; along with Soil conservation scheme and multiple Erosion control measures shall be	<p>Agreed and being complied.</p> <p>As stated in point xvi rainwater harvesting structure is already implemented.</p>


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	implemented.	
xx.	Air cooled condensers shall be used in the Power plant. 100% consumption of Dolo char in CFBC based boiler.	Agreed and will be complied with Instead of operating CPP with 100% conventional water-cooled condenser system, management is proposing to use Air Cooled Condensers (ACCs) utilizing ambient air for cooling. Dolo Char will be 100% used in CFBC Boilers.
xxi.	Ultralow NOx burner with three stage combustion, flue gas recirculation and auto combustion control system shall be used.	Agreed. The said condition will be taken care of at the time of finalizing the plant/process design.
xxii.	Energy efficient drives, VFD for auxiliary motors, slip power recovery for motors above 1000 KW shall be provided.	Being complied with. Energy efficient drives, VFD for auxiliary motors and slip power recovery system for motors above 1000 KW is being installed in under construction units and the same will be complied for unimplemented/ rest of EC sanctioned project.
xxiii.	Ventilation system for odour control in bitumen coating area shall be included.	Agreed. The said condition will be taken care of at the time of finalizing the plant/process design.
xxiv.	A proper action plan must be implemented to dispose of the electronic waste generated in the Industry.	Agreed. Electronic wastes will be collected and given to authorized recyclers/refurbished. Management of E-waste shall be done in line with the E-Waste (Management) Rules, 2016.
xxv.	Three tier Green Belt shall be developed in a time frame of one year with native species all along the periphery of the project site 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 replaced with new plants in the subsequent years. Compliance status in this regard, shall be submitted to concerned Regional Office of the MoEF&CC.	12,545 nos. trees have been planted from October 2022 to March 2023. Total of 67,700 nos. trees have been planted till March 2023. A dedicated manpower is deployed for maintaining and developing green belt @ 2500 trees per hectare. Recently photograph are as: Green belt development with photograph detail is enclosed as Annexure-III.
xxvi.	Greening and Paving shall be implemented in the plant area to arrest soil erosion and dust pollution from exposed soil surface.	Greening and Paving being done in parallel with implementation of the project.

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xxvii.	The coal dust to be measured at coal handling areas, ball mills, furnace charging areas through personal and area monitoring and to be compared and it should be within 2 mg/m ³ , respirable dust fraction containing less than 5% quartz as per Indian Factories Act, 1948.	Agreed. APCD is/ will be designed keeping the said condition in line with.
xxviii.	The proposed project shall be designed as "Zero Liquid Discharge" Plant. There shall be no discharge of effluent from the plant. Domestic waste water will be treated in STP and treated water shall be re-used for greenbelt development and plantation and dust suppression.	Agreed. The project is still in construction phase. The plant is being designed as zero liquid discharge (ZLD). Treated domestic wastewater will be used for greenbelt development and dust suppression.
xxix.	All internal road and connecting road from project site to main highway shall be developed and maintained with suitable Million Axle Standard (MSA) as per the traffic load due to existing and proposed project. All plant roads shall be paved and industrial vacuum cleaners shall be used to clean the roads regularly.	Agreed. Existing connecting road to main highway is having 22 MSA as per IRC 37:2012. LOS value is "B" for Zilla Parishad Road (TATA METALIKS ROAD). Considering 100 % Raw material, Finished & Semi-finished product and solid waste movement through road the LOS value is still "B". Hence the additional load on the carrying Capacity of the concern roads is not likely to have any change in the LOS value. Plant internal roads are being developed in parallel with implementation of the project and an industrial vacuum cleaner/ swipper machine is being used to clean the roads regularly.  SWEEPER MACHINE
xxx.	All stockyards shall be having	Agreed and currently the project is

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	<p>impervious flooring and shall be equipped with water spray system for dust suppression. Stock yards shall also have garland drains to trap the run off material.</p>	<p>still under construction phase.</p> <p>Water spraying on material to be handled before beginning work and spraying on unpaved surfaces twice a day is done by movable water mist fog canon system and movable water tanker which helps in improving the working conditions and minimize dust pollution.</p> <div data-bbox="874 584 1385 931" data-label="Image"> </div> <div data-bbox="874 931 1385 994" data-label="Caption"> <p>WATER TANKER</p> </div> <div data-bbox="874 1032 1385 1473" data-label="Image"> </div> <div data-bbox="874 1473 1385 1536" data-label="Caption"> <p>MOVABLE WATER MIST FOG CANON</p> </div>
<p>xxxi.</p>	<p>The project proponent shall undertake village adoption and develop a robust action plan to develop the villages in model villages.</p>	<p>Being complied with in a time bound manner.</p> <p>Company has adopted 10 nos. of villages –Chandipur, Dhekia, Bhawanipur, Krishnanagar, Mahespur, Naryanpur, Radhanagar, Khosalchak, Latibpur and Nandarchak situated at a distance of around 3.0 km from plant boundary and has started developing the facilities within the villages as per need base assessment carried out during EIA study.</p>

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xxxii.

All the commitments made to the public during the Public Hearing/Public Consultation 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 30.09.2020 shall be strictly implemented and progress shall be submitted to the Regional Office of MoEF&CC.

Agreed and being complied at time bound manner.

In FY 2022-23 under the head of CSR/CER Rs. 90,90,724 is spent from October 2022 to March 2023 and in total Rs. 1,42,90,724 is spent under CER to full fill 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.

As mentioned earlier in point no. **xxxii** under Specific Conditions, Company has adapted 10 nos. of villages – Chandipur, Dhekia, Bhawanipur, Krishnanagar, Mahespur, Naryanpur, Radhanagar, Khosalchak, Latibpur and Nandarchak and will develop the facilities within the villages as per need base assessment.



Construction of Community Prayer Centre (Mandir)



Computer Laboratory inaugurated by ADM (Development), Paschim Medinipur

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Blanket Distribution in Poor Needy Local Villagers



Construction of Community Prayer Centre (Mandir)



Construction of Water Drinking Facility, Kharagpur



Free Eye Checkup Camp cum free Spectacles distribution



Donation of Laptop



Free Sapling Distribution, Krishnanagar



Free Sapling Distribution, Gokulpur



**Construction of Water Drinking Facility,
Kharagpur**

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Voluntary Blood Donation Camp



Installation of Signage's



Construction of Boundary Wall of Community Prayer Centre (Mandir),

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**Construction of Community Centre
Mahespur**



Construction of Guard Wall, Basantapur




**Construction of Boundary Wall &
Community Prayer Centre (Mandir)**



<p>xxxiii.</p>	<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 the 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 the project proponents.</p>	<p>Agreed</p> <p>Single use plastic is banned & Posters & painting for use of Eco friendly Carry Bag has been displayed at various prominent areas for awareness of our employees, vendors & local people.</p> 
<p>xxxiv.</p>	<p>There are two nos. of Ponds in the vicinity of the Project, so the PP shall ensure that the quality and pond profiles are not disturbed and shall implement a Pond conservation plan.</p>	<p>Agreed and Will be complied with.</p>
<p>xxxv.</p>	<p>Sufficient numbers of additional truck mounted Fog/Mist water cannons shall be procured and operated regularly inside the project premises and also in the surrounding villages to arrest suspended dust in the atmosphere. The PP to this affect shall implement a time line action Plan.</p>	<p>Agreed and Being complied with</p> <p>For control of fugitive emission following initiatives have been/will be adopted by the management of OMIPL:</p> <ul style="list-style-type: none"> a) Dedicated 02 No water spraying tankers are in use in construction phase. 01 No. more will be procured and used for the suppression of fugitive emission. b) Dedicated 02 no. street swiping machine also in use in plant. Additional 02 nos. will


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		<p>be used.</p> <p>c) Dedicated 01 no movable Water mist fog system is in use in construction phase. Additional 02 nos. will be used for suppressing fugitive dust emission.</p> <p>d) Water spraying at construction site to reduce fugitive emission. Water sprinkler/ water guns at least 150 nos. at potential emission sources (Dust prone area), internal road will be installed for effectively controlling the fugitive emission.</p> <p>e) Use of adequate quantity of mechanized machine for cleaning of plant area & internal drain like bobcats, motorized grader, mini floor cleaning/ scrubber machine, mini excavators & mini clamshell.</p> <p>f) Speed of the vehicles to be regulated (20 km/hr) to control the fugitive dust emission from the roads.</p> <p>g) Dedicate manpower/staff for maintaining effective housekeeping and cleaning.</p> <p>h) Significant plantation and green belt development to mitigate the impact of fugitive dust on ambient air.</p> <p>i) Land use based APCD (Bag filters, ID Fan, pneumatic APC dust handling system and stack of adequate height) at potential secondary emission sources like- transfer points, intermediate storage, silo and crushing/ grinding operations is/ will be installed to keep emission within 30 mg/Nm³.</p>
xxxvi.	The project proponent shall adopt the Clean Air practices like mechanical collectors, wet scrubbers, fabric filters (bag houses), electrostatic	<p>Agreed.</p> <p>Good housekeeping being practiced.</p> <p>Action taken proposed by company for maintaining housekeeping and</p>

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	<p>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 truck mounted Fog/Mist water cannons shall be procured and operated regularly inside the project premises and also in the surrounding villages to arrest suspended dust in the atmosphere.</p>	<p>controlling emission are:</p> <ol style="list-style-type: none"> I. Dedicated 02 No water spraying tankers are in use in construction phase. 01 No. more will be procured and used. II. Dedicated 02 nos. street swiping machine also in use in plant. Additional 02 nos. will be used. III. Dedicated 01 no Water mist fog system is in use in construction phase. Additional 02 nos. will be used. IV. Water spraying at construction site to reduce fugitive emission. Water sprinkler/ water guns at potential emission sources (Dust prone area) will be installed to reduce fugitive emission. V. Concreting of internal road with proper drainage system to reduce vehicular emission in parallel with implementation of project. VI. Ensuring trucks movement for transporting raw materials & solid waste in fully covered way to avoid dust pollution. VII. Dedicated truck parking facility. VIII. Green belt with density of 2500 per hectare along and around boundary of the site to be developed as per CPCB guideline in a time bound manner.
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Sl. No.	General Conditions	Compliance Status
I.	Statutory compliance:	
	i. The Environment Clearance (EC) granted to the project/activity is strictly	Noted.

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under the provisions of the EIA Notification, 2006 and its Amendments issued from time to time. It does not tantamount/construe to approvals/consent/permissions etc., required to be obtained or standards/conditions to be followed under any other Acts/Rules/Subordinate legislations, etc.as may be applicable to the project.

II. Air quality monitoring and preservation:

i. The project proponent shall install 24x7 continuous emission monitoring system at process stacks to monitor stack emission as well as 06 Nos. Continuous Ambient Air Quality Station (CAAQS) for monitoring AAQ parameters with respect to standards prescribed in Environment (Protection) Rules 1986 as amended from time to time. The CEMS and CAAQMS shall be connected to SPCB and CPCB online servers and calibrate these systems from time to time according to equipment supplier specification through labs recognized under Environment (Protection) Act,1986 or NABL accredited laboratories.

The project is under construction phase after obtaining valid NOC from WBPCB vide NOC no-164589 dated 30.09.2021, NOC no-164600 dated 27.12.2021 and expansion NOC No. 172028 dated 06.02.2023.

After taking into consideration the interest and financial share cost from associate company of the Group, for monitoring the Ambient Air quality around industrial units of the Group, 04 nos. Continuous Ambient Air Quality Monitoring Station (USEPA/ MCERT approved) is installed covering upwind, downwind and crosswind directions after getting site approval from WBPCB and data is transferred to SPCB & CPCB server. Another 02 no. CAAQMS will be installed by OMIPL after getting site approval from WBPCB.

CAAQMS reports are attached as **Annexure No. – IV.**

Ambient air monitored at the four locations viz., Near Plant Main Gate, Radhanagar Village, Kantapal Village & Berapara Village by third party monitoring agency M/s Qualissure Laboratory Services, Kolkata which is NABL accredited laboratory. As per monitoring reports, emission levels are as follows:

Parameter	Plant Main Gate	Radhanagar Village	Kantapal Village	Berapara Village
PM ₁₀ (µg/m ³)	77	69	71	65
PM _{2.5} (µg/m ³)	40	35	38	34

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		<table border="1"> <tr> <td>SO₂ (µg/m³)</td> <td>9.1</td> <td>6.6</td> <td>7.0</td> <td>6.4</td> </tr> <tr> <td>NO₂ (µg/m³)</td> <td>29.5</td> <td>28.2</td> <td>27.4</td> <td>28.8</td> </tr> <tr> <td>CO (µg/m³)</td> <td>721</td> <td>892</td> <td>972</td> <td>995</td> </tr> </table> <p>Latest Ambient Air Quality Monitoring Analysis reports carried by NABL/MoEF accredited lab are attached in as Annexure No. – V.</p>	SO ₂ (µg/m ³)	9.1	6.6	7.0	6.4	NO ₂ (µg/m ³)	29.5	28.2	27.4	28.8	CO (µg/m ³)	721	892	972	995
SO ₂ (µg/m ³)	9.1	6.6	7.0	6.4													
NO ₂ (µg/m ³)	29.5	28.2	27.4	28.8													
CO (µg/m ³)	721	892	972	995													
ii.	The project proponent shall monitor fugitive emission in the plant premises at least once in every quarter through laboratories recognized under Environment (Protection) Act, 1986 or NABL accredited laboratories.	<p>Being Complied with.</p> <p>Fugitive Emissions have been monitored at the two locations viz., DRI & CPP Construction Site & Water reservoir side by third party monitoring agency M/s. Qualissure Laboratory Services, Kolkata which is NABL accredited laboratory. As per monitoring reports, emission levels are as follows:</p> <table border="1"> <thead> <tr> <th>Parameter</th> <th>DRI Plant Area (Construction Site)</th> <th>Water reservoir side</th> </tr> </thead> <tbody> <tr> <td>TSPM (µg/m³)</td> <td>383</td> <td>146</td> </tr> </tbody> </table> <p>Fugitive Emissions monitoring report is enclosed as Annexure-VI.</p>	Parameter	DRI Plant Area (Construction Site)	Water reservoir side	TSPM (µg/m ³)	383	146									
Parameter	DRI Plant Area (Construction Site)	Water reservoir side															
TSPM (µg/m ³)	383	146															
iii.	Sampling facility at process stacks and at quenching towers shall be provided as per CPCB guidelines for manual monitoring of emissions.	Sampling facility has been provided at under construction DRI stack and the same will be provided at quenching towers and other proposed stacks as per CPCB guidelines															
iv.	Appropriate Air Pollution Control (APC) system shall be provided for all the dust generating points including fugitive dust from all vulnerable sources, so as to comply prescribed stack emission and fugitive emission standards.	<p>As mentioned, the project is under construction phase, after obtaining valid NOC from WBPCB.</p> <p>Appropriate Air Pollution Control (APC) system provided for all the dust generating points including fugitive dust from all vulnerable sources for under construction project and will be implemented for balance EC accorded project.</p>															
v.	The project proponent shall provide leakage detection and mechanized bag cleaning facilities for better maintenance of bags.	<p>Agreed.</p> <p>Leakage detection and mechanized bag cleaning facilities for better maintenance of bags is provided with under construction project and will be provided for balance project in parallel with implementation of project.</p>															
vi.	Sufficient number of mobile or stationery vacuum	<p>Agreed</p> <p><input type="checkbox"/> Dedicated 02 No water spraying</p>															

cleaners shall be provided to clean plant roads, shop floors, roofs, regularly.

tankers are in use in construction phase. 01 No. more will be procured and will be used.



WATER TANKER No-1



WATER TANKER No-2

- Dedicated 01 no movable Water mist fog system in use. Additional 02 nos. will be used



MOVABLE WATER MIST FOG CANON

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- ❑ Dedicated 02 nos. street swiping machine also in use in plant. Additional 02 nos. will be used.



STREET SWEEPING MACHINE No-1



STREET SWEEPING MACHINE No-2

- ❑ Water spraying at construction site to reduce fugitive emission. Water sprinkler/ water guns at potential emission sources (Dust prone area) will be installed to reduce fugitive emission.
- ❑ Dedicated manpower / staff for maintaining effective housekeeping and cleaning.



HOUSEKEEPING PHOTOGRAPHS

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

Agreed and shall be compiled during operation. The detail Solid Waste Management plan submitted to ministry with EIA report for obtaining EC is as:

Sl. No	Type of Waste	Source	Quantity Generated (TPA)	Mode of Treatment / Disposal
1	Slag	MBF	2,72,850	Used for Cement Making & in Sinter plant
	Sludge		75,150	
2	Dolo Char	DRI Plant	5,46,940	100% used in CFBC Boilers.
3	Slag/ Scale	SMS (IF & LD,AOD)	6,87,920	Used for Road construction/ Land levelling purpose, Paver Block Making after recovering metal from Slag Crushing unit;
4	Slag	Ferro Alloys Plant	1,78,500	Slag generated during Ferro Manganese production will be used as a raw material for Silico Manganese production.
				Slag generated during Silico Manganese production will be used for road construction/ land filling.
				After maximum recovery of Chrome from Ferro chrome slag it will undergo TCPL Test and then it will be used in green concreting.
5	Bottom Ash	CPP	2,21,057	Used for Road construction/ Land levelling purpose
6	Dust	APC Devices	6,21,893	Used in Sinter Plant and Brick Manufacturing, Pelletisation mix
7	Kiln Accretion	DRI Plant	23,332	Road Construction
8	Tar Sludge & Coal Tar	Producer gas plant	8,708	Sold to WBPCB authorized vendor
9	Miss Roll/End Cuts	Rolling Mill	92,000	Used as raw material in SMS Plant
10	Fly Ash	CPP	7,65,198	Used for Brick making and also in Cement Plant
11	Iron oxide Powder from ARP	Rolling Mill	3,500	To be sold to Tape & Paint manufacture.
12	Zinc Ash/ Dross	DIP & Rolling Mill	1700	Sold to WBPCB Authorized Vendors
13	Sludge	ETP	929	Sent to

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				from ETP of Galvanizing & Pickling Line			CHWTSDF or Oily scum and metallic sludge recovered from rolling mills ETP shall be mixed, dried and briquetted and reused in Furnaces
			14	Middling from Coal Washery	Coal Washery	17,64,000	To be used in proposed CFBC Boilers and in associate company boiler (OMPL-I, OASPL), Kharagpur.
			15	Rejects from Coal Washery		3,36,000	To be used for Road construction / Land levelling
viii .	The project proponent use leak proof trucks/dumpers carrying coal and other raw materials and cover them with tarpaulin.	Agreed Project proponent will follow necessary precautionary step to control emission during transportation/ movement of vehicles.					
ix.	Facilities for spillage collection shall be provided for coal and coke on wharf of coke oven batteries (chain conveyors, land based industrial vacuum cleaning facility).	Noted and will be considered in design phase.					
x.	Land-based APC system shall be installed to control coke pushing emissions.	Noted and will be considered in design phase					
xi.	Monitor CO, HC and O ₂ in flue gases of the coke oven battery to detect combustion efficiency and cross leakages in the combustion chamber.	Agreed CO, HC and O ₂ in flue gases of the coke oven battery will be monitored to detect combustion efficiency and cross leakages in the combustion chamber.					
xii.	Vapour absorption system shall be provided in place of vapour compression system for cooling of coke oven gas in case of recovery type coke ovens.	Not applicable as non-recovery type coke oven with modified wet quenching is proposed to be installed.					
xiii .	Wind shelter fence and chemical spraying shall be provided on the raw material stock piles.	Noted and will be complied with.					
xiv .	Design the ventilation system for adequate air changes as per prevailing norms for all tunnels, motor houses, Oil Cellars.	Noted and is being considered in design stage.					

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III. Water quality monitoring and preservation :

	<p>i. The project proponent shall install 24x7 continuous effluent monitoring system with respect to standards prescribed in Environment (Protection) Rules 1986 vide G.S.R. 277(E) dated 31st March 2012(Integrated iron & Steel); G.S.R 414 (E) dated 30th May 2008(sponge Iron) as amended from time to time; S.O. 3305 (E) dated 7thDecember 2015 (Thermal Power Plants) as amended from time to time and connected to SPCB and CPCB online servers and calibrate these system from time to time according to equipment supplier specification through labs recognized under Environment (Protection) Act,1986 or NABL accredited laboratories.</p>	<p style="text-align: center;">Agreed</p> <p>The project is still under the construction phase. The plant is being designed as Zero Liquid Discharge (ZLD) and 100% water will be recycled after treatment and will be used in process, dust suppression & green belt development.</p>
	<p>ii. The project proponent shall monitor regularly ground water quality at least twice a year (pre- and post-monsoon) at sufficient numbers of piezometers /sampling wells in the plant and adjacent areas through labs recognized under Environment (Protection) Act,1986 and NABL accredited laboratories.</p>	<p style="text-align: center;">Being Complied with</p> <p>Monitoring of ground water quality carried by Qualissure Laboratory Services (NABL accredited lab.) in March 2023.</p> <p>Ground Water has been monitored at Gokulpur Village, Latibpur Village, Dhekia Village & Sadatpur village by third party monitoring agency M/s Qualissure Laboratory Services, Kolkata which is a NABL accredited laboratory.</p> <p>It is observed that the ground water samples showed no alarming levels of pollutant concentration and all the samples were conforming to the prescribed drinking water standard (IS 10500:2012). The groundwater samples from the plant site and from study area are of good quality, not polluted and good for irrigation or for domestic use.</p>

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		The ground water analysis report as annexed as Annexure-VII.
iii.	Sewage Treatment Plant shall be provided for treatment of domestic wastewater to meet the prescribed standards	Noted and will be complied with Project is still under construction phase. During operation phase domestic waste water will be treated in 2 STP of adequate capacity. After treatment in STP it will be reused for dust suppression and green belt development.
iv.	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.	Agreed and will be complied with.
v.	Tyre washing facilities shall be provided at the entrance of the plant gates.	Noted and will be complied with Project is still under construction phase. Tyre washing facilities will be constructed in parallel with implementation of project.
vi.	Water meters shall be provided at the inlet to all unit processes in the steel plants.	Noted and will be complied with.

IV. Noise monitoring and prevention

i.	Noise pollution shall be monitored as per the prescribed Noise Pollution (Regulation and Control) Rules, 2000 and report in this regard shall be submitted to Regional Officer of the Ministry as part of six-monthly compliance report.	<p>Being Complied with</p> <p>Noise level has been monitored at ambient & work zone i.e., DRI & CPP (Construction Area), Truck Parking Area, Kholapatna Village, Radhanagar Village & Narayanpur Village by third party monitoring agency M/s. Qualissure Laboratory Services, Kolkata which is a NABL accredited laboratory. As per monitoring reports of March 2023, levels are as follows:</p> <table border="1" data-bbox="836 1686 1374 1812"> <thead> <tr> <th rowspan="2">Parameter</th> <th colspan="2">DRI & CPP Area</th> <th colspan="2">Truck Parking Area</th> </tr> <tr> <th>Min</th> <th>Max</th> <th>Min</th> <th>Max</th> </tr> </thead> <tbody> <tr> <td></td> <td>53.0</td> <td>64.8</td> <td>51.0</td> <td>64.2</td> </tr> </tbody> </table> <table border="1" data-bbox="807 1845 1402 1951"> <thead> <tr> <th rowspan="2">Parameter</th> <th>Kholapatna Village</th> <th>Radhanagar Village</th> <th>Narayanpur Village</th> </tr> </thead> <tbody> <tr> <td>Avg.</td> <td>49.8</td> <td>49.6</td> <td>51.1</td> </tr> </tbody> </table> <p>Ambient Noise & Source Noise Monitoring Reports are attached as Annexure-VIII.</p>	Parameter	DRI & CPP Area		Truck Parking Area		Min	Max	Min	Max		53.0	64.8	51.0	64.2	Parameter	Kholapatna Village	Radhanagar Village	Narayanpur Village	Avg.	49.8	49.6	51.1
Parameter	DRI & CPP Area			Truck Parking Area																				
	Min	Max	Min	Max																				
	53.0	64.8	51.0	64.2																				
Parameter	Kholapatna Village	Radhanagar Village	Narayanpur Village																					
	Avg.	49.8	49.6	51.1																				


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V. Energy Conservation measures		
i.	Use torpedo ladle for hot metal transfer as far as possible. If ladles not used, provide covers for open top ladles.	Noted and will be complied with during project implementation stage.
ii.	Restrict Gas flaring to < 1 %.	Noted and will be complied with.
iii.	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>Agreed and will be complied with.</p> <p>Currently the project is under construction stage and solar internal street light is provided at potential area.</p> 
iv.	Provide LED light in their offices and residential areas.	Agreed and will be installed.
v.	Ensure installation of regenerative /recuperative type burners on all reheating furnaces.	Agreed and will be complied with during project implementation stage.
VI. Waste Management		
i.	An attrition grinding unit to improve the bulk density of BF granulated slag from 1.0 to 1.5 Kg/l shall be installed to use slag as river sand in construction industry.	<p>Noted</p> <p>MBF plant is not implemented. Blast Furnace slag will be used for cement making in associate company of the Group.</p>
ii.	Carbon recovery plant to recover the elemental carbon present in GCP slurries for use in Sinter plant shall be installed.	Noted and will be considered during design stage.
iii.	Used refractories shall be recycled as far as possible.	Kiln accretion/ broken refractory mass will be used in associate company Sinter Plant, Cement Manufacturing, and land



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		levelling.
iv.	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.	Agreed Project is still under construction phase and as on date no fly ash is generated. MOU for utilization of fly ash in cement plant of associate company (Rashmi Cement Limited (Cement Division), Jhargram & M/s Orissa Metallurgical Industry Private Limited, Cement (Formerly Bansal Cement Pvt. Ltd). Kharagpur already made and submitted to ministry.
v.	Oil Collection pits shall be provided in oil cellars to collect and reuse/recycle spilled oil. Oil collection trays shall be provided under coils on saddles in cold rolled coil storage area.	Noted and will be considered during design phase of Rolling mill.
vi.	Kitchen waste shall be composted or converted to biogas for further use.	Agreed and will be complied with.
VII. Green Belt :		
i.	The project proponent shall prepare GHG emissions inventory for the plant and shall submit the programme for reduction of the same including carbon sequestration by trees.	GHG emissions inventory has already been prepared by the NABET accredited consultant Centre for Envotech and Management Consultancy Pvt. Ltd., Bhubaneswar during EIA study of proposed Expansion of Integrated Steel Plant (1.0 Million TPA To 2.0 Million TPA Finished Steel) With 385 MW Captive Power Plant. Copy of the GHG emissions inventory is already attached as Annexure- I
ii.	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	Noted. Reply to the subject condition is already stated in point no. ii under Specific Conditions.

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	and supply chains, energy transition pathway from fossil fuels to Renewable energy etc. All these activities/ assessments should be measurable and monitor able with defined time frames.	
VIII. Public hearing and Human Health Issues:		
i.	Emergency preparedness plan based on the Hazard identification and Risk Assessment (HIRA) and Disaster Management Plan shall be implemented.	Complied. HIRA report and Disaster Management Plan have been prepared by NABET accredited consultant and is Annexed as Annexure-IX.
ii.	The project proponent shall carry out heat stress analysis for the workmen who work in high temperature work zone and provide Personal Protection Equipment (PPE) as per the norms.	Agreed Project is still under construction phase and proper PPE's are provided for the worker. Without proper PPEs no one is allowed to work inside the plant premises. Safety awareness campaigns are being organised inside the plant premises for all units with the objective of demonstrating the use of PPEs in different work zone and explaining the benefit of using PPEs.
		 <p style="text-align: center;">Tool Box Training</p>  <p style="text-align: center;">Workers Working with Proper PPE</p>
iii.	Occupational health surveillance of the workers	Being Complied.

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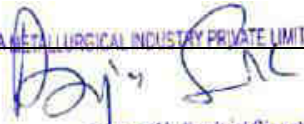
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		shall be done on a regular basis and records maintained.	The occupational health surveillance of the workers employed during construction phase has been done and records are maintained as per the Factories Act. The OHS Record is attached as Annexure- X.
IX. Environment Management			
	i.	The project proponent shall comply with the provisions contained in this Ministry's OM vide F.No. 22-65/2017-IA.III dated 30/09/2020. As part of Corporate Environment Responsibility (CER) activity, company shall adopt nearby villages based on the socio-economic survey and Undertake community developmental activities in consultation with the village Panchayat and the District Administration as committed.	In FY 2022-23 under the head of CSR/CER Rs. 90,90,724 is spent from October 2022 to March 2023 and in total Rs. 1,42,90,724 is spent under CER to full fill all the commitments. Photographs are already mentioned earlier in point no. xxxi under Specific Conditions.
	ii	The company shall have a well laid down environmental policy duly approve by the Board of Directors. The environmental policy should prescribe for standard operating procedures to have proper checks and balances and to bring into focus any infringements/ deviation/ violation of the environmental / forest / wildlife norms / conditions. The company shall have defined system of reporting infringements / deviation / violation of the environmental / forest / wildlife norms / conditions and / or shareholders / stake holders. The copy of the board resolution in this regard shall be submitted to the MoEF&CC as a part of six-monthly report.	The company shall have a well laid down environmental policy duly approved by the board of directors. The environmental policy should prescribe for standard operating procedures to have proper checks and balances and to bring into focus any infringements/ deviation/ violation of the environmental/ forest/wildlife norms/conditions. The company shall have defined system of reporting infringements/ deviation/violation of the environmental/forest/ wildlife norms/ conditions and / or shareholders/stake holders. EHS policy is enclosed as Annexure-XI.
	iii	A separate Environmental Cell both at the project and company head quarter level, with qualified personnel shall be set up under the control of senior Executive, who will directly to the head of the organization.	A separate Environmental cell both at project and company head quarter is in place. The Framework of EHS is enclosed as Annexure-XII.
X. Miscellaneous			
	i.	The project proponent shall make public the environmental clearance	Complied

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	<p>granted for their project along with the environmental conditions and safeguards at their cost by prominently advertising it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days and in addition this shall also be displayed in the project proponent's website permanently.</p>	<p>Advertisement for expansion project environment clearance dated 11.10.2022 issued by MOEFCC in favour of Orissa Metallurgical Industry Pvt. Ltd. published in two local newspapers that are widely circulated in the region are:</p> <ol style="list-style-type: none"> 1. Aajkal dated 10.10.2022 (Bengali) 2. The Echo of India dated 13.10.2022 (English) <p>Copies of latest advertisement are enclosed as Annexure XIII.</p>
ii.	<p>The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayat and Municipal Bodies in addition to the relevant offices of the Government who n turn has to display the same for 30 days from the date of receipt.</p>	<p>Complied</p> <p>Copies of EC dated 11.10.2022 w.r.t EC obtained in favour of Orissa Metallurgical Industry Pvt. Ltd. submitted to DM, Paschim Medinipur & Kalaikunda Gram Panchayat vide letter dated 13.10.2022 and mail dated 13.10.2022.</p> <p>Intimation letters are enclosed as Annexure XIV.</p>
iii.	<p>The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and update the same on half-yearly basis.</p>	<p>Complied.</p> <p>The environmental clearance and status of compliance of the stipulated environment clearance conditions, including results of monitored data uploaded and updated on regular basis on the website of the company http://orissametaliks.com/qehs.html</p>
iv.	<p>The project proponent shall monitor the criteria pollutants level namely; PM₁₀, SO₂, NO_x (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects and display the same at a convenient location for disclosure to the public and put on the website of the company.</p>	<p>Being Complied.</p> <p>The criteria pollutants level namely; PM₁₀, PM_{2.5}, SO₂, NO_x (ambient levels as well as stack emissions) is monitored by third party monitoring agency which is NABL accredited laboratory and displayed at the plant main gate.</p> <p>Ambient data collected from CAAQMS is uploaded on the</p>

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		website of the company with six monthly EC compliance report https://orissametaliks.com/qehs.php .
v.	The project proponent shall submit six-monthly reports on the status of the compliance of the stipulated environmental conditions on the website of the ministry of Environment, Forest and Climate Change at environment clearance portal.	Being Complied. The last compliance report for the period April 2022 to September 2022 has been submitted to ministry vide letter no. OMIPL/ENV COMPL/DEC 2022 dated 22.11.2022 and also uploaded on the website of the ministry of Environment, Forest and Climate Change at environment clearance portal.
vi.	The project proponent shall submit the environmental statement for each financial year in Form – V to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company.	Agreed and will be complied. The project is still under construction phase.
vii.	The project proponent shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concern authorities, commencing the land development work and start of production operation by the project.	Noted The company is a private company and no finance is needed from outside. Land development work has been started after getting NOC from WBPCB.
viii	The project proponent shall abide by all the commitments and recommendations made in the EIA/EMP report, commitment made during Public Hearing and also that during their presentation to the Expert Appraisal Committee.	Noted
ix.	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	Is being complied with.

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	next three years, in the company web site for the information to public/public domain.	
x.	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forests and Climate Change (MOEF&CC).	Being Complied with. In compliance to this point, TOR obtained from MoEFCC for expansion of Integrated Steel Plant from 2.0 million TPA with 385 MW CPP to Integrated Steel Plant of capacity 4.2 million TPA (Finished Steel) along with 536 MW Captive Power Plant by M/s. Orissa Metallurgical Industry Pvt. Ltd., having ToR Identification No. TO23A1001WB5596583E issued vide file no. IA-J-11011/56/2017-IA-II(IND-I) dated 01.05.2023 by ministry.
xiii .	The Regional Office of this Ministry shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data/ information/ monitoring reports.	Noted

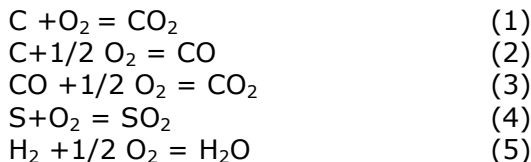
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DETAILS OF CARBON FOOT PRINTS AND CARBON SEQUESTRATION

As coal is burned, a huge amount of CO₂ is released from the chimneys of the plant to the atmosphere. This caused a substantial rise in temperature of the earth's surface which is known as Global Warming. So, there is an urgent need for CO₂ sequestration for the exhaust gases from the chimney of these types of plants.

The various reactions observed in the combustion of coal are as follows:



Detail calculation of the carbon emission from the project is given below:

a) SPONGE IRON PLANT

Input: Coal = 34, 80, 000 TPA

Output: Sponge Iron= 29, 00,000 TPA
Sponge Iron Fines= 5, 80,000 TPA
Dolochar= 5, 46,940 TPA
Dust= 4, 29,255 TPA

Carbon presents in Input materials= (34, 80,000 x 36/100) TPA
= 12, 52,800 TPA

Carbon presents in output materials (Sponge Iron, Fines & Dust-0.20 % & Dolochar-28 %)
= [(29, 00,000+5, 80,000+ 4, 29,255) x 0.20/100] + (5, 46,940 x 28/100) TPA
= (7,818.5 + 1, 53,143.2) TPA = 1, 60,961.7 TPA

Remaining Carbon emits as CO & CO₂= (12, 52,800-1, 60,961.7) TPA
=10, 91,838.3 TPA

Assumption: 3% of carbon is converted to CO and is converted to CO₂.

Amount of C required for production of CO (3% of C) is 32,755.1 TPA

1 mole of CO	→	1 mole of C
28	→	12
X	→	32,755.1

Therefore, X = 76,428.6

The amount of CO is 76,428.6 TPA

Amount of C required for production of CO₂ (97 % C) is 10, 59,083.2 TPA

1 mole of CO ₂	→	1 mole of C
44	→	12
X	→	10, 59,083.2

Therefore, X = 38, 83,305.1

The amount of CO₂ is 38, 83,305.1 TPA

Emission from Sponge Iron Plant:

Sr.No	Component	Quantity (TPA)
1	CO	76,428.6
2	CO ₂	38, 83,305.1

b) COKE OVEN PLANT

Input: Coking Coal = 8, 08,500 TPA

Output: Coke=5, 50,000 TPA

Coke dust to Sinter=27,500 TPA
 Coke oven Gas=1, 90,000 TPA

Composition of coke oven gas:

Sr.No	Component	Percentage %	Quantity (TPA)
1	H ₂	51	96,900
2	CH ₄	34	64,600
3	CO	10	19,000
4	Others	5	9,500
	Total	100	1,90,000

CO emissions from the coke oven plant is 19,000 TPA

c) SINTER PLANT

Input: Coke Fines= 90,300 TPA

Output: Sinter= 10, 96,500 TPA
 Sinter dust =1, 93,000 TPA

Carbon presents in Input materials (60 %) = 90,300 x 60/100 TPA
 = 54,180 TPA

Carbon presents in output materials (0.30 %) = (10, 96,500 + 1, 93,000) x
 0.30/100 TPA =3868.5 TPA

Remaining carbon emits as CO & CO₂= (54,180-3,868.5) TPA = 50,311.5 TPA

Assumption: 3% C converted to CO and rest CO₂.

Amount of carbon needed for production of CO (3%) is 1,509.3 TPA

1 mole of CO 1 mole of C
 28 → 12
 X → 1,509.3

Therefore, X = 3,521.7

Amount of CO is 3,521.7 TPA

Amount of carbon needed for production of CO₂ (97%) is 48,802.2 TPA

1 mole of CO₂ 1 mole of C
 44 → 12
 X → 48,802.2

Therefore, X = 1, 78,941.4

Amount of CO₂ is 1, 78,941.4 TPA

Emission from Sinter Plant:

Sr.No	Component	Quantity (TPA)
1	CO	3,521.7
2	CO ₂	1, 78,941.4

d) MINI BLAST FURNACE

Input: Coal Fines = 83,000 TPA
 Coke= 4, 32,800 TPA

Output: Hot metal/Pig Iron=7, 51,500 TPA
 MBF Slag= 2, 72,850 TPA
 Dust = 75,100 TPA

Carbon presents in Input materials (Coal fines-45 % & Coke- 80 %)
 = [(83,000 x 45/100) + (4, 32,800 x 80/100)] TPA
 = (37,350 + 3, 46,240) TPA
 = 3, 83,590 TPA

Amount of CO₂ is 1, 02,483.3TPA

Emission from Induction Furnace/LRF, BOF & AOD Plant:

Sr. No	Component	Quantity (TPA)
1	CO	2,016.9
2	CO ₂	1, 02,483.3

f) FERRO- ALLOY PLANT

Input- Coke: 2, 16,000 TPA
Coal: 54,000 TPA

Output: Ferro Alloy=1, 80,000 TPA
Slag=2, 01,800 TPA

Carbon presents in Input materials (Coal fines-48 % & Coke- 80 %)
= [(54,000x 48/100) + (2, 16,000 x 80/100)] TPA
= (25,920 + 1, 72,800) TPA
= 1, 98,720 TPA

Carbon presents in output materials (Ferro Alloy-5.0 % & Slag-3.0 %)
= [(1, 80,000 x 5.0/100) + (2, 01,800 x 3.0/100)] TPA
= (9,000 + 6,054) TPA
= 15,054.0 TPA

Remaining carbon emits as CO & CO₂= (1, 98,720-15,054.0) TPA
= 1, 83,666 TPA

Assumption: 3% C converted to CO and rest to CO₂
Amount of C required for production of CO (3% C) is 5509.9 TPA
1 mole of CO 1 mole of C
28 → 12
X → 5509.9
X= 12,856.4

The amount of CO is 12,856.4 TPA

Amount of C required for production of CO₂ (97% C) is 1, 78,156.1 TPA
1 mole of CO₂ 1 mole of C
44 → 12
X → 1, 78,156.1
X= 6, 53,239.0

The amount of CO₂ is 6, 53,239.0 TPA

Emission from Ferro Plant:

Sr. No	Component	Quantity (TPA)
1	CO	12,856.4
2	CO ₂	6, 53,239.0

g) CAPTIVE POWER PLANT

Input Coal + Middling-12, 96,152 TPA
Dolochar – 5, 46,940 TPA

Here dolochar is also a raw material, but for CO & CO₂ emission calculation dolochar is taken as product from Sponge Iron plant.

Carbon presents in Coal (31 %) = 4, 01,807.12 TPA
Carbon presents in Dolochar (28%) = 1, 53,143.2 TPA
Total Carbon = 5, 54,950.32 TPA

Assuming 99.8 % combustion

Total carbon content for the production of CO₂ = 5, 73,381.24 x 0.998 TPA
= 5, 53,840.4 TPA

1 mole of CO₂ → 1 mole of C
44 → 12
X → 5, 53,840.4
X = 20, 30,748.1

The amount of CO₂ is 20, 30,748.1 TPA

Total carbon content for the production of CO is (5, 73,381.24 x 0.002) =
1,109.92 TPA

1 mole of CO → 1 mole of C
28 → 12
X → 1109.92
X = 2,589.8

The amount of CO is 2,589.8 TPA

Emission from CPP units:

Sr. No	Component	Quantity (TPA)
1	CO	2,589.8
2	CO ₂	20, 30,748.1

h) LIME DOLOMITE PLANT

Lime is calcium oxide (CaO) produced on heating (calcination) of limestone (CaCO₃) to a temperature of 900 deg C and above (usually 1100 deg C).

CaCO₃(s) + heat = CaO(s) + CO₂ (g)

Input: Lime stone/dolomite=1, 98,000 TPA

Carbon percentage in limestone/Dolomite= 12 %

Carbon present in CaCO₃ is (1, 98,000 x 12/100) =23,760 TPA

1 mole of CO₂ → 1 mole of C
44 → 12
X → 23,760
X = 87,120

The amount of CO₂ is 87,120 TPA

CARBON SEQUESTRATION:

The rate of carbon sequestering depends on growth parameters of the plants. Density of wood of plants plays a major role. Trees act as sinks for carbon dioxide by fixing carbon during photosynthesis and storing carbon as biomass (Carbon sequestration). The net long-term carbon dioxide source/sink dynamics of green belt area change through time as trees grow, get pruned, die and decay. Trees in green belt areas sequester and store carbon as they grow. Thus, green belt influence local climate, carbon cycles, energy use and climate change. There are few methods companies have been/ will be adopting for capturing carbon emission:

- ❖ Green field technology-Company is being developing sufficient plantation in and around the plant premises. The detail is already discussed in section **4.11.3 of chapter-4.**

AMOUNT OF CARBON SEQUESTERED THROUGH GREENBELT

The rate of carbon sequestration depends on the growth characteristics of the tree species, the density of its wood, the location's conditions for growth, and the plant stage of the tree. It is greatest in the younger stages of tree growth, between 20 to 50 years. Further complicating the issue is the fact that far less research has been done on tropical tree species as compared to temperate tree species.

To calculate Amount of carbon sequestered through trees process are as follows:

- a) Determine the total (green) weight of the tree.
- b) Determine the dry weight of the tree.
- c) Determine the weight of carbon in the tree.
- d) Determine the weight of carbon dioxide sequestered in the tree
- e) Determine the weight of CO₂ sequestered in the tree per year

a) Determine the total (green) weight of the tree.

The green weight is the weight of the tree when it is alive. The green weight of the above-ground weight as follows:

$$W \text{ (above-ground)} = 0.25 D^2 H \text{ (for trees with } D < 11)$$

$$W \text{ (above-ground)} = 0.15 D^2 H \text{ (for trees with } D > 11)$$

Note:

W (above-ground) = Above-ground weight in pounds

D = Diameter of the trunk in inches

H = Height of the tree in feet

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

$$W \text{ (total green weight)} = 1.2 * W \text{ (above-ground)}$$

b) Determine the dry weight of the tree.

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

$$W \text{ (dry weight)} = 0.725 * W \text{ (total green weight)}$$

c) Determine the weight of carbon in the tree.

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

$$W \text{ (carbon)} = 0.5 * W \text{ (dry weight)}$$

d) Determine the weight of carbon dioxide sequestered in the tree

CO₂ is composed of one molecule of Carbon and 2 molecules of Oxygen.

The atomic weight of Carbon = 12.00

The atomic weight of Oxygen = 15.99

The weight of CO₂ is C + 2 * O = 43.99

The ratio of CO₂ to C is 43.99/12.00 = 3.67

Therefore, to determine the weight of carbon dioxide sequestered in the tree, multiply the weight of carbon in the tree by 3.67.

$$W \text{ (carbon-dioxide)} = 3.67 * W \text{ (carbon)}$$

CO₂ SEQUESTRATION CALCULATION DETAIL:

CASE-I (For the Initial First 05 Years)

➤ **From Existing Trees:**

Company had already developed 9.16 % of total plant area as green belt. Approx. 27,795 nos. of trees is survived. Two scenarios are considered. Details are as follows:

Scenario-I- [Out of the total planted trees 100 tress Avg. 10 meter tall or 32.81 feet tall ("H") and 30 cm trunk or 11.81-inch trunk ("D")]

$$\begin{aligned} \mathbf{W \text{ (above-ground)}} &= \mathbf{0.15 D^2 H} \\ &= 0.15 (11.81)^2 (32.81) \\ &= 686.43 \text{ lbs (311.36 kg)} \end{aligned}$$

$$\begin{aligned} \mathbf{W \text{ (total green weight)}} &= \mathbf{1.2 * W \text{ (above-ground)}} \\ &= 1.2 * 686.43 \\ &= 823.72 \text{ lbs (373.63 kg)} \end{aligned}$$

$$\begin{aligned} \mathbf{W \text{ (dry weight)}} &= \mathbf{0.725 * W \text{ (total green weight)}} \\ &= 0.725 * 823.72 \text{ lbs} \\ &= 597.20 \text{ lbs (270.89 kg)} \end{aligned}$$

$$\begin{aligned} \mathbf{W \text{ (carbon)}} &= \mathbf{0.5 * W \text{ (dry weight)}} \\ &= 0.5 * 597.20 \text{ lbs} \\ &= 298.60 \text{ lbs (135.44 kg} \approx 135 \text{ kg)} \end{aligned}$$

Average carbon sequestrated by existing individual tree is 135 kg or 0.135 tons

$$=100 \text{ tress} \times 0.135 \text{ MT/Year} = 13.5 \text{ MT/Year} \dots\dots\dots \mathbf{(A)}$$

Scenario-II- [Balance 27,695 tress newly planted trees in last two years - Avg. 3 meter tall or 9.84 feet tall ("H") and 10 cm trunk or 3.94-inch trunk ("D")]

$$\begin{aligned} \mathbf{W \text{ (above-ground)}} &= \mathbf{0.25 D^2 H} \\ &= 0.25 (3.94)^2 (9.84) \\ &= 38.19 \text{ lbs (17.32 kg)} \end{aligned}$$

$$\begin{aligned} \mathbf{W \text{ (total green weight)}} &= \mathbf{1.2 * W \text{ (above-ground)}} \\ &= 1.2 * 38.19 \\ &= 45.83 \text{ lbs (20.79 kg)} \end{aligned}$$

$$\begin{aligned} \mathbf{W \text{ (dry weight)}} &= \mathbf{0.725 * W \text{ (total green weight)}} \\ &= 0.725 * 45.83 \text{ lbs} \\ &= 33.23 \text{ lbs (15.07 kg)} \end{aligned}$$

$$\begin{aligned} \mathbf{W \text{ (carbon)}} &= \mathbf{0.5 * W \text{ (dry weight)}} \\ &= 0.5 * 33.23 \text{ lbs} \\ &= 16.62 \text{ lbs (7.58 kg} \approx 8.0 \text{ kg)} \end{aligned}$$

Average carbon sequestrated by existing newly planted individual tree is 8 kg or 0.008 tons

$$=27,695 \text{ tress} \times 0.008 \text{ MT/Year} = 221.56 \text{ MT/Year} \dots\dots\dots \mathbf{(B)}$$

Company has sequestered 235.06 MT Carbon (A+B) till the date of inception.

➤ **From Proposed Trees:**

Company had proposed to plant 94,955 nos. of trees within a span of 03 years of Avg. 1.5 meter tall or 4.92 feet tall ("H") and 05 cm trunk or 1.97 inch trunk ("D")

$$\begin{aligned} \mathbf{W \text{ (above-ground)}} &= \mathbf{0.25 D^2 H} \\ &= 0.25 (1.97)^2 (4.92) \\ &= 4.77 \text{ lbs (2.16 kg)} \end{aligned}$$

$$\begin{aligned} \mathbf{W \text{ (total green weight)}} &= \mathbf{1.2 * W \text{ (above-ground)}} \\ &= 1.2 * 4.77 \\ &= 5.72 \text{ lbs (2.60 kg)} \end{aligned}$$

$$\begin{aligned} \mathbf{W \text{ (dry weight)}} &= \mathbf{0.725 * W \text{ (total green weight)}} \\ &= 0.725 * 5.72 \text{ lbs} \\ &= 4.15 \text{ lbs (1.88 kg)} \end{aligned}$$

$$\begin{aligned} \mathbf{W \text{ (carbon)}} &= \mathbf{0.5 * W \text{ (dry weight)}} \\ &= 0.5 * 4.15 \text{ lbs} \\ &= 2.08 \text{ lbs (0.94 kg} \approx 1.0 \text{ kg)} \end{aligned}$$

Average carbon sequestrated by proposed tree is 1.0 kg or 0.001 tons

$$=94,955 \text{ trees} \times 0.001 \text{ MT/Year} = 94.955 \text{ MT/Year} \dots\dots\dots \mathbf{(C)}$$

Total carbon sequestrated (A+ B+ C) = 330.015 MT/Year

CASE-II (Post 05 Years till maturity of the trees or 10 years)

Company will developed 33 % of total plant area as green belt @ 2500 trees per hectare. Approx. 1, 22,750 nos. of trees planted in and around the plant premises all along the boundary. Consider the detail of the trees

Avg. 5 meter tall or 16.4 feet tall ("H")

25 cm trunk or 9.8 inch trunk ("D")

$$\begin{aligned} \mathbf{W \text{ (above-ground)}} &= \mathbf{0.25 D^2 H} \\ &= 0.25 (9.8)^2 (16.4) \\ &= 393.76\text{lbs (178.61 kg)} \end{aligned}$$

$$\begin{aligned} \mathbf{W \text{ (total green weight)}} &= \mathbf{1.2 * W \text{ (above-ground)}} \\ &= 1.2 * 393.76 \\ &= 472.51 \text{ lbs (214.33 kg)} \end{aligned}$$

$$\begin{aligned} \mathbf{W \text{ (dry weight)}} &= \mathbf{0.725 * W \text{ (total green weight)}} \\ &= 0.725 * 472.51 \text{ lbs} \\ &= 342.57 \text{ lbs (155.39 kg)} \end{aligned}$$

$$\begin{aligned} \mathbf{W \text{ (carbon)}} &= \mathbf{0.5 * W \text{ (dry weight)}} \\ &= 0.5 * 342.57 \text{ lbs} \\ &= 171.29 \text{ lbs (77.69 kg} \approx 78 \text{ kg)} \end{aligned}$$

Average carbon sequestrated by existing individual tree is 78 kg or 0.078 tons

$$=1, 22,750 \text{ trees} \times 0.078 \text{ MT/Year} = 9,574.5 \text{ MT/Year}$$

CASE-III (From fully mature tree-post 10 years till 30 years)

Company will developed 33 % of total plant area as green belt @ 2500 trees per hectare. Approx. 1, 22,750 nos. of trees planted in and around the plant premises all along the boundary. Consider the detail of the trees

Avg. 10 meter tall or 32.81 feet tall ("H")

30 cm trunk or 11.81-inch trunk ("D")

$$\begin{aligned} \mathbf{W \text{ (above-ground)}} &= \mathbf{0.15 D^2 H} \\ &= 0.15 (11.81)^2 (32.81) \\ &= 686.43 \text{ lbs (311.36 kg)} \end{aligned}$$

$$\begin{aligned} \mathbf{W \text{ (total green weight)}} &= \mathbf{1.2 * W \text{ (above-ground)}} \\ &= 1.2 * 686.43 \\ &= 823.72 \text{ lbs (373.63 kg)} \end{aligned}$$

$$\begin{aligned} \mathbf{W \text{ (dry weight)}} &= \mathbf{0.725 * W \text{ (total green weight)}} \\ &= 0.725 * 823.72 \text{ lbs} \\ &= 597.20 \text{ lbs (270.89 kg)} \end{aligned}$$

$$\begin{aligned} \mathbf{W \text{ (carbon)}} &= \mathbf{0.5 * W \text{ (dry weight)}} \\ &= 0.5 * 597.20 \text{ lbs} \\ &= 298.60 \text{ lbs (135.44 kg} \approx 135 \text{ kg)} \end{aligned}$$

Average carbon sequestered by tree is 135 kg or 0.135 tons

$$\mathbf{=1, 22,750 \text{ trees} \times 0.135 \text{ MT/Year} = 16,571.25 \text{ MT/Year}}$$

Additional under EMP for social & Infrastructure development avenue plantation will be done in nearby villages. Green belt will be developed by planting more or less approx. 1, 00,000 nos. of trees and average carbon sequestration from fully mature trees will be 13,500 MT per year.

Total Carbon Sequestered by Tree (Planted Inside of plant + Trees planted in nearby villages) = 30,071.25 MT /year.



Government of West Bengal
Irrigation & Waterways Department
Jalasampad Bhawan, Salt Lake, Kolkata - 700 091

Memo No. 167 - 1
 [-4M-05/14 (Pt.II)]

Dated: 16th October, 2020

From: Joint Secretary to the
 Government of West Bengal

To: ✓ M/s Orissa Metaliks Private Limited
 1, Garstin Place, Orbit House, 3rd Floor, Room No.3B
 Kolkata - 700 001

Sub: *Request for permission for drawal of raw water from river Kangsabati in Mouza - Barkola, Block - Khuruggur, District: Paschim Medinipur.*

Ref: His No. OMPL/Water/20-21 dated 01.09.2020.

Dear Sir,

I am directed to inform you that drawal permission for 22,248.00 KLD of raw surface water from river Kangsabati during monsoon period for 4 (Four) months from July to October was accorded previously vide Memo No. 283-1 dated 04.09.2019. Now, you have prayed for permission for drawal of 22,248.00 KLD of raw surface water from river Kangsabati for throughout the year.

Now, after careful scrutiny on the issue, I am directed to convey permission for drawal of 22,248.00 KLD of raw surface water from river Kangsabati for balance 8 (Eight) months subject to the following conditions.

1. Drawal of surface water from river Kangsabati during the period for 4 (Four) months from November to February can be made subject to availability of surface water.
2. Due to non-perennial character of river Kangsabati it is not possible to ensure 100% dependable surface water discharge of 22,248.00 KLD during the period for 4 (Four) months from March to June.

A Memorandum of Understanding (MoU) would have to be executed within 2 months from the date of receipt of this permission on "Non-Judicial Stamp Paper" to be signed by their authorised representative not below the rank of Manager with the Superintending Engineer, Western Circle-II, Irrigation & Waterways Directorate.

The tariff for drawal of surface water will be ₹3.50 / KL, which is to be paid by the allottee online in the GRIPS in favour of the Executive Engineer, West Midnapore Division, Irrigation & Waterways Directorate, under Receipt Head of Account '0701-80-800-Other Receipts-003-Other Items-27-Other Receipts', as contained in the Budget Publication No. 4 during this financial year of 2020-21, every calendar year in advance. The receipt of the e-challan is to be deposited to the Executive Engineer, West Midnapore Division, Irrigation & Waterways Directorate, who in turn shall allow drawal of surface water from the above said river. You will not be allowed to draw surface water from the above said river without deposition of above said water tariff in any circumstances.

You are also requested to get intake arrangement for drawing of raw surface water from river Kangsabati, vetted from the Executive Engineer, West Midnapore Division, Irrigation & Waterways Directorate, before taking any construction work within the river Kangsabati.

This issues in supersession of earlier issued permission vide Memo No. 283-J dated 04.09.2019 and with the approval of the competent authority.

Violation of the above terms & conditions in any manner will lead to cancellation of this permission.

Yours faithfully,

M. Chakraborty

16/10/2020

(M. Chakraborty)

Joint Secretary to the
Government of West Bengal


Memo No.167/1(2) -1

Dated: 16th October, 2020

Copy forwarded for kind information to the:

1. O.S.D. to Hon'ble Minister-in-Charge
Irrigation & Waterways Department
Government of West Bengal
Jalasampad Bhavan, 1st Floor
Saltlake 700 091

2. Sr. P.A. to Additional Chief Secretary
Irrigation & Waterways Department
Government of West Bengal
Jalasangrahalaya, 1st Floor
Saltlake 700 091



(M. Chakraborty)
Joint Secretary to the
Government of West Bengal

Memo No.167/2(3) - I

Dated: 16th October, 2020

Copy forwarded for information to the:

1. Deputy Secretary
Department of Industries, Commerce & Enterprises
Government of West Bengal
IPI Branch, 4, Abanindranath Tagore Sarani
Kolkata - 700 016
2. Director of Industries, West Bengal
& Head of Task Force, Government of West Bengal
'Pratiti', 23, Abanindranath Tagore Sarani (Camac Street)
Kolkata - 700 016
3. Managing Director
West Bengal Industrial Development Corporation Limited
'Pratiti', 23, Abanindranath Tagore Sarani (Camac Street)
Kolkata - 700 016


(M. Chakraborty)
Joint Secretary to the
Government of West Bengal

Memo No.167/3(5) - I

Dated: 16th October, 2020

Copy forwarded for information and necessary action to the:


1. Chief Engineer (South West)
Irrigation & Waterways Directorate
Government of West Bengal
Khasjungle, P.O. Anas, Medinipur
District Paschim Medinipur, Pin 721 102

2. **Superintending Engineer, Western Circle-II**
Irrigation & Waterways Directorate
Government of West Bengal
Station Road, P.O. – Midnapore
District - Paschim Medinipur, Pin – 721 101

3. **Superintending Engineer attached to**
Chief Engineer (South) & SLNO
Irrigation & Waterways Directorate
Government of West Bengal
1st Floor, Jalsampad Bhavan
Salt Lake – 700 091

4. **Executive Engineer, West Midnapore Division**
Irrigation & Waterways Directorate
Government of West Bengal
Seikhpura Irrigation Colony, P.O. – Midnapore
District - Paschim Medinipur, Pin – 721 101

5. **Executive Engineer, DVC Study Cell & SLNO**
Irrigation & Waterways Directorate
Government of West Bengal
7th Floor, Jalsampad Bhavan
Salt Lake – 700 091


(M. Chakraborty)
Joint Secretary to the
Government of West Bengal



ORISSA METALIKS PRIVATE LIMITED

LIN: U27109WB2006PTC111146

www.orissametaliks.com

+91-33-2243 8517-20 +91-33-2243 8517 sc_ompl@orissametaliks.com

Ref. OMPL/KGP/Water/22-23/02

Date: 23/06/2022

✓ To,
The Secretary
Government of West Bengal
Irrigation and Waterways Department
Jalasampad Bhavan, Saltlake, Kolkata- 700091

Sub:- Prayer for amendment in terms & conditions of Memorandum of Understanding (MoU) for drawal of raw water from river Kangsabati in Mouza- Barkola, Block- Kharagpur, District- Paschim Medinipur.

Ref.: - Permission for drawal of 22,248 KLD raw surface water vide memo No. 167-I/I-4M-05/14 (Pt. II) dated 16th October-2020.

Dear Sir,

We are really grateful to you and your good office for providing us the kind support and giving us the permission for withdrawal of 22,248 KLD of raw surface water from Kangsabati River.

Sir, we would like to intimate that as per the terms & conditions of above reference permission letter we had already submitted the vetted Memorandum of Understanding (MoU) based on the prescribe format given by your good office for your final approval vide our letter no. OASPL/KGP/Water/22-23/01, dt. 12.04.2022.

We shall be highly obliged if you kindly allow us to utilize the sanction water for both the holding company & subsidiary company of M/s Orissa Metaliks Pvt. Ltd. for smooth operation of Steel Plant along with Captive Power Plant at Kharagpur.

All the other terms & conditions of the MoU will be obeyed by holding company M/s Orissa Metaliks Pvt. Ltd.

We look forward to your kind co-operation and support in this matter.

Thanking you,

With warm Regards,

For M/s Orissa Metaliks Pvt Ltd

Authorized Signatory

Copy to-

Superintending Engineer, Western Circle-II
Irrigation & Waterways Directorate
Government of West Bengal
Station Road, P.O- Midnapore
District- Paschim Medinipur, Pin- 721 101

Received
For S. E. / W.C.-II
I. & W Directorate
23/06/22

Scheme For Integrated Water Distribution Network for Complete Industrial units of the Group at Kharagpur (L) Paschim Medinipur W.B.

(After having mutual consent between Individual units RML, OMPL, OMPL-I, OMPL-II, BCPL, OASPL, OMIPL)

Name of Organization	Project Detail	Water Requirement for EC & TOR awarded Project	Source of Water				R.W.H Pond
			Groundwater (after obtaining permission from SWID)	Nala/ Treated Waste Water	Surface water from Kansabati River		
					Direct	Kharagpur Municipality	
Orissa Metaliks Private Limited	SMS ,R. Mill & CPP	2,712 KLD	238 KLD	----	2,424 KLD	----	50 KLD
Orissa Metaliks Private Limited (Unit-I)	DRI with CPP	2,050 KLD	271 KLD**	----	1,640 KLD	----	139 KLD
Orissa Metaliks Private Limited (Unit-II)	I/O Benf. Pellet, MBF & PCM	1,603 KLD	660 KLD	200 KLD	436 KLD	452 KLD*	143 KLD
<i>Expansion Project -TOR Granted</i>		288 KLD					
Orissa Alloy Steel Private Limited	I.S.P with CPP	10,128 KLD	---	7,300 KLD for 365 days	1,500 KLD for 365 days	2,700 KLD for 365 days	300 KLD for 365 days
<i>Expansion Project- TOR Granted</i>		1,672 KLD					
Orissa Metallurgical Industry Pvt. Ltd.	I.S.P with CPP	12,000 KLD	---	---	13,200 KLD for 342 days	----	13,200 KLD for 23 days
<i>Expansion Project- TOR Granted</i>		1,200 KLD					
Rashmi Metaliks Limited	Mini Integrated Steel Plant	1,950 KLD	100 KLD**	800 KLD	953 KLD	----	102 KLD
<i>Expansion Project- TOR Granted</i>		05 KLD					
Bansal Cement Private Limited	Cement Grinding Unit	23 KLD	22 KLD	---	---	---	01 KLD
TOTAL		33,631 KLD	1,291 KLD	8,300 KLD	70,48,764 KLA	3,152 KLD	----
TOTAL WATER PERMISSION FROM AUTHORITY:		WITHDRAWAL FROM COMPETENT	4,347 KLD	8,300 KLD	70,48,764 KLA (4500 KLD @ 365 days + 22,248 KLD @ 243 days)	21,600 KLD	---
EXISTING PERCENTAGE DEPENDENCY ON SURFACE WATER/ WASTE WATER AFTER TREATMENT & R.W HARVESTING			---	96.2 %			

NOTE:

- 1. EXCESS WATER WITHDRAWAL PERMISSION (To Be Utilised For future expansion project).**
- 2. ** ULTIMATE DEPENDENCY ON GROUND WATER AFTER PHASING OUT GROUND WATER PARTIALLY IN PHASE MANNER BY YEAR 2024.**

FORMAT FOR PROVIDING PARTICULARS ON GREEN BELT / PLANTATION UNDER E(P) ACT 1986

1	a)	Name of the Project :	M/s. Orissa Metallurgical Industry Pvt. Ltd. – Expansion of Integrated Steel Plant (1.0 Million TPA To 2.0 Million TPA Finished Steel) With 385 MW Captive Power Plant by M/s. Orissa Metallurgical Industry Pvt. Ltd., located at Mouza – Amba, Mathurakismat, Ghoshalchak, Radhanagar, Serampurgia, Mollarchak, Katapole, Tarabamni And Dhularchak, Village –Gokulpur, P.O – Shyamraipur, P.S – Kharagpur (L) Dist. Paschim Medinipur, WestBengal		
	b)	Environment Clearance Nos. :	E.C. No. – IA – 11011/56/2017-IA-II (I) dated : 18.05.2021,03.08.2021 & 11.10.2022		
2	Location, Block/ Sub. Div./ Dist./ State:		Mouza - Amba, Mathurakismat, Radhanagar & Srirampurjia, Village - Gokulpur, P.O. - Shyamraipur, P.S. – Kharagpur(L), District - Paschim Medinipur, West Bengal		
3	Address for communication :		1, Garstin Place, Orbit House, 3rd Floor, Room No - 3B, Kilkata - 700 001		
4	Existing Vegetation in the area/ region :		Vacant Land		
	a)	Species (trees/shrubs/grasses/climbers)			
	b)	Major prevalent species of each type			
Land Coverage by the project					
5	a)	Total area under the project	147.71 Ha		
	b)	Area covered for basic infrastructure (roads/building/factory etc.)	Project is still in construction phase after obtaining valid NOC from WBPCB vide NOC no – 172028 dated 06.02.2023		
Details about natural vegetation			100 % Vacant Land		
6	a)	Name and number of tree/species failed	NA		
	b)	Name and number of plant species still available in the area	NA		
	c)	By protecting the area will indigenous stock come up	NA		
	d)	Extend of greenbelt developed	27.08 Ha (18.33%)		
Plantation required to be carried out as per					
7	a)	Conditions of Environmental Clearance in ha./Nos.	49.10 Ha (33.24%)		
	b)	Conditions for forest act (c) Clearance in ha./Nos.	NA		
	c)	Voluntary in no. for green belt development in nearby area	3000 nos.		
Details of Plantation					
8	a)	Plantation Details (Category wise & methodology used)	Year of Plantation	Species Planted	Quantity
			October 2022 to March 2023	Gulmohar	2572
				Kadam	1537
				Sonajhury/Hybrid Acacia	1567

FORMAT FOR PROVIDING PARTICULARS ON GREEN BELT / PLANTATION UNDER E(P) ACT 1986

				Tabobua rosea	445
				Yellow Oleander	487
				Nerium	502
				Chhatim	1033
				Paper Flower	52
				Foxtail Palm	25
				Neem	688
				Mehogany	640
				Siris	736
				Arjun	352
				Karanja	262
				Sissoo	256
				Jarul	133
				Bakul	151
				Gamar	163
				Simul	172
				Conocarpus	577
				Amloki	195
		Survival of Plantation		FY: 2021-22	FY: 2022-23
		Total seeding / Plantation (No.)		32,700	35,000
	b)	Survival Trees (No) as on date from date of EC		27,795	31,500
		Survival		85%	90%
9	Agency carrying out plantation and maintenance	Our own horticulture department & third party			
10	Financial details (year wise) plantation wise and item wise	Sl. No.	Year	Funds allocated (Rupees)	Expenditure made including tree plantation cost (Rupees)
		1	2022-2023	3,50,00,000	2,62,50,000

FORMAT FOR PROVIDING PARTICULARS ON GREEN BELT / PLANTATION UNDER E(P) ACT 1986



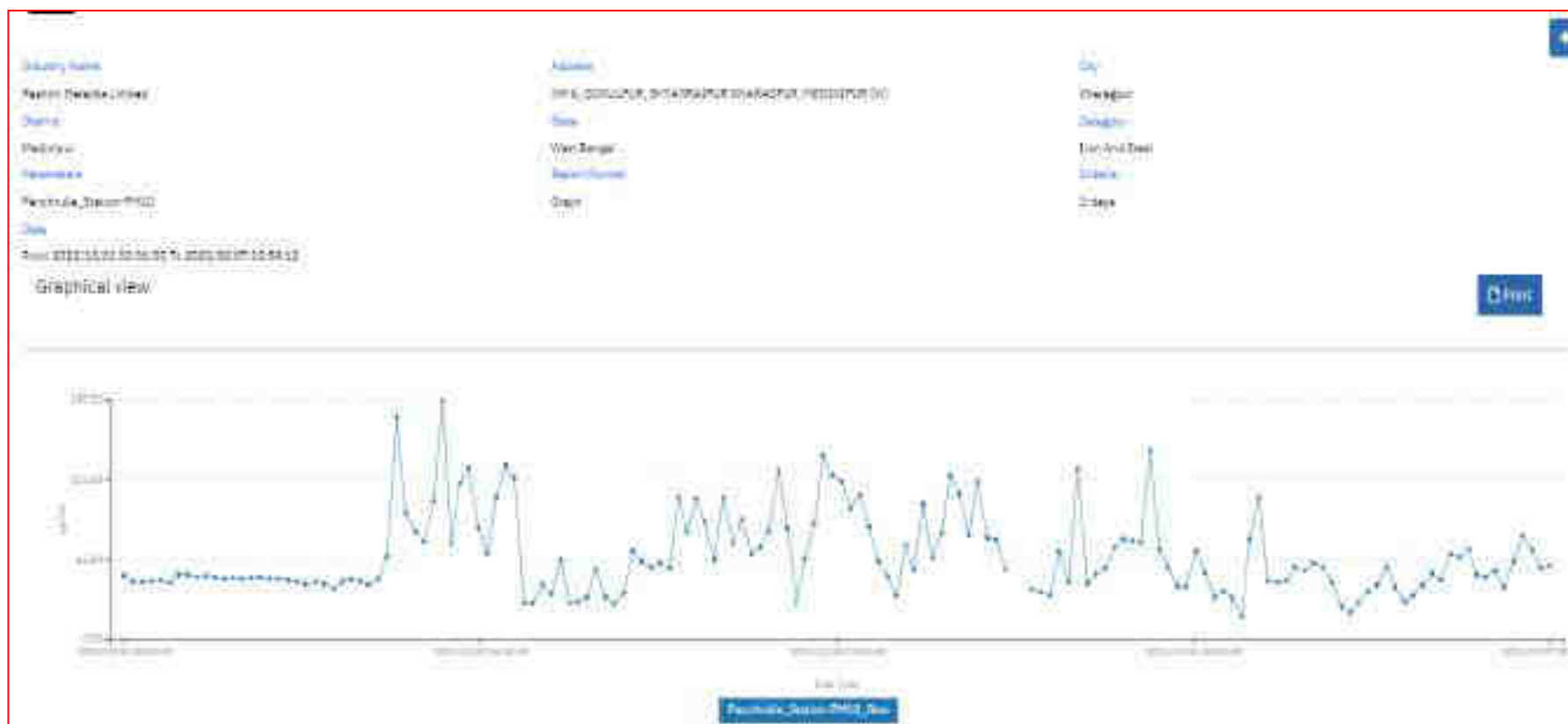
FORMAT FOR PROVIDING PARTICULARS ON GREEN BELT / PLANTATION UNDER E(P) ACT 1986



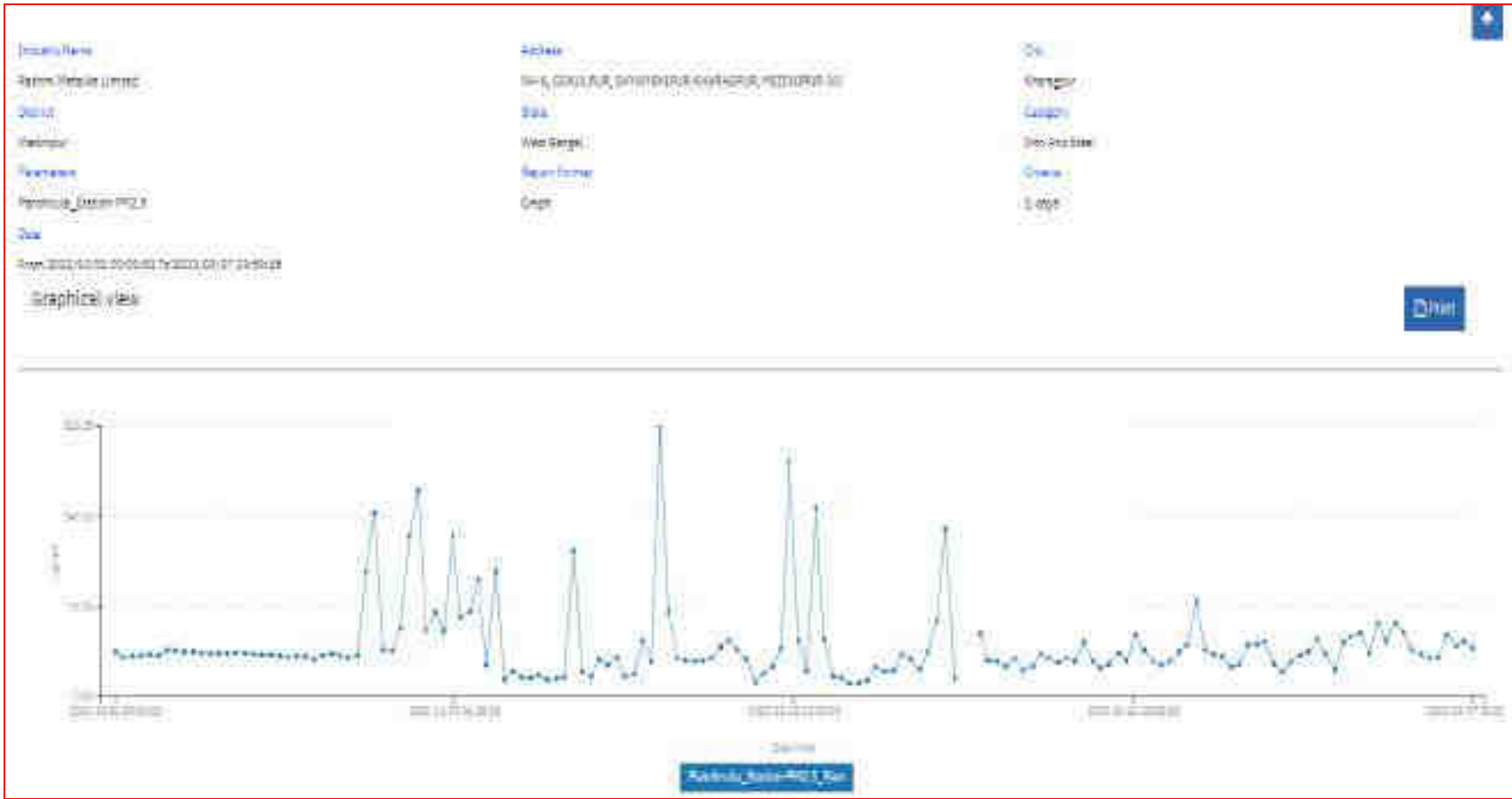
CONTINUOUS AMBIENT AIR QUALITY STATION DATA (OCTOBER 2022 TO MARCH 2023)

STATION : PANCHRULIA

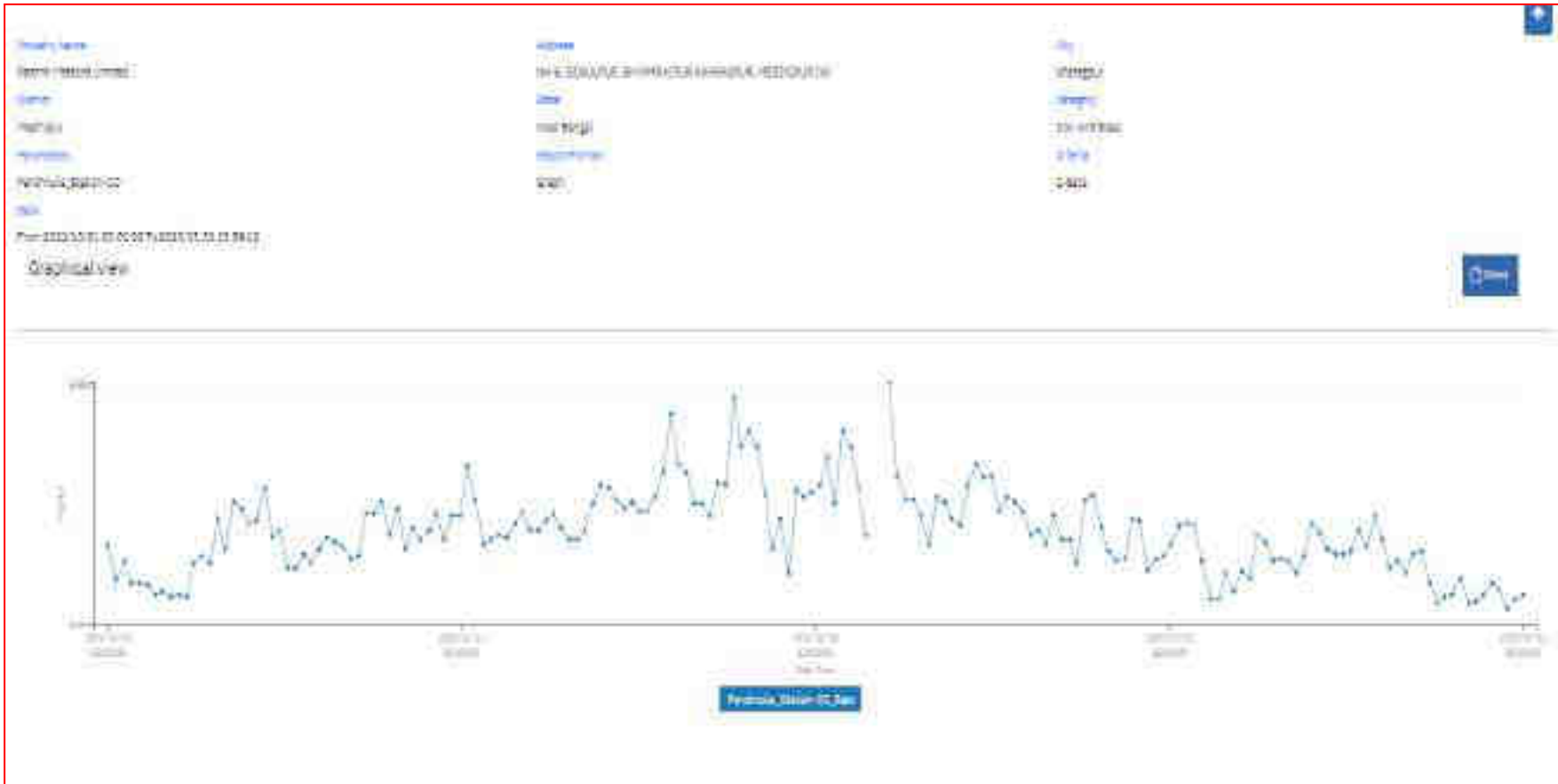
ANNEXURE-IV



PARAMETER-PM₁₀



PARAMETER-PM_{2.5}

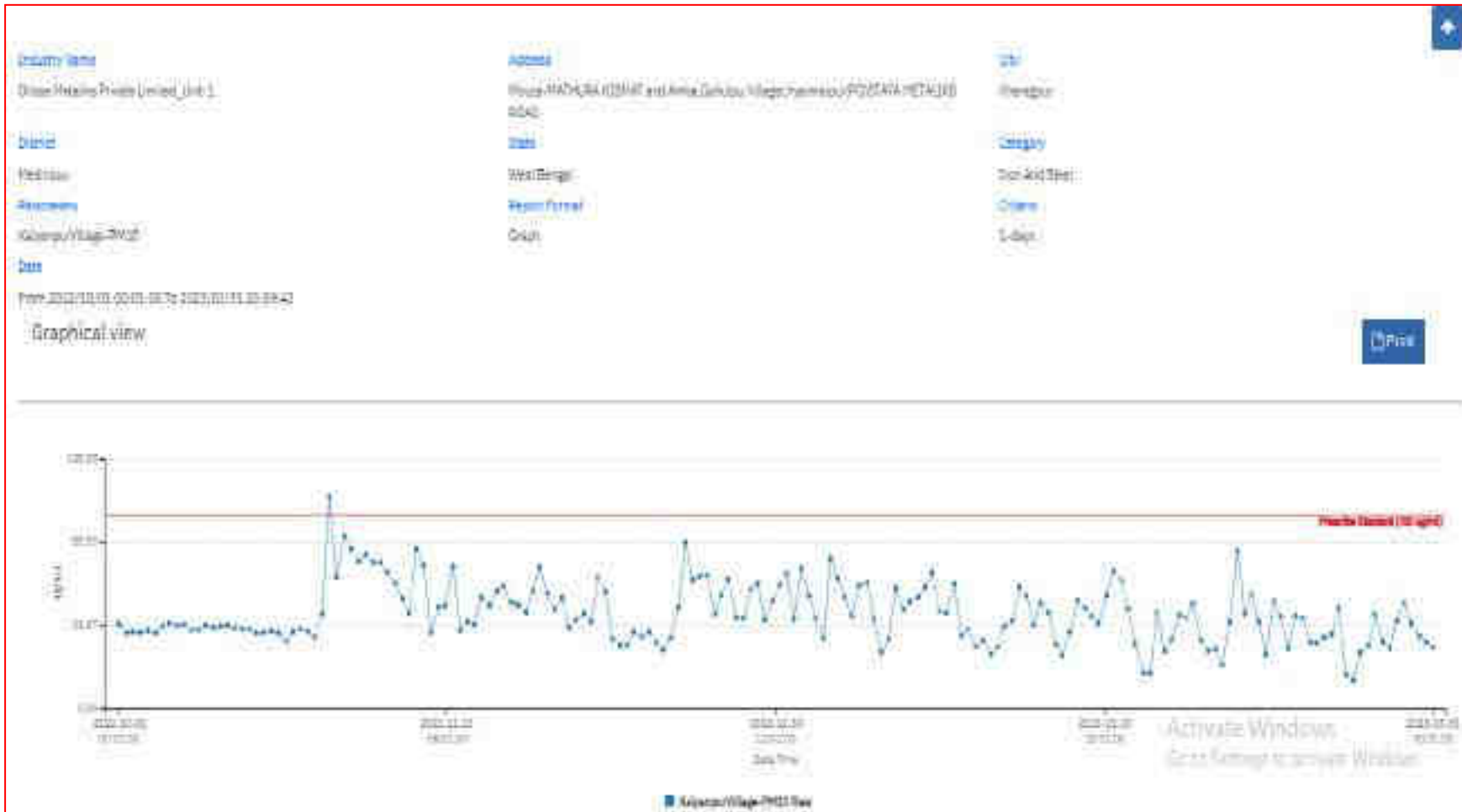


PARAMETER-CO

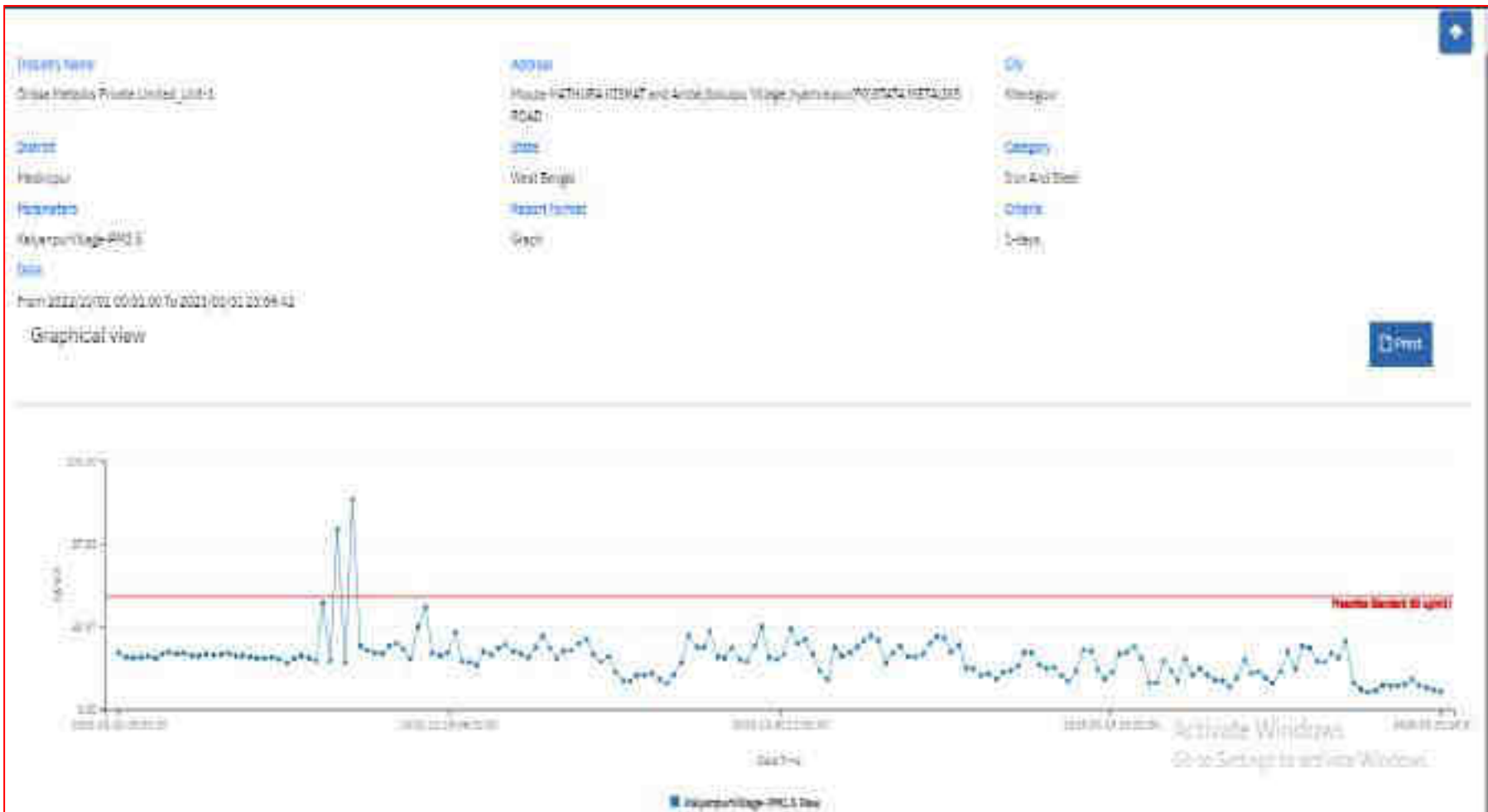


PARAMETER-SO₂

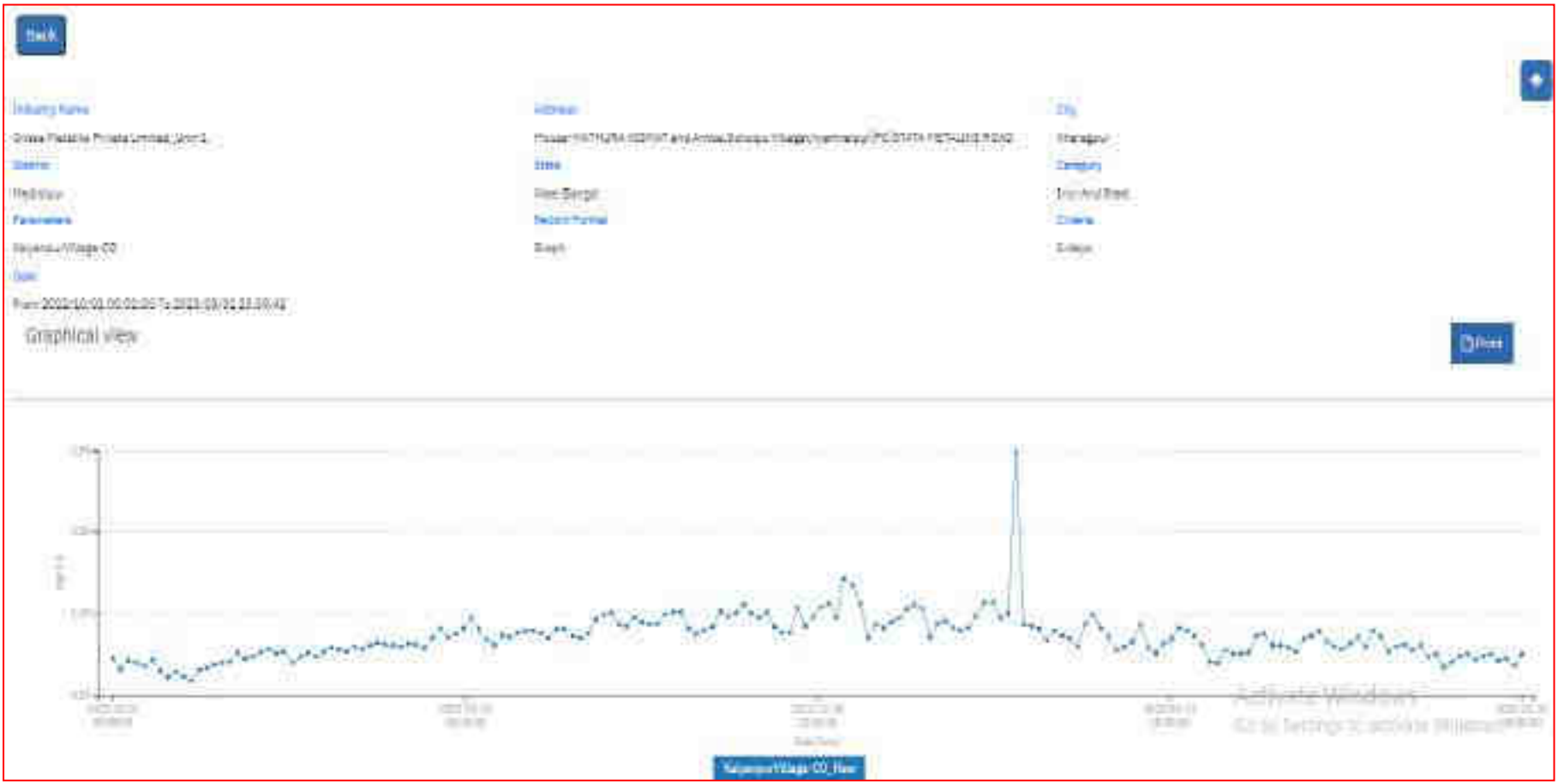
STATION:-KALYANPUR



PARAMETER-PM₁₀



PARAMETER-PM_{2.5}

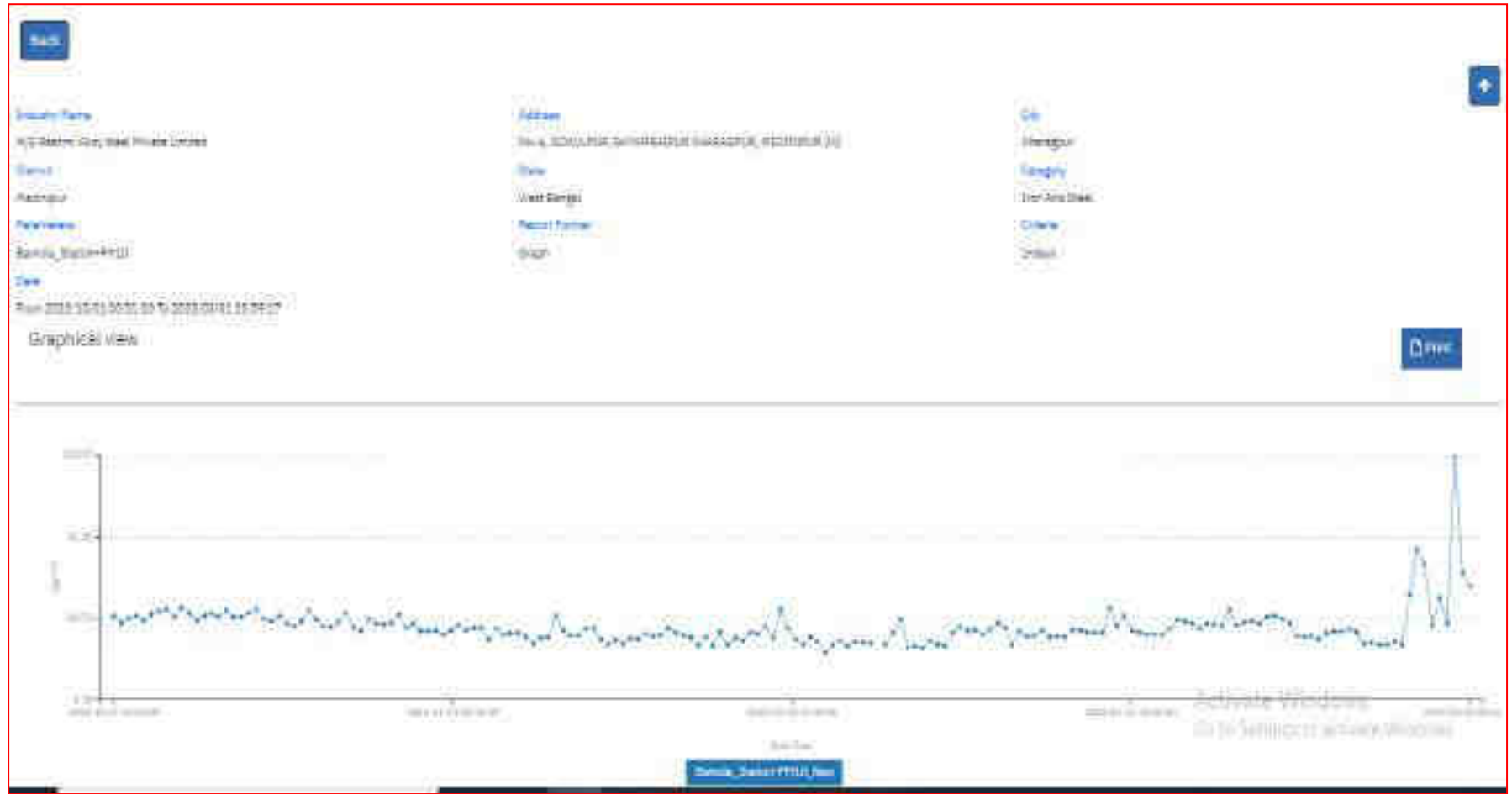


PARAMETER-CO

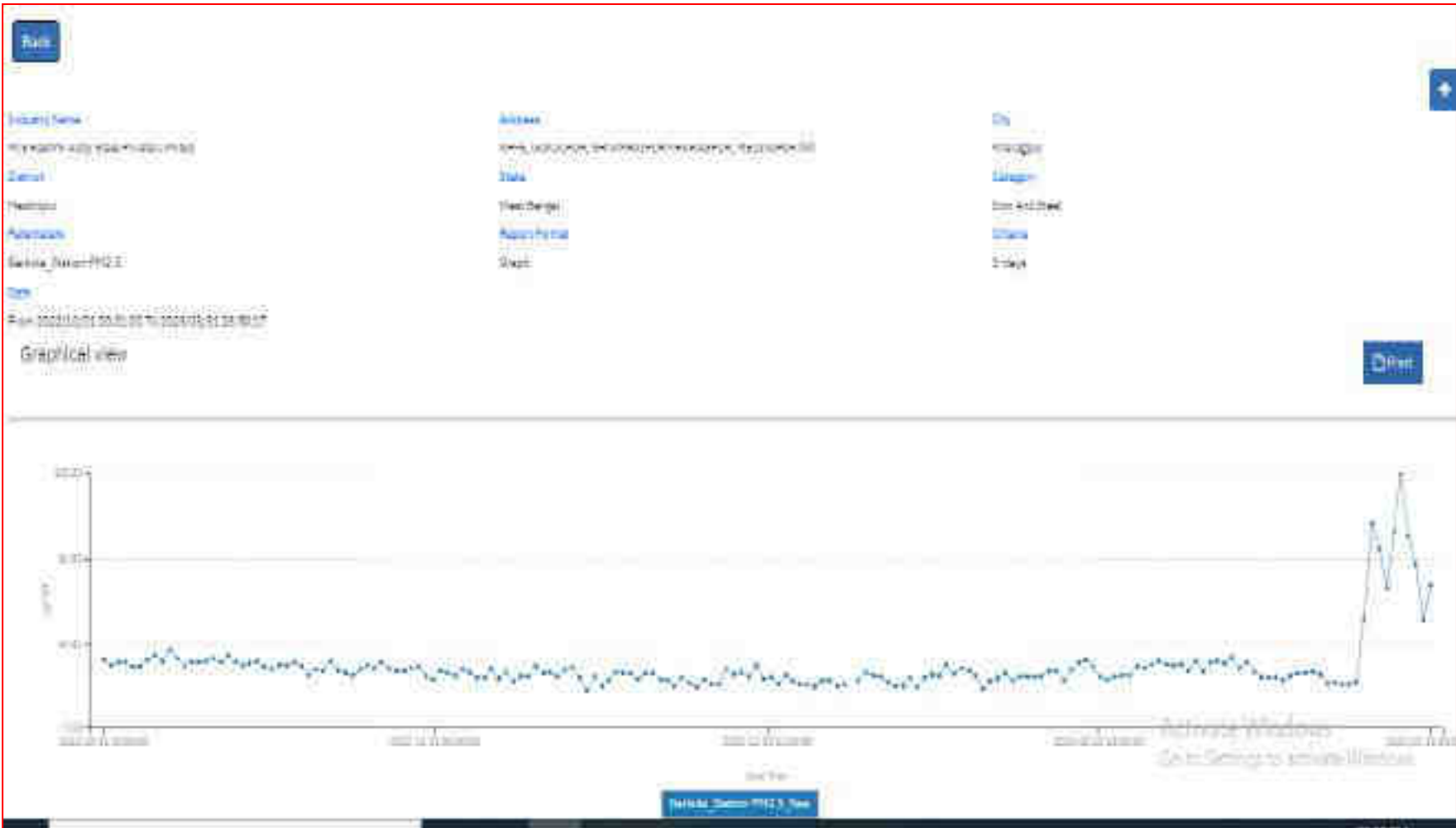


PARAMETER-NOx

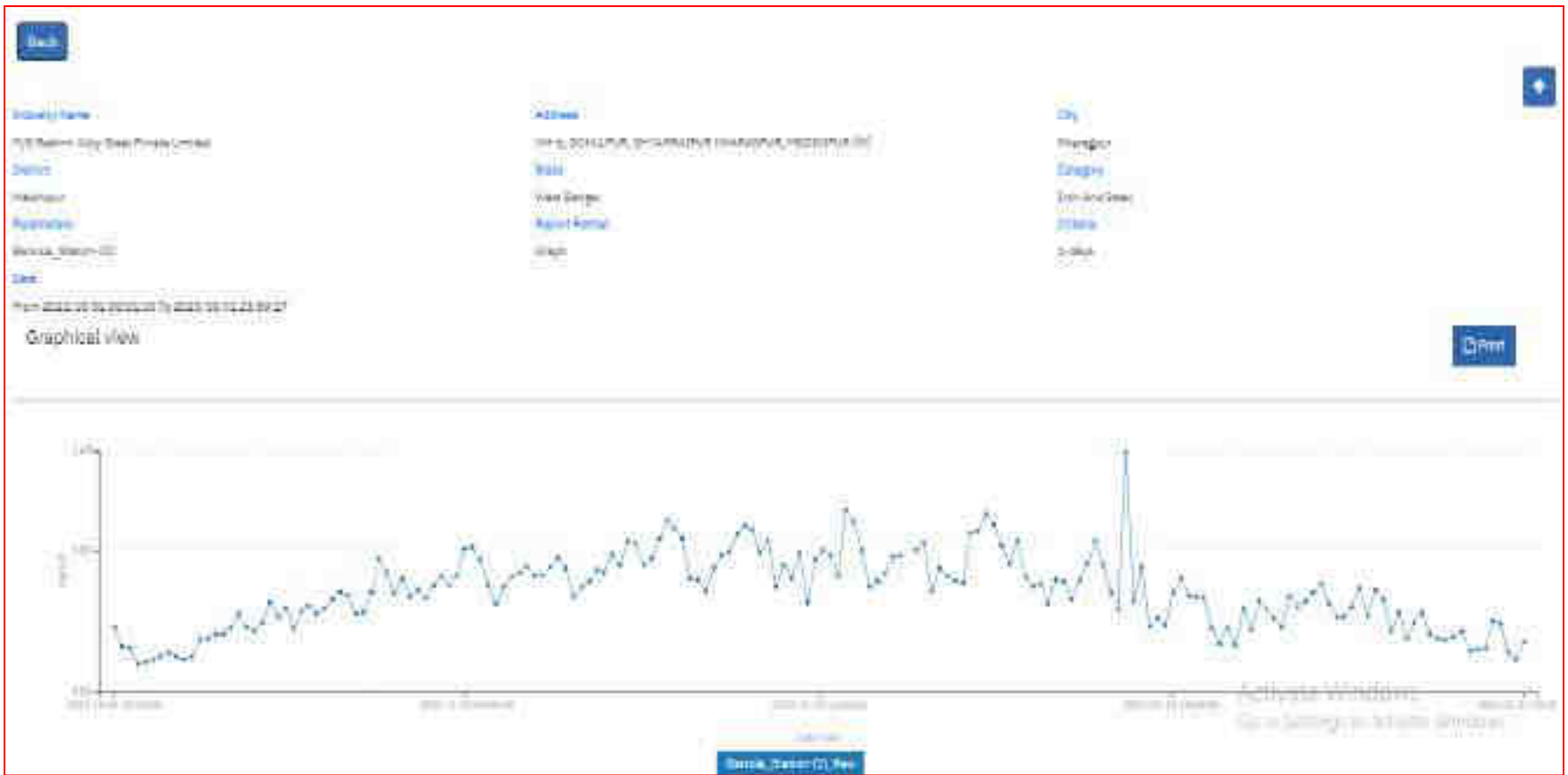
STATION : BARKOLA



PARAMETER-PM₁₀



PARAMETER-PM_{2.5}



PARAMETER-CO



PARAMETER-NOx

Back



Station Name

(S) Raman, Azy 2500, Prudh, Limited

Address

10th, SONGPUR, SONGPUR, RAIPUR, JHARKHAND

City

Raipur

Lat/Lon

Date

Category

Parameter

Lean Gasol

Open Air Data

Unit/Scale

Report Format

Online

Unit: Station SO2

Graph

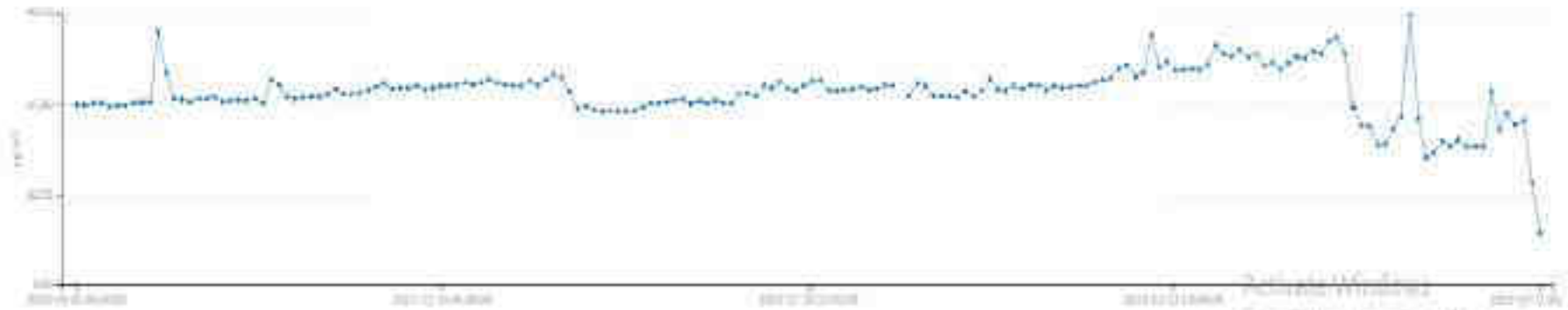
Upload

Map

from 2023/10/01 00:00:00 to 2023/10/01 23:59:57

Graphical view

Print



View Data

Station: Station SO2, View

Go to Settings to activate Webcam.

PARAMETER-SO2

Station: Rajogram

Industry Name

Orissa Alloy Steel Pvt Ltd

District

Nandigram

Parameter

Rajogram-PM10

Date

From 2022/12/15 00:00:00 To 2023/01/06 23:59:59

Address

W- Golugua,PG-Dharmapada,PS Khargpur (U) Dist Paschim Medinipur Dist
752105

State

West Bengal

Region Name

Orissa

City

Khargpur

Category

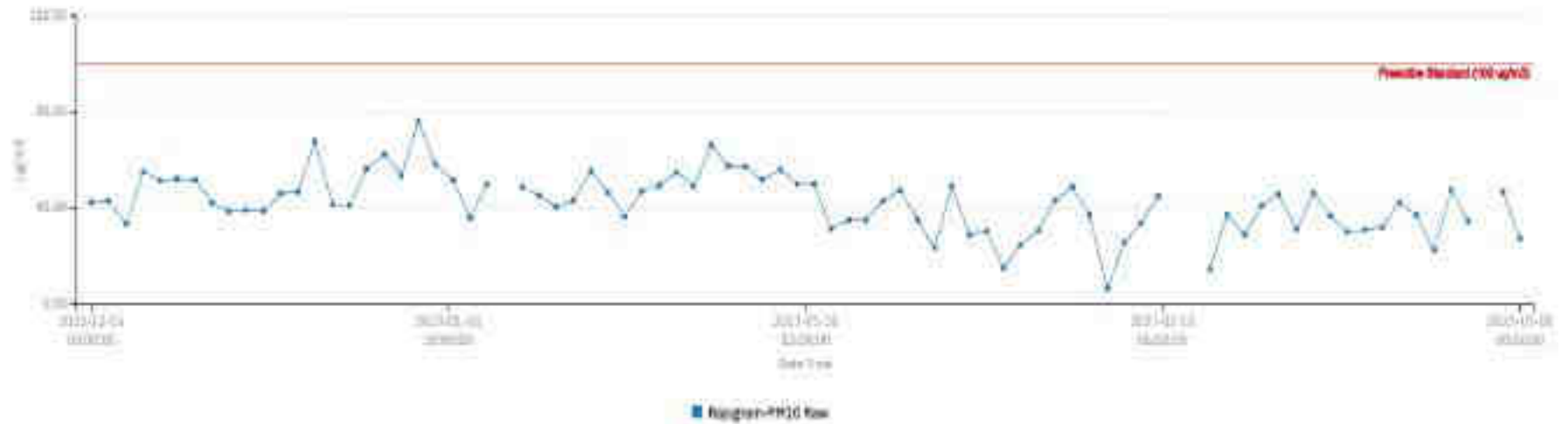
Iron And Steel

Criteria

24-Hour

Graphical view

Print



Parameter: PM10

Industry Name

Crissa Alloy Steel Pvt Ltd

Address

VII- Gokulpur, PO Bharamrapur, PS-Kharagpur, JJ Dist-Paschim Medinipur Pin-721301

City

Kharagpur

District

Medinipur

State

West Bengal

Category

Iron And Steel

Parameters

Parameter-PM2.5

Report Format

Graph

Criteria

1-day

Date

From 2022/12/15 00:00:00 To 2023/01/08 23:59:58

Graphical view



Parameter- PM2.5

Industry Name

Orissa Alloy Steel Pvt Ltd

Address

VII- Sekulac PO, Dhenwadipatna-Kharagpur (J) Dist- Badaim Medinipur Pin- 752311.

City

Kharagpur

District

Medinipur

State

West Bengal

Category

Iron And Steel

Parameter

Reagan-SO2

Report Format

Graph

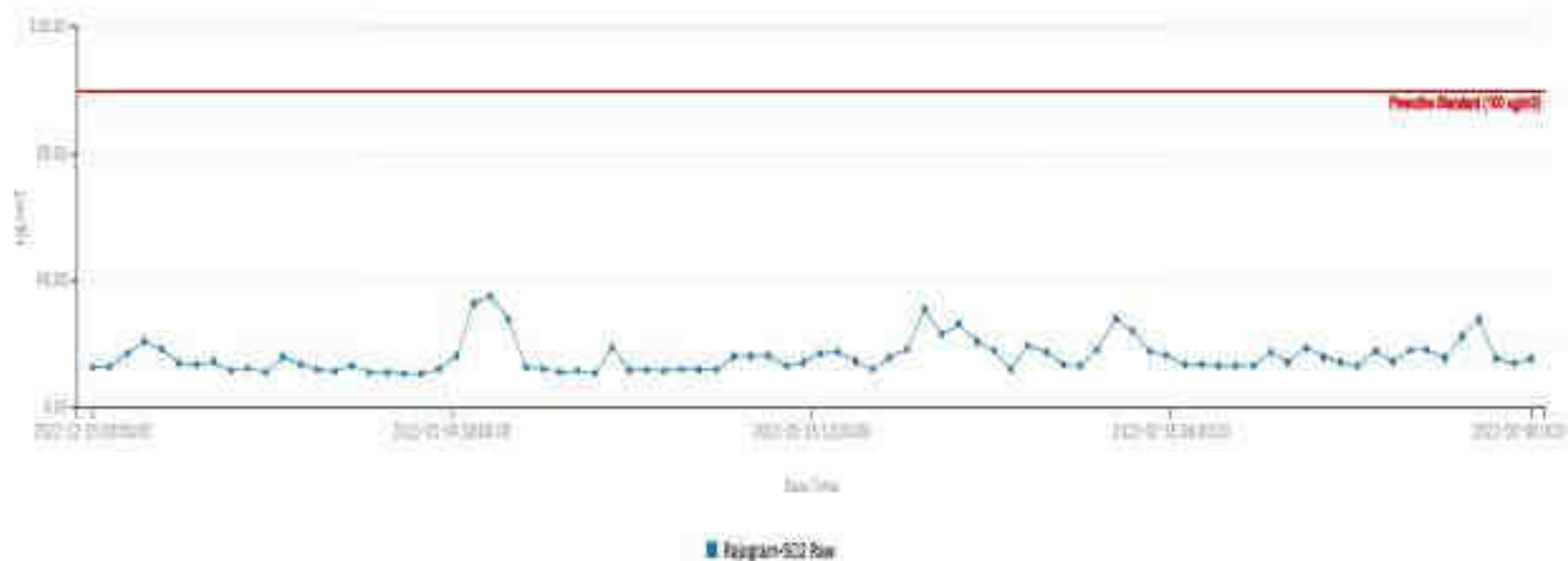
Circle

1-day

Date

From 2022/12/14 00:00:00 To 2023/03/08 23:59:59

Graphical view



Parameter- SO2

Industry Name

Grupa Alcoa Steel Pvt Ltd

Address

W1-Delkrapu-PO-Srangipura-PO-Klangpur II-Dist-Paschim Medani-Po-723101

City

Klangpur

District

Paschim

State

West Bengal

Category

Iron And Steel

Parameter

Range-NOx

Report Format

Graph

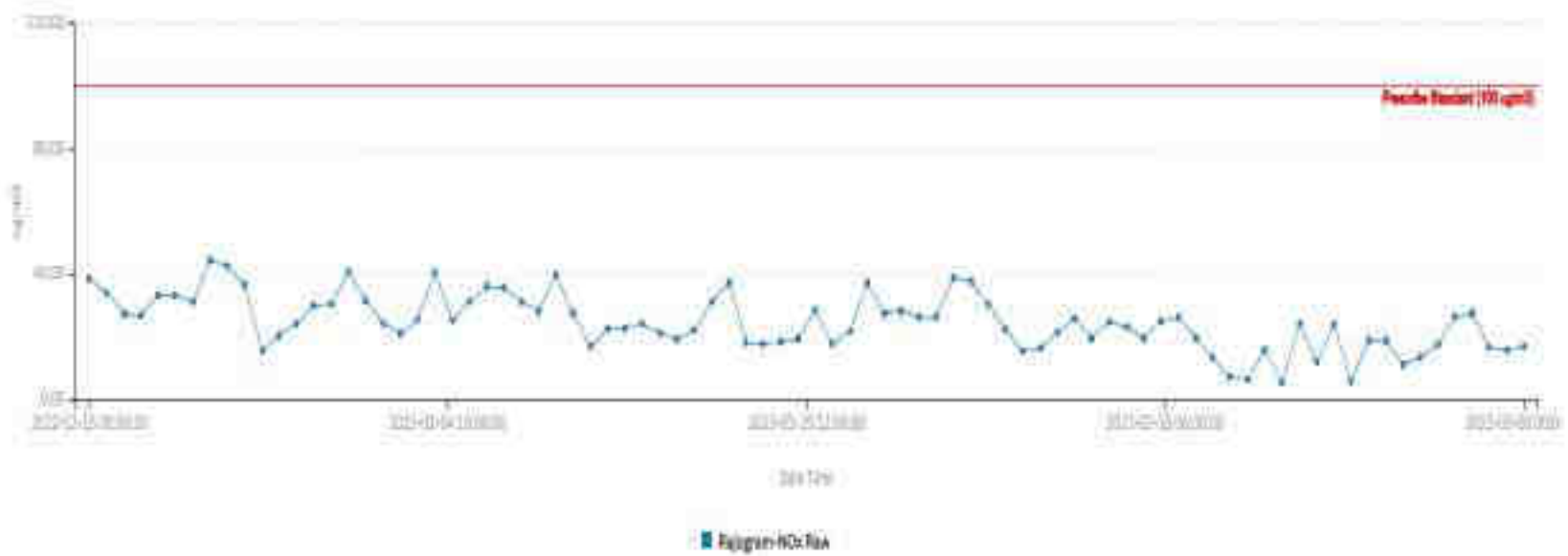
Unit

1-ann

Unit

From: 2022-12-15 00:00:00 To: 2023-03-08 23:59:59

Graphical view



Parameter- NOx

Industry Name

Omni Alloy Steel Pvt Ltd

Address

W: Sakolpur/75 Shivamipur/75 Kharsga & D/o Padim Madhau Fir
751303

City

Wardha

District

Medhapur

Date

Wed 8/2/2023

Category

Iron And Steel

Parameters

Parameter CO

Input Format

Graph

View

3-day

Date

From 2022/12/15 00:00:00 To 2023/02/08 23:59:59

Graphical view



Parameter- CO



DOC NO : QLS/SAMP/08-A/00

TEST REPORT

Name & Address Of the Customer : M/s. Orissa Metallurgical Industry Pvt. Ltd. Mouza- Amba, Mathurakismat, Radhanagar & Srirampurja, Vill- Gokulpur, P.O- Shyamraipur, P.S- Kharagpur (L), Paschim Medinipur, West Bengal.	Report No.	: QLS/P-34/22-23/C/01
	Date	: 04.04.2023
	Sample No.	: QLS/P-34/22-23/01
	Sample Description	: Ambient Air
	Date of performance	: 27.03.2023-04.04.2023
	Ref No.	: OMIPL/QUALISSURE/WO/22-23/01
Date	: 06.03.2023	

Analysis Result

Location : Near Plant Main Gate		Date of sampling : 22-23.03.2023		
Sampling Done by: P.Mandal		Sampling done as per : CPCB Guidelines (Volume-1)		
Environmental Condition : Clear & Sunny				
Sl. No.	Pollutants	Result	LIMIT	Method of Test Reference
1	Particulate matter (<10µm) in µg/m ³	77	100	IS: 5182 (Part-23)-(RA-2017)
2	Particulate matter (<2.5µm) in µg/m ³	40	60	USEPA CFR-40,Part-50, Appendix-L
3	Sulphur dioxide (SO ₂) in µg/m ³	9.1	80	IS: 5182 (Part-2)-2001, (RA-2017)
4	Nitrogen dioxide (NO ₂) in µg/m ³	29.5	80	IS: 5182 (Part- 6)- (RA-2017)
5	Carbon Monoxide (CO) in µg/m ³	721	2000	IS: 5182 (Part- 10)- (RA-2017)
NOTE: Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality.				

Report Prepared By:

for Qualissure Laboratory Services
Reviewed & Authorized By

Benimadhab Goral, Chemist
(Authorized Signatory)

—End of the Report—

- The results relate only to the item(s) tested.
- This Test Report shall not be reproduced without the permission of Qualissure Laboratory Services.
- The reserved part of sample(s), except perishable sample(s), shall be retained for 30 days from the date of issue of the Test Report.



TEST REPORT

Name & Address Of the Customer : M/s. Orissa Metallurgical Industry Pvt. Ltd. Mouza- Amba, Mathurakismat, Radhanagar & Srirampurja, Vill- Gokulpur, P.O- Shyamraipur, P.S- Kharagpur (I), Paschim Medinipur, West Bengal.	Report No. : QLS/P-34/22-23/C/02 Date : 04.04.2023 Sample No. : QLS/P-34/22-23/02 Sample Description : Ambient Air Date of performance : 27.03.2023-04.04.2023 Ref No. : OMIPL/QUALISSURE/WO/22-23/01 Date : 06.03.2023
---	--

Analysis Result

Location : Radhanagar Village		Date of sampling : 22-23.03.2023		
Sampling Done by: P.Mandal		Sampling done as per : CPCB Guidelines (Volume-1)		
Environmental Condition : Clear & Sunny				
Sl. No.	Pollutants	Result	LIMIT	Method of Test Reference
1	Particulate matter (<10 μ m) in μ g/m ³	69	100	IS: 5182 (Part-23)-(RA-2017)
2	Particulate matter (<2.5 μ m) in μ g/m ³	35	60	USEPA CFR-40,Part-50, Appendix-L
3	Sulphur dioxide (SO ₂) in μ g/m ³	6.6	80	IS: 5182 (Part-2)-2001, (RA-2017)
4	Nitrogen dioxide (NO ₂) in μ g/m ³	28.2	80	IS: 5182 (Part- 6)-(RA-2017)
5	Carbon Monoxide (CO) in μ g/m ³	892	2000	IS: 5182 (Part- 10)-(RA-2017)
NOTE: Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality.				

Report Prepared By:

P. Mandal

for Qualissure Laboratory Services

Reviewed & Authorized By



Benimadhab Goral, Chemist
(Authorized Signatory)

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TEST REPORT

Name & Address Of the Customer : M/s. Orissa Metallurgical Industry Pvt. Ltd. Mouza- Amba, Mathurakismat, Radhanagar & Srirampurja, Vill- Gokulpur, P.O- Shyamraipur, P.S- Kharagpur (I), Paschim Medinipur, West Bengal.	Report No.	: QLS/P-34/22-23/C/03
	Date	: 04.04.2023
	Sample No.	: QLS/P-34/22-23/03
	Sample Description	: Ambient Air
	Date of performance	: 27.03.2023-04.04.2023
	Ref No.	: OMIPL/QUALISSURE/WO/22-23/01
Date	: 06.03.2023	

Analysis Result

Location : Kantapal Village		Date of sampling : 22-23.03.2023		
Sampling Done by: P.Mandal		Sampling done as per : CPCB Guidelines (Volume-1)		
Environmental Condition : Clear & Sunny				
Sl. No.	Pollutants	Result	LIMIT	Method of Test Reference
1	Particulate matter (<10µm) in µg/m ³	71	100	IS: 5182 (Part-23)-(RA-2017)
2	Particulate matter (<2.5µm) in µg/m ³	38	60	USEPA CFR-40,Part-50, Appendix-L
3	Sulphur dioxide (SO ₂) in µg/m ³	7.0	80	IS: 5182 (Part-2)-2001, (RA-2017)
4	Nitrogen dioxide (NO ₂) in µg/m ³	27.4	80	IS: 5182 (Part- 6)-(RA-2017)
5	Carbon Monoxide (CO) in µg/m ³	972	2000	IS: 5182 (Part- 10)- (RA-2017)
NOTE: Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality.				

Report Prepared By:

[Signature]

for Qualissure Laboratory Services
 Reviewed & Authorized By



[Signature]
 Benimadhab Gorai, Chemist
 (Authorized Signatory)

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TEST REPORT

Name & Address Of the Customer : M/s. Orissa Metallurgical Industry Pvt. Ltd. Mouza- Amba, Mathurakismat, Radhanagar & Srirampurjia, Vill- Gokulpur, P.O- Shyamraipur, P.S- Kharagpur (I), Paschim Medinipur, West Bengal.	Report No.	: QLS/P-34/22-23/C/04
	Date	: 04.04.2023
	Sample No.	: QLS/P-34/22-23/04
	Sample Description	: Ambient Air
	Date of performance	: 27.03.2023-04.04.2023
	Ref No.	: OMIPL/QUALISSURE/WO/22-23/01
	Date	: 06.03.2023

Analysis Result

Location : Berapara Village		Date of sampling : 22-23.03.2023		
Sampling Done by: P.Mandal		Sampling done as per : CPCB Guidelines (Volume-1)		
Environmental Condition : Clear & Sunny				
Sl. No.	Pollutants	Result	LIMIT	Method of Test Reference
1	Particulate matter (<10 μ m) in μ g/m ³	65	100	IS: 5182 (Part-23)-(RA-2017)
2	Particulate matter (<2.5 μ m) in μ g/m ³	34	60	USEPA CFR-40,Part-50, Appendix-L
3	Sulphur dioxide (SO ₂) in μ g/m ³	6.4	80	IS: 5182 (Part-2)-2001, (RA-2017)
4	Nitrogen dioxide (NO ₂) in μ g/m ³	28.8	80	IS: 5182 (Part-6)- (RA-2017)
5	Carbon Monoxide (CO) in μ g/m ³	995	2000	IS: 5182 (Part-10)- (RA-2017)
NOTE: Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality.				

Report Prepared By:

P. Mandal

For Qualissure Laboratory Services

Reviewed & Authorized By



Benimadhab Gorai, Chemist
(Authorized Signatory)

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DOC NO : QLS/SAMP/08-A/00

TEST REPORT

Name & Address Of the Customer : M/s. Orissa Metallurgical Industry Pvt. Ltd. Mouza- Amba, Mathurakismat, Radhanagar & Srirampurja, VIII- Gokulpur, P.O- Shyamraipur, P.S- Kharagpur (I), Paschim Medinipur, West Bengal.	Report No.	: QLS/P-34/22-23/C/05
	Date	: 04.04 2023
	Sample No.	: QLS/P-34/22-23/05-06
	Sample Description	: Fugitive Air
	Date of performance	: 27.03 2023-04.04 2023
	Ref No.	: CMPL/QUALISSURE/WO/22-23/01
Date	: 06.03 2023	

Analysis Result of Fugitive Air

Sampling Done by: P.Mahato			
Environmental Condition : Clear & Sunny			
Sampling done as per : CPCB Guidelines (Volume-1)			
Sample No.	Location	Date of Sampling	Total Suspended Particulate Matter in $\mu\text{g}/\text{m}^3$
05	DRM & CPP Construction Site	22.03.2023	383
06	Water Reservoir Area		146
NOTE: Fugitive emission Standard - $4000 \mu\text{g}/\text{m}^3$ as per Environment (Protection) rules, 1986			

Report Prepared By:

for Qualissure Laboratory Services

Reviewed & Authorized By



Benimadhab Goral, Chemist

(Authorized Signatory)

-----End of the Report-----

- The results relate only to the item(s) tested.
- This Test Report shall not be reproduced without the permission of Qualissure Laboratory Services.
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TEST REPORT

Name & Address Of the Customer :	ULR No.	: TC677123000000574F
	Report No.	: QLS/P-34/22-23/C/08
M/s. Orissa Metallurgical Industry Pvt. Ltd.	Date	: 06.05.2023
	Sample No.	: QLS/P-34/22-23/08
Mouza- Amba, Mathurakismat, Radhanagar & Sritampurja, Vill- Gokulpur, P.O- Shyamraipur, P.S- Kharappur (L), Paschim Medinipur, West Bengal.	Sample Description	: Ground Water
	Sample Mark	: Gokulpur Village
	Sample Drawn On	: 22.03.2023
	Date of performance	: 22.03.2023-27.03.2023
	Ref No. Date	: M122358540, Dated. 27.09.2022

Analysis Result

(A) Microbiological Analysis

Sl. No.	Characteristic	Limit as per IS 10500:2012 Amd. 2	Test Method	Result
1.	Total Coliform Bacteria/100ml	Not Detectable	IS 15185-2016	Not Detected
2.	E. coli/100ml	Not Detectable	IS 15185-2016	Not Detected

(B) Chemical Analysis

Sl. No.	Test Parameter	Test Method	IS 10500:2012 Amd. No. 1 & 2		Result
			Acceptable Limit	Permissible Limit	
1.	Colour in Hazen Units	IS 3025 (Part 4): 1983 (RA 2012)	5	15	<5
2.	Odour	IS 3025 (Part 5): 1983 (RA 2012)	Agreeable	Agreeable	Agreeable
3.	pH Value at 25°C	IS 3025 (Part 11): 1984 (RA 2012)	6.5-8.5	No Relaxation	7.87
4.	Turbidity in NTU	IS 3025 (Part 10): 1984 (RA 2012)	1	5	<1.0
5.	Total Dissolved Solids (as TDS) in mg/l	IS 3025 (Part 16): 1984 (RA 2012)	500	2000	426
6.	Aluminium (as Al) in mg/l	IS 3025 (Part 55): 2003 (RA 2014)	0.05	0.2	<0.01
7.	Ammonia (as NH ₃) in mg/l	IS 3025 (Part 34): 1988(RA 2014)	0.5	No Relaxation	<0.5
8.	Calcium (as Ca) in mg/l	IS 3025 (Part 40): 1991(RA 2014)	75	200	72.2
9.	Chloride (as Cl) in mg/l	IS 3025 (Part 32): 1984 (RA 2014)	250	1000	97.3
10.	Copper (as Cu) in mg/l	IS 3025 (Part 42): 1992(RA 2014)	0.05	1.5	<0.02
11.	Fluoride (as F) in mg/l	APHA 23rd Edition 2017, 4520 F D	1.0	1.5	<0.1
12.	Free Residual Chlorine in mg/l	IS 3025 (Part 26): 1986(RA 2014)	0.2	1.0	<0.1
13.	Iron (as Fe) in mg/l	IS 3025 (Part 52): 1998(RA 2014)	1.0	No Relaxation	0.54
14.	Magnesium (as Mg) in mg/l	IS 3025 (Part 46): 1994(RA 2014)	30	100	37.9
15.	Manganese (as Mn) in mg/l	IS 3025 (Part 59): 2006 (RA 2014)	0.1	0.3	<0.05
16.	Nitrate (as NO ₃) in mg/l	IS 3025 (Part 34): 1988(RA 2014)	45	No Relaxation	0.97
17.	Sulphate (as SO ₄) in mg/l	IS 3025 (Part 24): 1986 (RA 2014)	200	400	41.2
18.	Alkalinity (as CaCO ₃) in mg/l	IS 3025 (Part 23): 1986(RA 2014)	200	600	286.0
19.	Total Hardness (as CaCO ₃) in mg/l	IS 3025 (Part 21): 2013	200	600	338.4
20.	Cadmium (as Cd) in mg/l	IS 3025 (Part 41): 1992(RA 2014)	0.005	No Relaxation	<0.002
21.	Cyanide (as Cn) in mg/l	IS 3025 (Part 27): 1986(RA 2014)	0.05	No Relaxation	<0.02
22.	Lead (as Pb) in mg/l	IS 3025 (Part 47): 1994 (RA 2014)	0.01	No Relaxation	<0.01
23.	Mercury (as Hg) in mg/l	IS 3025 (Part 48): 1994(RA 2014)	0.001	No Relaxation	<0.001
24.	Arsenic (as As) in mg/l	IS 3025 (Part 37): 1988 (RA 2014)	0.01	No Relaxation	<0.01
25.	Zinc (as Zn) in mg/l	IS 3025 (Part 49): 1994 (RA 2014)	5	15	0.32
26.	Total Chromium (as Cr) in mg/l	IS 3025 (Part 52): 2014 (RA 2014)	0.05	No Relaxation	<0.05

Report Prepared By:

 for Qualissure Laboratory Services
 Reviewed & Authorized By

 Soumya Chakraborty, Microbiologist
 (Authorized Signatory)

 for Qualissure Laboratory Services
 Reviewed & Authorized By

 Bishnu Priya Banerjee, Chemist
 (Authorized Signatory)

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TEST REPORT

Name & Address Of the Customer : M/s. Orissa Metallurgical Industry Pvt. Ltd. Moura- Amba, Mathurakismat, Radhanagar & Srirampurjia, VIII- Gokulpur, P.O- Shyamraipur, P.S- Kharagpur (L), Paschim Medinipur, West Bengal.	ULR No.	: TC627123000000575F
	Report No.	: QLS/P-34/22-23/C/09
	Date	: 06.05.2023
	Sample No.	: QLS/P-34/22-23/09
	Sample Description	: Ground Water
	Sample Mark	: Latibpur Village
	Sample Drawn On	: 22.03.2023
	Date of performance	: 22.03.2023-27.03.2023
	Ref No. Date	: M122368540, Dated. 27.09.2022

Analysis Result

(A) Microbiological Analysis

Sl. No.	Characteristic	Limit as per IS 10500: 2012 Amd. 2	Test Method	Result
1.	Total Coliform Bacteria/100ml	Not Detectable	IS 15385-2016	Not Detected
2.	E. coli/100ml	Not Detectable	IS 15385-2016	Not Detected

(B) Chemical Analysis

Sl. No.	Test Parameter	Test Method	IS 10500:2012 Amd. No. 1 & 2		Result
			Acceptable Limit	Permissible Limit	
1.	Colour in Hazen Units	IS 3025 (Part 4): 1983 (RA 2012)	5	15	<5
2.	Odour	IS 3025 (Part 5): 1983 (RA 2012)	Agreeable	Agreeable	Agreeable
3.	pH Value at 25°C	IS 3025 (Part 11): 1984 (RA 2012)	6.5-8.5	No Relaxation	7.48
4.	Turbidity in NTU	IS 3025 (Part 10): 1984 (RA 2012)	1	5	<1.0
5.	Total Dissolved Solids (as TDS) in mg/l	IS 3025 (Part 16): 1984 (RA 2012)	500	2000	390
6.	Aluminium (as Al) in mg/l	IS 3025 (Part 55): 2003 (RA 2014)	0.02	0.3	<0.01
7.	Ammonia as NH ₃ in mg/l	IS 3025 (Part 34): 1988 (RA 2014)	0.5	No Relaxation	<0.5
8.	Calcium (as Ca) in mg/l	IS 3025 (Part 40): 1991 (RA 2014)	75	200	69.2
9.	Chloride (as Cl) in mg/l	IS 3025 (Part 32): 1988 (RA 2014)	250	1000	87.2
10.	Copper (as Cu) in mg/l	IS 3025 (Part 42): 1992 (RA 2014)	0.05	1.5	<0.02
11.	Fluoride (as F) in mg/l	APHA 23rd Edition 2017, 4500 F D	1.0	1.5	<0.1
12.	Free Residual Chlorine in mg/l	IS 3025 (Part 36): 1986 (RA 2014)	0.2	1.0	<0.1
13.	Iron (as Fe) in mg/l	IS 3025 (Part 53): 1988 (RA 2014)	1.0	No Relaxation	0.49
14.	Magnesium (as Mg) in mg/l	IS 3025 (Part 46): 1994 (RA 2014)	30	100	37.0
15.	Manganese (as Mn) in mg/l	IS 3025 (Part 50): 2006 (RA 2014)	0.1	0.3	<0.05
16.	Nitrate (as NO ₃) in mg/l	IS 3025 (Part 34): 1988 (RA 2014)	45	No Relaxation	0.87
17.	Sulphate (as SO ₄) in mg/l	IS 3025 (Part 34): 1988 (RA 2014)	200	400	35.4
18.	Alkalinity (as CaCO ₃) in mg/l	IS 3025 (Part 25): 1986 (RA 2014)	200	600	264.0
19.	Total Hardness (as CaCO ₃) in mg/l	IS 3025 (Part 21): 2013	200	600	327.1
20.	Cadmium (as Cd) in mg/l	IS 3025 (Part 41): 1992 (RA 2014)	0.001	No Relaxation	<0.002
21.	Cyanide (as Co) in mg/l	IS 3025 (Part 27): 1986 (RA 2014)	0.05	No Relaxation	<0.02
22.	Lead (as Pb) in mg/l	IS 3025 (Part 47): 1994 (RA 2014)	0.01	No Relaxation	<0.03
23.	Mercury (as Hg) in mg/l	IS 3025 (Part 48): 1994 (RA 2014)	0.001	No Relaxation	<0.001
24.	Arsenic (as As) in mg/l	IS 3025 (Part 37): 1988 (RA 2014)	0.01	No Relaxation	<0.01
25.	Zinc (as Zn) in mg/l	IS 3025 (Part 49): 1994 (RA 2014)	5	15	0.27
26.	Total Chromium (as Cr) in mg/l	IS 3025 (Part 52): 2014 (RA 2014)	0.05	No Relaxation	<0.05

Report Prepared By:

Signature

for Qualissure Laboratory Services
Reviewed & Authorized By



Soumya Chakraborty
Soumya Chakraborty, Microbiologist
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Reviewed & Authorized By



Bishnu Priya Banerjee
Bishnu Priya Banerjee, Chemist
(Authorized Signatory)

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TEST REPORT

Name & Address Of the Customer :	ULR No.	: TC627123000000576F
	Report No.	: QLS/P-34/22-23/C/10
M/s. Orissa Metallurgical Industry Pvt. Ltd.	Date	: 06.05.2023
	Sample No.	: QLS/P-34/22-23/10
Mouza- Amba, Mathurakismat, Radhanagar & Srinampurja, VIII- Gokulpur, P.O- Shyamraipur, P.S- Kharagpur (L), Paschim Medinipur, West Bengal.	Sample Description	: Ground Water
	Sample Mark	: Dhekia Village
	Sample Drawn On	: 22.03.2023
	Date of performance	: 22.03.2023-27.03.2023
	Ref No. Date	: M122368540, Dated, 27.09.2022

Analysis Result

(A) Microbiological Analysis

Sl. No.	Characteristic	Limit as per IS 10500: 2012 Amd. 2	Test Method	Result
1.	Total Coliform Bacteria/100ml	Not Detectable	IS 15185-2016	Not Detected
2.	E. coli/100ml	Not Detectable	IS 15185-2016	Not Detected

(B) Chemical Analysis

Sl. No.	Test Parameter	Test Method	IS 10500:2012 Amd. No. 1 & 2		Result
			Acceptable Limit	Permissible Limit	
1.	Colour in Hazen Units	IS 3025 (Part 4): 1983 (RA 2012)	5	15	<5
2.	Odour	IS 3025 (Part 5): 1983 (RA 2012)	Agreeable	Agreeable	Agreeable
3.	pH Value at 25°C	IS 3025 (Part 11): 1984 (RA 2012)	6.5-8.5	No Relaxation	7.13
4.	Turbidity in NTU	IS 3025 (Part 10): 1984 (RA 2012)	1	5	<1.0
5.	Total Dissolved Solids (as TDS) in mg/l	IS 3025 (Part 16): 1984 (RA 2012)	500	2000	398
6.	Aluminium (as Al) in mg/l	IS 3025 (Part 55): 2003 (RA 2014)	0.05	0.2	<0.05
7.	Ammonia (as NH ₃) in mg/l	IS 3025 (Part 34): 1988(RA 2014)	0.5	No Relaxation	<0.5
8.	Calcium(as Ca) in mg/l	IS 3025 (Part 40): 1991(RA 2014)	75	300	66.2
9.	Chloride(as Cl) in mg/l	IS 3025 (Part 32): 1984 (RA 2014)	250	1000	73.0
10.	Copper(as Cu) in mg/l	IS 3025 (Part 42): 1992(RA 2014)	0.05	1.5	<0.02
11.	Fluoride(as F) in mg/l	APHA 23rd Edition 2017, 4500 F.D	1.0	1.5	<0.1
12.	Free Residual Chlorine In mg/l	IS 3025 (Part 26): 1986(RA 2014)	0.2	1.0	<0.1
13.	Iron (as Fe) in mg/l	IS 3025 (Part 58): 1988(RA 2014)	1.0	No Relaxation	0.45
14.	Magnesium(as Mg) in mg/l	IS 3025 (Part 46): 1994(RA 2014)	30	100	33.4
15.	Manganese (as Mn) in mg/l	IS 3025 (Part 59): 2006 (RA 2014)	0.1	0.3	<0.05
16.	Nitrate (as NO ₃) in mg/l	IS 3025 (Part 34): 1988(RA 2014)	45	No Relaxation	0.72
17.	Sulphate (as SO ₄) in mg/l	IS 3025 (Part 24): 1986 (RA 2014)	200	400	31.8
18.	Alkalinity(as CaCO ₃) in mg/l	IS 3025 (Part 23): 1986(RA 2014)	200	600	250.8
19.	Total Hardness (as CaCO ₃) in mg/l	IS 3025 (Part 21): 2012	200	600	304.6
20.	Cadmium(as Cd) in mg/l	IS 3025 (Part 41): 1992(RA 2014)	0.005	No Relaxation	<0.002
21.	Cyanide(as Cr) in mg/l	IS 3025 (Part 27): 1986(RA 2014)	0.05	No Relaxation	<0.01
22.	Lead(as Pb) in mg/l	IS 3025 (Part 47): 1994 (RA 2014)	0.01	No Relaxation	<0.01
23.	Mercury(as Hg) in mg/l	IS 3025 (Part 48): 1994(RA 2014)	0.001	No Relaxation	<0.001
24.	Arsenic(as As) in mg/l	IS 3025 (Part 37): 1988 (RA 2014)	0.01	No Relaxation	<0.01
25.	Zinc(as Zn) in mg/l	IS 3025 (Part 49): 1994 (RA 2014)	5	15	0.22
26.	Total Chromium (as Cr) in mg/l	IS 3025 (Part 52): 2014 (RA 2014)	0.05	No Relaxation	<0.05

Report Prepared By:

[Signature]

for Qualissure Laboratory Services
Reviewed & Authorized By



S. Chakraborty
Somy Chakraborty, Microbiologist
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Reviewed & Authorized By



Bishnu Priya Banerjee, Chemist
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TEST REPORT

Name & Address Of the Customer :	ULR No.	: TC627123000000577F
	Report No.	: QLS/P-34/22-23/C/11
M/s. Orissa Metallurgical Industry Pvt. Ltd.	Date	: 06.05.2023
	Sample No.	: QLS/P-34/22-23/11
Mouza- Amba, Mathurakismat, Radhanagar & Srirampurja, VIII- Gokulpur, P.O- Shyamraipur, P.S- Kharagpur (L), Paschim Medinipur, West Bengal.	Sample Description	: Ground Water
	Sample Mark	: Sadatpur Village
	Sample Drawn On	: 22.03.2023
	Date of performance	: 22.03.2023-27.03.2023
	Ref No. Date	: M122368540, Dated, 27.09.2022

Analysis Result

(A) Microbiological Analysis

Sl. No.	Characteristic	Limit as per IS 10500: 2012 Amd. 2	Test Method	Result
1.	Total Coliform Bacteria/100ml	Not Detectable	IS 15185-2016	Not Detected
2.	E. coli/100ml	Not Detectable	IS 15185-2016	Not Detected

(B) Chemical Analysis

Sl. No.	Test Parameter	Test Method	IS 10500:2012 Amd. No. 1 & 2		Result
			Acceptable Limit	Permissible Limit	
1.	Colour in Hazen Units	IS 3025 (Part 4): 1983 (RA 2012)	5	15	<5
2.	Odour	IS 3025 (Part 5): 1983 (RA 2012)	Agreeable	Agreeable	Agreeable
3.	pH Value at 25°C	IS 3025 (Part 11): 1984 (RA 2012)	6.5-8.5	No Relaxation	7.97
4.	Turbidity in NTU	IS 3025 (Part 10): 1984 (RA 2012)	1	5	<1.0
5.	Total Dissolved Solids (as TDS) in mg/l	IS 3025 (Part 16): 1984 (RA 2012)	500	3000	414
6.	Aluminium (as Al) in mg/l	IS 3025 (Part 35): 2003 (RA 2014)	0.08	0.2	<0.01
7.	Ammonia as NH ₃ in mg/l	IS 3025 (Part 34): 1988 (RA 2014)	0.5	No Relaxation	<0.5
8.	Calcium (as Ca) in mg/l	IS 3025 (Part 40): 1991 (RA 2014)	75	200	69.2
9.	Chloride (as Cl) in mg/l	IS 3025 (Part 32): 1988 (RA 2014)	250	1000	101.4
10.	Copper (as Cu) in mg/l	IS 3025 (Part 42): 1992 (RA 2014)	0.05	1.5	<0.02
11.	Fluoride (as F) in mg/l	APHA 23rd Edition 2017, 4500 F D	1.0	1.5	<0.1
12.	Free Residual Chlorine in mg/l	IS 3025 (Part 36): 1986 (RA 2014)	0.2	1.0	<0.1
13.	Iron (as Fe) in mg/l	IS 3025 (Part 33): 1988 (RA 2014)	1.0	No Relaxation	0.61
14.	Magnesium (as Mg) in mg/l	IS 3025 (Part 46): 1994 (RA 2014)	30	100	34.1
15.	Manganese (as Mn) in mg/l	IS 3025 (Part 39): 2006 (RA 2014)	0.1	0.3	<0.05
16.	Nitrate (as NO ₃) in mg/l	IS 3025 (Part 34): 1988 (RA 2014)	45	No Relaxation	1.14
17.	Sulphate (as SO ₄) in mg/l	IS 3025 (Part 24): 1986 (RA 2014)	200	400	48.4
18.	Alkalinity (as CaCO ₃) in mg/l	IS 3025 (Part 23): 1986 (RA 2014)	200	600	264.0
19.	Total Hardness (as CaCO ₃) in mg/l	IS 3025 (Part 21): 2013	200	600	315.8
20.	Cadmium (as Cd) in mg/l	IS 3025 (Part 41): 1992 (RA 2014)	0.003	No Relaxation	<0.002
21.	Cyanide (as Cn) in mg/l	IS 3025 (Part 27): 1986 (RA 2014)	0.05	No Relaxation	<0.01
22.	Lead (as Pb) in mg/l	IS 3025 (Part 47): 1994 (RA 2014)	0.01	No Relaxation	<0.01
23.	Mercury (as Hg) in mg/l	IS 3025 (Part 48): 1994 (RA 2014)	0.001	No Relaxation	<0.003
24.	Arsenic (as As) in mg/l	IS 3025 (Part 37): 1998 (RA 2014)	0.01	No Relaxation	<0.01
25.	Zinc (as Zn) in mg/l	IS 3025 (Part 49): 1994 (RA 2014)	5	15	0.36
26.	Total Chromium (as Cr) in mg/l	IS 3025 (Part 52): 2014 (RA 2014)	0.05	No Relaxation	<0.05

Report Prepared By:

Key

for Qualissure Laboratory Services
 Reviewed & Authorized By



S. Chakraborty
 Soumya Chakraborty, Microbiologist
 (Authorized Signatory)

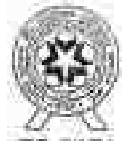
for Qualissure Laboratory Services
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Bishnurajya Banerjee
 Bishnurajya Banerjee, Chemist
 (Authorized Signatory)

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TEST REPORT

Name & Address Of the Customer :	Report No. : QLS/P-34/22-23/C/07A
M/s. Orissa Metallurgical Industry Pvt. Ltd.	Date : 04.04.2023
Mouza- Amba, Mathurakismat, Radsanagar & Srirampurja, VIII- Gokulpur, P.O- Shyamraipur, P.S- Kharagpur (I), Paschim Medinipur, West Bengal.	Sample No. : QLS/P-34/22-23/04A
	Date of Performance : 27.03.2023-04.04.2023
	Sample Description : Noise Monitoring
	Ref No. : OMIPL/QUALISSURE/WO/22-23/01
	Date : 06.03.2023

Monitoring Result of Noise

Sampling Done By: P.Mahato			
Sampling Guideline : As per IS: 9876: 1981 (RA-2001)			
Location : DRI & CPP Area			
Date of Monitoring : 22.03.2023			
Time	Lmax dB (A)	Lmin dB (A)	Avg. dB (A)
06.00-07.00	55.0	49.5	53.0
07.00-08.00	59.8	51.2	56.9
08.00-09.00	61.8	53.0	58.4
09.00-10.00	64.8	52.8	59.9
10.00-11.00	66.7	50.6	61.2
11.00-12.00	68.7	53.2	64.6
12.00-13.00	67.8	50.1	63.3
13.00-14.00	68.4	51.3	60.3
14.00-15.00	67.6	55.0	64.4
15.00-16.00	65.7	52.3	59.5
16.00-17.00	67.2	54.7	63.9
17.00-18.00	64.7	58.4	63.0
18.00-19.00	68.9	52.3	64.6
19.00-20.00	69.8	50.1	64.8
20.00-21.00	58.9	50.3	56.0
21.00-22.00	56.7	52.3	55.5
22.00-23.00	58.7	51.3	56.7
23.00-00.00	59.4	51.6	57.3
00.00-01.00	59.5	50.3	56.3
01.00-02.00	58.9	51.3	56.8
02.00-03.00	57.7	51.3	56.0
03.00-04.00	56.8	49.6	54.3
04.00-05.00	55.7	48.9	53.9
05.00-06.00	54.9	49.6	53.4

Report Prepared By:

for Qualissure Laboratory Services

Reviewed & Authorized By

Benimadhab Gorai, Chemist
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TEST REPORT

Name & Address Of the Customer :	Report No. :	QLS/P-34/22-23/C/07B
M/s. Orissa Metallurgical Industry Pvt. Ltd.	Date :	04.04.2023
Mouza- Amba, Mathurakismat, Radhanagar & Srirampurja, VIII- Gokulpur, P. O- Shyamraipur, P.S- Kharagpur (I), Paschim Medinipur, West Bengal.	Sample No. :	QLS/P-34/22-23/04B
	Date of Performance :	27.03.2023-04.04.2023
	Sample Description :	Noise Monitoring
	Ref No. :	OMIPL/QUALISSURE/WO/22-23/01
	Date :	06.03.2023

Monitoring Result of Noise

Sampling Done By: P. Mahata			
Sampling Guideline : As per IS: 9876: 1981 (RA-2001)			
Location : Near Truck Parking Area			
Date of Monitoring : 22.03.2023			
Time	Lmax dB (A)	Lmin dB (A)	Avg. dB (A)
06.00-07.00	53.7	50.1	52.5
07.00-08.00	55.2	51.3	53.6
08.00-09.00	57.9	50.3	55.1
09.00-10.00	59.7	51.2	56.7
10.00-11.00	62.8	52.3	59.4
11.00-12.00	64.5	53.2	61.1
12.00-13.00	67.9	50.1	63.1
13.00-14.00	67.8	51.3	63.4
14.00-15.00	68.3	55.0	64.2
15.00-16.00	67.2	51.3	62.6
16.00-17.00	65.4	53.2	61.8
17.00-18.00	65.3	54.6	62.0
18.00-19.00	65.2	58.6	62.9
19.00-20.00	63.7	52.3	60.5
20.00-21.00	61.7	51.3	58.9
21.00-22.00	60.9	56.0	59.2
22.00-23.00	52.6	50.0	51.0
23.00-00.00	52.3	50.4	51.3
00.00-01.00	54.4	50.0	52.0
01.00-02.00	52.3	50.4	51.3
02.00-03.00	64.5	51.2	57.6
03.00-04.00	53.3	50.0	51.7
04.00-05.00	68.1	50.1	55.4
05.00-06.00	54.6	54.3	54.5

Report Prepared By:

P. Mahata

for Qualissure Laboratory Services
 Reviewed & Authorized By



B. Gorai

Benimadhab Gorai, Chemist
 (Authorized Signatory)

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TEST REPORT

Name & Address Of the Customer : M/s. Orissa Metallurgical Industry Pvt. Ltd. Moura- Amba, Mathurakismat, Radhanagar & Srirampurja, VIII- Gokulpur, P.O- Shyamraipur, P.S- Kharagpur (L), Paschim Medinipur, West Bengal.	Report No. : QLS/P-34/22-23/C/12 Date : 04.04.2023 Sample No. : QLS/P-34/22-23/12(A-C) Date of Performance : 27.03.2023-04.04.2023 Sample Description : Noise Monitoring Ref No. : OMIPL/QUALISSURE/WO/22-23/01 Date : 06.03.2023
---	--

Monitoring Result of Noise

Sampling Done By: P. Mandal/S.Poddar					
Sampling Guideline : As per IS: 9876:1981 (IA-2001)					
Sample No.	Date of Monitoring	Location	Lmax dB (A)	Lmin dB (A)	Avg. dB (A)
12A	22.03.2023	Kholapatna Village	60.8	41.2	49.8
12B		Radhanagar Village	64.5	40.3	49.6
12C		Narayanpur Village	62.4	45.3	51.1

Report Prepared By:

Rindan

for Qualissure Laboratory Services
Reviewed & Authorized By



Benimadhab Goral

Benimadhab Goral, Chemist
(Authorized Signatory)

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As a consequence of health and safety awareness many measures are being taken to ensure the security of an individual working in the industrial premises. Risk assessment follows an extensive hazard analysis. Risk is defined as a likelihood of an undesired event (accident injury or death) occurring within a specified period or under specified circumstances. This may be either a frequency or a probability depending on the circumstances.

In the working atmosphere, it is not possible to avoid or eliminate risk factor completely. However it is possible to minimize the risk factor to minimal or acceptable level.

The simple six-step risk assessment process includes:

- 1.** Identification of a hazard
- 2.** Identification of the associated risk
- 3.** Assessment of the risk, which includes:
 - The likelihood
 - The severity
 - Assigning a priority for correction
- 4.** Control of the risk, which includes:
 - Elimination
 - Engineering a barrier
 - Administration controls
 - Personal protection equipment
- 5.** Documentation of the process.
- 6.** Monitoring and review of the process.

Detail Hazard Identification and Risk Assessment (HIRA) study has been carried out by M/s Orissa Metallurgical Industry Pvt. Ltd. Hazard is a source or situation that has the potential for harm in terms of human injury, ill health, damage to property or the environment, or a combination of these factors. It has got a short or a long-term effect on the work environment with considerable human and economic costs. A hazard can have a potential to create an emergency like situation at the work place. Hazard is a potential cause to generate a disaster. Hazards exist in every workplace in different forms and required to be identified, assessed and controlled regarding the work processes, plant or substances. They arise from

- A. Workplace environment,
- B. Use of plant and equipment
- C. Use of substances and materials,
- D. Poor work and/or plant design,
- E. Inappropriate management systems and work procedures, and
- F. Human behaviour.

Steel plant has many hazardous processes and operations which can cause considerable environmental, health and safety risk to the workforce. All the hazards cause potential risk to the work environment which include work force and work place and hence need proper assessment.

During the process of manufacture of steel and other associated materials hazardous wastes are generated which are stored and used within the plant process as per the solid and hazardous waste management plant discussed in Chapter-4, Section 4.10. The major chemicals handled / stored by the plant include HSD, LDO etc. In view of this, existing as well as proposed activities are being scrutinized in line of the above referred "manufacture, storage and import of hazardous chemicals rules" and observations / findings are presented in this chapter.

1 Identification of a hazard and associated risk In Integrated Steel Plant

The following two methods for hazard identification have been employed in the study:

- ❖ Identification of major hazardous units based on manufacture, storage and import of hazardous chemicals rules, 2008 and storage units based on relative ranking technique, viz. fire-explosion and toxicity index (FE&TI).
- ❖ Identification of hazardous units and segments of plants based on FMEA.

2. Classification of major hazardous substances

Hazardous substances may be classified into three main classes namely flammable substances, unstable substances and toxic substances. The ratings for a large number of chemicals based on flammability, reactivity and toxicity have been given in NFPA Codes 49 and 345 M. The major hazardous materials to be stored, transported, handled and utilized within the facility have been summarized in the **Table No. 1**. The fuel storage details and properties are given in **Table No. 2** and **Table No. 3** respectively.

Table No. 1 Category Wise Schedule of Storage Tanks

Materials	Hazardous Properties
HSD	U 1202. Dangerous Goods Class 3 – Flammable Liquid
LDO	U 1203. Dangerous Goods Class 3 – Flammable Liquid
HFO	Dangerous Goods class 3 - Flammable Liquid
H2So4	CAS Number 7664-93-9 (UN no 3264- Corrosive liquid, acidic; Hazard Class -8)
HCL	CAS Number - 7647-01-0(UN no 1789- Corrosive liquid, acidic; Hazard Class -8)

Table No. 2-Hazardous Materials Stored, Transported and Handled

A	Material	No. of Tanks	Capacity (Storage Condition)
1.	HSD	3	600 KL
2.	LDO	3	150 KL
3.	HFO	2	300 KL
4.	HCL/ H2SO4	3	150 KL

Table No. 3-Properties of Fuels Used in the Plant

Chemical	Codes/ Label	TLV	FBP	MP	FP	UEL	LEL
			°C			%	
HSD	Flammable	-	371	-	54.4	6	0.7
LDO	Flammable	5 mg/m ³	400	-	98	7.5	0.6
HFO	Flammable	5 mg/m ³	350	-26	66	6.0	0.5
HCL	Corrosive Toxic	5 mg/m ³	108	-26	-	-	-
H2SO4	Corrosive Toxic	5 mg/m ³	337	10	-	-	-

TLV : Threshold Limit Value FBP : Final Boiling Point

MP : Melting Point FP : Flash Point

UEL : Upper Explosive Limit LEL : Lower Explosive Limit

3 Identification of Major Hazard Installations Based On GOI Rules, 2008

Following accidents in the chemical industry in India over a few decades, a specific legislation covering major hazard activities has been enforced by Govt. of India in 2008 (In suppression of 1989) in conjunction with Environment Protection Act, 1986. This is referred here as GOI Rules 2008. For the purpose of identifying major hazard installations, the rules employ certain criteria based on toxic, flammable and explosive properties of chemicals.

A systematic analysis of the fuels/chemicals and their quantities of storage has been carried out, to determine threshold quantities as notified by GOI Rules, 2008 and the applicable rules are identified. Applicability of storage rules are summarized in **Table No. 4.**

No.	Chemical/Fuel	Listed in Schedule	Total Quantity	Threshold Quantity (T) for Application of Rules	
				5,7-9,13- 15	10-12
1.	HSD	3(PART II)	600 KL	25 MT	200 MT
2.	LDO	3(PART II)	150 KL	25 MT	200 MT
3.	HFO	3(PART II)	300 KL	25 MT	200 MT
4.	H2SO4	3 (PART I- Group 2)	50 KL	5 T	50 T
5.	HCL	3 (PART I- Group 2)	100 KL	25 T	250 T

4 Hazard Assessment and Evaluation

4.1 Methodology & Hazard Assessed

An assessment of the conceptual design is conducted for the purpose of identifying and examining hazards related to feed stock materials, major process components, utility and support systems, environmental factors, proposed operations, facilities, and safeguards.

In the proposed steel plant, large amounts of material are processed, transported and conveyed by massive equipment. The major chemicals handled / stored by the plant include HSD, LDO, HFO, HCL, H₂SO₄ etc. Due to massive equipment and movement of large masses of materials, workers are exposed to the heat of molten metal and slag at temperatures up to 1800°C, toxic or corrosive substances, respirable air-borne contaminants and noise.

Burns may occur at many points in the steel-making process: at the front of the furnace during tapping from molten metal or slag; from spills, spatters or eruptions of hot metal from ladles or vessels during processing, teeming (pouring) or transporting; and from contact with hot metal as it is being formed into a final product.

Water entrapped by molten metal or slag may generate explosive forces that launch hot metal or material over a wide area. Inserting a damp implement into molten metal may also cause violent eruptions.

Mechanical transport exposes workers to potential struck-by and caught- between hazards. Overhead travelling cranes are found in almost all areas of steel works. Most large works also rely heavily on the use of fixed-rail equipment and large industrial tractors for transporting materials. Large quantities of greases, oils and lubricants are used and if spilled can easily become a slipping hazard on walking or working surfaces.

Sharp edges or burrs on steel products or metal bands pose laceration and puncture hazards to workers involved in finishing, shipping and scrap-handling operations.

Foreign-body eye hazards are prevalent in most areas, especially in raw material handling and steel finishing, where grinding, welding and burning are conducted.

4.2 Preliminary Hazard Analysis (PHA)

A preliminary hazard analysis is carried out initially to identify the major hazards associated with storages and the processes of the plant. This is followed by consequence analysis to quantify these hazards. Finally, the vulnerable zones are plotted for which risk reducing measures are deduced and implemented.

The hazard shall be higher for workers directly exposed to coal handling areas where not only the danger due to failure of machinery but also inhalation of dust exists. In other areas where heat generating equipment such as boiler and steam conduits are there, the risks pertain to exposure to heat and hazard of explosion due to high pressure. Several examples of hazards that may be found are:

- Unguarded rotating, reciprocating and similar moving parts.
- Flammable liquids in the presence of ignition sources.
- Unlabelled containers of hazardous chemicals.
- Noise with the potential to damage hearing.
- Poorly designed tools having the potential to cause injury.
- Degraded and worn hand tools.
- Waste oil on the floor, causing a slipping hazard.

Preliminary hazard analysis (type of likely hazards and possible areas where this can occur) for fuel storage area and whole plant is given in **Table No. 5, 6 and 7**.

Table No. 5- Preliminary Hazard Analysis for Storage Areas :

Unit	Capacity	Description Plausible Hazard	Impact
HSD	600 KL	Pool fire/fire ball may occur due to rupture in the tank and subsequent release and instantaneous ignition.	Fire / Explosion

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LDO	150 KL	Pool fire/fire ball may occur due to rupture in the tank and subsequent release and instantaneous ignition.	Fire / Explosion
HFO	300 KL	Pool fire/fire ball may occur due to rupture in the tank and subsequent release and instantaneous ignition.	Fire / Explosion
HCL H2So4	150 KL	Chemical Spills from H2SO4, HCL, tank	Acid burn to nearby employee due to leakage of acid/. Also exposure to fume affecting health of person

Table No. 6: Likely Hazards in the plant and their location

Unit	Description of Plausible Hazard	Impact
Steel Meting Shop	<input type="checkbox"/> Fire & Explosion due to Molten metal contact with water. <input type="checkbox"/> Molten Metal Spillage <input type="checkbox"/> Steam Explosion <input type="checkbox"/> Hot SMS Slag <input type="checkbox"/> Break out in CCM <input type="checkbox"/> Extreme Temperature <input type="checkbox"/> Exposure to controlled and uncontrolled energy sources <input type="checkbox"/> Moving machinery, on-site transport, forklifts and cranes <input type="checkbox"/> Falls from height <input type="checkbox"/> Hot Metal transfer	Fire / Explosion due to core damage and hot metal spillage; Burn/ injuries because of steam leakage, fatal due to collapsing of cranes and electrical shock , eye irritation due to dust
Rolling Mill	<input type="checkbox"/> Fire in rolling mill due to hydraulic oil cellar. <input type="checkbox"/> Spillage of acid tank <input type="checkbox"/> Slippery surface because of heavy use of lubricant <input type="checkbox"/> Steam explosion <input type="checkbox"/> Manual handling and repetitive work	Fire ; Burn injuries, health problem, injury, skin allergy, electric shock
MBF with PCM	<input type="checkbox"/> Fire & Explosion due to Molten metal contact with water. <input type="checkbox"/> Molten Metal Spillage <input type="checkbox"/> Steam Explosion <input type="checkbox"/> Hot MBF Slag	Fire / Explosion due to core damage and hot metal spillage; Burn/ injuries because of steam leakage, fatal due to collapsing of cranes and electrical shock ,

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	<input type="checkbox"/> Break out in PCM <input type="checkbox"/> Extreme Temperature <input type="checkbox"/> Exposure to controlled and uncontrolled energy sources <input type="checkbox"/> Moving machinery, on-site transport, forklifts and cranes <input type="checkbox"/> Falls from height <input type="checkbox"/> Hot Metal transfer	eye irritation due to dust
Sinter Plant	<input type="checkbox"/> Fire in Coal stock yard <input type="checkbox"/> Noise and vibration <input type="checkbox"/> Exposure to controlled and uncontrolled energy sources <input type="checkbox"/> Moving machinery, on-site transport, forklifts and crane <input type="checkbox"/> Inhalable agents (gases, vapours, dusts and fumes) <input type="checkbox"/> Falls from height	
DRI plant	<input type="checkbox"/> Moving Equipment Parts <input type="checkbox"/> Smoke/ Dust <input type="checkbox"/> Inhalable agents (gases, vapours, dusts and fumes) <input type="checkbox"/> Falls from height <input type="checkbox"/> Extreme temperatures <input type="checkbox"/> Moving machinery, on-site transport (conveyor belt) <input type="checkbox"/> Fire & Explosion	
Oxygen Plant	<input type="checkbox"/> Frost Bite because of cryogenic liquid <input type="checkbox"/> Leakage in Oxygen Tank <input type="checkbox"/> Asphyxiation due to leakage of nitrogen in work place	Fire & Explosion; Frost Bites , Suffocation health issue
Coke oven Plant	<input type="checkbox"/> Leakage of poisonous gas <input type="checkbox"/> Dust	Leakage of Gas can cause Gas Poisoning to employee
P. Gas Plant	<input type="checkbox"/> Release of untreated waste water	Pollution of surface water
Power Plant	<input type="checkbox"/> Bursting of boiler due to steam leakage, poor quality of water having high TDS and welding route failure <input type="checkbox"/> Fire in Coal stock yard <input type="checkbox"/> Electrical burns and electric shock (short-circuit); <input type="checkbox"/> Noise and vibration <input type="checkbox"/> Slips, trips and falls on the same level	Explosion, Fire, Fatal; Ear damage, electric shock

	<input type="checkbox"/> Bursting of transformer, switch gear <input type="checkbox"/> Failures due to automation	
Ferro Alloy Plant	<input type="checkbox"/> Recirculating cooling water coming in contact with the molten iron or slag. <input type="checkbox"/> Oil temperature being very high in transformer causing bursting of transformer <input type="checkbox"/> Inhalable agents (gases, vapours, dusts and fumes) <input type="checkbox"/> Exposure to controlled and uncontrolled energy sources <input type="checkbox"/> Molten Metal Spillage <input type="checkbox"/> Moving machinery, on-site transport, forklifts and cranes	Spurting of metal/slag ; Sudden flashing of fire or bursting;
Transportation of mater	<input type="checkbox"/> High concentration of traffic during duty hours <input type="checkbox"/> Heterogeneous traffic <input type="checkbox"/> Violation of traffic rules/ speed limit <input type="checkbox"/> Road Condition <input type="checkbox"/> Condition of vehicle	Accident and fatal.

Table No. 7: The Brief about nature of Hazards in the plant

Hazard	Probable Locations
Mechanical	Coal Crushing Plant, Sponge Iron Plant, Steel Melting Shop, Continuous Casting Machine, Rolling Mills, etc.
Fire & Explosion	Boiler House, Coal Storage Area, Coal Crushing Plant, Mini Blast Furnace, Sponge Iron Plant, Steel Melting Shop, Continuous Casting Machines, Rolling Mills, Boiler House, Sinter Plant etc.
Electrical	TG Area, Electrical Substation, Steel Melting Shop, Rolling Mills etc.
Chemical	Treatment plants, CPP, Pump House

4.3 Fire Explosion and Toxicity Index (FE&TI) For Storage Unit

Dow's Fire and Explosion Index (F and E) is a product of Material Factor (MF) and hazard factor (F3) while MF represents the flammability and reactivity of the substances, the hazard factor (F3), is itself a product of General Process Hazards (GPH) and Special Process Hazards (SPH). The application of FE & TI would help to make a quick assessment of the nature and quantification of the hazard in these areas. However, this does not provide precise information. The degree of hazard potential is identified based on the numerical value of F&EI as per the criteria given below:

F&EI Range	Degree of Hazard
0-60	Light
61-96	Moderate
97-127	Intermediate

128-158	Heavy
159-up	Severe

By comparing the indices F&EI and TI, the unit in question is classified into one of the following three categories established for the purpose (**Table No. 8**).

Table No. 8-Fire Explosion and Toxicity Index

Category	Fire and Explosion Index (F&EI)	Toxicity Index (TI)
I	F&EI < 65	TI < 6
II	65 < or = F&EI < 95	6 < or = TI < 10
III	F&EI > or = 95	TI > or = 10

Certain basic minimum preventive and protective measures are recommended for the three hazard categories.

4.4 Results of FE And TI for Storage Unit

Based on the GOI Rules 2008, the hazardous fuel used by the operational plant is identified. Fire and explosion are the likely hazards, which may occur due to the fuel storage. Hence, fire and explosion index has been calculated for in plant storage.

The Health (Nh), Flammability (Nf), Reactivity (Nr), and MF (Material Factor) for all the materials under consideration was derived from NFPA (National Fire Protection Association) codes. The GPH (General Process Hazard Factor) and SPH (Specific Process Hazard Factor) was calculated accordingly. Based on F&EI (Fire and Explosion Index), the HSD will come in light degree of hazard and nil toxicity. Thus, Risk Assessment and Hazard analysis has been carried out due to fire hazard for HSD tanks by carrying out MCA (Maximum Credible Accident) analysis for the same. Estimates of FE&TI are given in **Table No. 9**.

Table No. 9-Fire explosion and toxicity index results

Fuel	Total Capacity	NFPA Classification				GPH	SPH	F&EI	F & E Category	**TI	Toxicity Category
		Nh	Nf	Nr	MF						
HSD	3 x 200 KL	0	2	0	10	2	2.2	43.2	Light	NIL	-
LDO	3 x 50 KL	0	2.5	0	9	1	1.1	21.6	Light	NIL	
HFO	3 x 100 KL	0	2	0	8	1	1	19.7	Light	NIL	

Results of FE&TI analysis show that the storage of HSD falls into Light category of fire and explosion index.

4.5 Failure Mode Effect Analysis for Process Units

Failure mode effects analysis (FMEA) is one of the most important and widely used tools for reliability analysis. FMEA identifies corrective actions required to reduce failures to assure the highest possible yield safety and reliability. Even though it is widely used reliability technique it has some limitation in prioritizing the failure modes and output may be large for even simple systems, may not easily deal with time sequence, environmental and maintenance aspects.

4.5.1 Risk Priority Number

Risk priority number methodology is a technique for analysing the risk associated with potential failures during a FMEA analyses. To calculate risk priority number severity, occurrence, and detection are the three factors need to determine.

RPN= Severity× Occurrence× Detection

4.5.2 Severity (S)

Severity is the seriousness of the effect of potential failure modes. Severity rating with the higher number represents the higher seriousness or risk which could cause death.

Table No. 10-Example table of Severity

Rating	Detection	Detection by design control
10	Absolute uncertainty	Design control cannot detect failure mode
9	Very remote	Very remote chance the design control detect failure mode
8	Remote	Remote chance the design control detect failure mode
7	Very low	Very low chance the design control detect failure mode
6	Low	Low chance the design control detect failure mode
5	Moderate	Moderate chance the design control detect failure mode
4	Moderately high	Moderately high chance the design control detect failure mode
3	High	High chance the design control detect failure mode
2	Very High	Very high chance the design control detect failure mode
1	Almost certain	Design will control detect failure mode

4.5.3 Occurrence (O)

Occurrence ratings for FMEA are based upon the likelihood that a cause may occur based upon past failures and performance of similar system in similar activity. Occurrence values should have data to provide justification.

Table No. 11 Example table of Occurrence

10 9	Very high	Inevitable failures
8 7	High	Repeated failures
6 5	Moderate	Occasional failures
4 3	Low Remote	Few failures
2 1	Remote	Failures unlikely

4.5.4 Detection (D)

Detection is an assessment of the likelihood that the current controls will detect the cause of failure mode.

Table No. 12-Example table of Detection

Rating	Classification	Example
10	Hazardous without warning	Very high severity without warning
9	Hazardous with warning	Very high severity with warning
8	Very high	Destructive failure without safe
7	High	System inoperable equipment damage
6	Moderate	System inoperable with minor damage

5	Low	System inoperable without damage
4	Very low	Degradation of performance
3	Minor	System operable with some degradation in performance
2	Very minor	System operable with minimal interference
1	None	No effect

4.6 FMEA Implementation

Failure mode effect analysis is executed by a multidisciplinary team of experts in mini blast furnace operation with the help of process flow chart. Criteria of ranking of severity, occurrence and detection are selected suitably by analysing the past failure records of the furnace. Using values of severity, occurrence and detection number risk priority number is calculated and tabulated in

Table No. 13.

Table No. 13- RPN for Proposed Project & Proposed Control Measures

Components / Process	Failure Mode	Failure Effect	Failure Cause	Existing Control	S	O	D	RP N	Additional Control
Bleeder valves	Failed to Operate	Explosion	Corrosion	Reliable Supplier	10	2	3	60	Periodic Maintenance
Conveyor feed belt	Friction	Fire	Improper Maintenance	Belt Sway Switch	8	2	2	32	Lubricating the rotating parts regularly
Cold blast Blower	Flow Pressure Increase	Rupture in stove	Failure of valves	Flow meters	8	1	2	16	Interlock system
Hot blast Blower	Stove shell crack	Fire &Explosion	Excess Temperature	Thermocouple	9	1	2	18	Periodic Maintenance
Blast Furnace gas	Pipeline rupture	CO poisoning	Over Pressure	Detectors	10	2	2	40	Provide detectors with alarm system
Oxygen Injection	Pipeline rupture	Fire &Explosion	Over Pressure	Detectors	10	2	2	40	Provide detectors with alarm system
Cooling water supply pump	Pump failure	Explosion	No power supply	Redundant power supply	10	3	2	60	Check the fuel level of diesel generator
Tapping hose	Oxygen hose cut	Fire	Ageing	Reliable Supplier	8	4	4	128	Change hose periodically
Hot metal lifting by crane	Rope breakage	Hot Metal ladle down	Overloading	Safe working load is marked	9	3	2	54	Interlocks with alarm
Hot metal transfer by trolley	Mechanical Failure (Gearbox, Axial, Wheel)	Spillage of hot metal	Improper Maintenance	ROW (3 m) marked, cover ladle, loading within Granted permissible limit	9	3	2	54	Regular inspection and Periodic maintenance
Gas cleaning filter bags	Filter bags failure	Improper gas cleaning	Excess Temperature	Monitoring system	4	3	3	36	Regular inspection and Periodic maintenance

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Lancing Hose	Tuyers puncture	Burns	Ageing	Reliable Supplier	5	4	4	80	Check defects before use
Butterfly valve to regulate flow	Valve partially closed	CO Poisoning	Dust	Air-line respirators	9	3	2	54	Periodic Maintenance
Steam Injection	Pipeline cracks	Burns	Excess pressure	Line Inspection	7	2	3	42	Display cautionary notice
SINTER PLANT									
Conveyor feed belt to sinter plant	Friction	Fire	Improper Maintenance	Belt Sway Switch	8	2	2	32	Lubricating the rotating parts regularly
Pneumatic lime transportation system	Failed to Operate	Spillage of Hot Lime	Improper Maintenance	Monitoring system	8	2	2	32	Regular inspection and Periodic maintenance
Automatic lubricating system	Failed to Operate	Mechanical Failure	Improper Maintenance	Monitoring system	4	2	3	24	Periodic Maintenance
Double cone dust valves	Failed to Operate	Improper dust cleaning	Corrosion	Reliable Supplier	3	2	4	24	Periodic Maintenance
Mixed gas injection	Pipeline rupture	Fire & Explosion	Over Pressure	Detectors	6	2	3	36	Provide detectors with alarm system
Sinter Cooler	Failed to Operate	Combustion failure in Sinter	Improper Maintenance	Monitoring system	4	2	3	24	Regular inspection and Periodic maintenance
DRI PLANT									
Conveyor feed belt to DRI	Friction	Corrosion	Improper Maintenance	Belt Sway Switch	8	2	2	32	Lubricating the rotating parts regularly and maintaining the cover sheet to avoid corrosion
Reducing Gas injection	Duct rupture	Process Failure in DRI Kiln	Over Pressure	Duct Inspection	7	3	3	63	Regular inspection and Periodic maintenance , proper insulation

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Cooler Discharged Gas	Duct rupture	Failure in After Burning Chamber	Excess Pressure	Duct Inspection	5	3	2	30	Regular inspection, replacement of safety item (hook, rope, belt etc.) before cut-off date, periodic maintenance and proper insulation
Moving Machinery, onsite transport, forklifts & crane	Mechanical Failure	Conveying System Failure	Improper Monitoring	Inspection	5	3	3	45	Periodic Maintenance & Mechanical Strength testing
Conveyor Belt to storage Bins	Friction	Waste Storage System Failure	Improper Maintenance & overloading	Belt Sway Switch	4	2	2	16	Lubricating the rotating parts regularly and maintaining the cover sheet to avoid corrosion. Avoiding overload by providing weigh feeder.
Inhale agents from ABC & Kiln	Mechanical Failure	Failure in After Burning Chamber & cooler Discharge causing gases, dust and fumes	Improper Maintenance & Excess Pressure	Inspection	4	3	2	24	Regular inspection and Periodic maintenance Provision of Alarm
SMS- INDUCTION FURNACE									
Flow monitoring switch	Failure to operate	Rupture in Current Flow	Switch broken	Reliable Supplier	7	2	3	42	Regular Inspection
DC Choke	Failure to operate	Rise of current to dangerous level	Electric Failure	Reliable Supplier	7	3	3	63	Regular Inspection & use of ISI certified brand product
DM Water circulating unit	Failure to circulate de ionized water	Excessive Heat generation in solid state power supply unit	Electric Failure & Short circuit	Inspection	4	3	3	24	Regular inspection, monitoring conductivity test, Periodic maintenance and use of ISI certified brand product

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Direction Control Valve	Failure to operate	furnace tilting control failure	Corrosion	Reliable Supplier	7	2	3	42	Periodic Maintenance and replacement before cut-off date
Furnace lamination packet	Electric/magnetic failure	Failure to provide a return path to the flux	Overheating of the structure	Inspection	7	3	2	42	Regular inspection, Periodic maintenance and use of ISI certified brand product
Flow regulating valves in furnace	Failed to Operate	Excessive Temperature	Improper Maintenance	Indicator	8	3	4	96	Periodic Maintenance and replacement before cut-off date
Hot metal lifting by crane	Rope breakage	Hot Metal ladle down	Overloading	Safe working load are marked	9	3	2	54	Interlocks with alarm and replacement of safety item (hook, rope, belt etc.) before cut-off date. Avoid overloading.
Hot metal transfer by trolley	Mechanical Failure (Gearbox, Axial, Wheel)	Spillage of hot metal	Improper Maintenance	ROW (3 m) marked, cover ladle, loading within Granted permissible limit	9	3	2	54	Regular inspection, periodic maintenance and replacement of movable item before cut-off date. Avoid overloading
LADLE REFINING FURNACE									
Hot metal ladle transfer car	Friction	Fire	Improper Maintenance	Belt Sway Switch	8	2	2	32	Lubricating the rotating parts regularly
CONTINUOUS CASTING MACHINE									
Ladle car	Friction	Fire	Improper Maintenance	Belt Sway Switch	8	2	2	32	Lubricating the rotating parts regularly
Stopper	Mechanical Failure	Fire & Explosion	Improper Maintenance	Indicator	7	2	2	28	Regular Inspection
Tundish	Failed to Operate	Spillage of Hot liquid metal	Mechanical Failure	Line inspection	7	2	2	28	Regular inspection and Periodic maintenance

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FERRO ALLOY PLANT									
Furnace	Recirculating cooling water coming in contact with the molten iron or slag	Spillage of Hot Spurting of metal/slag. Explosion under extreme cases.	Leakage of water from the refractory walls Operate	Line inspection	8	2	2	32	Regular inspection and Periodic maintenance
Furnace	Presence of Oil & Grease and other impurities	Sudden catching of fires and flames	Improper Maintenance	Inspection	4	3	3	24	Periodic Maintenance
Moving Machinery, onsite transport, forklifts & crane	Mechanical Failure	Conveying System Failure	Improper Monitoring	Inspection	5	3	3	45	Periodic Maintenance & Mechanical Strength testing
Tapping	Line failure	Hot Metal spillage	Improper alignment	Inspection	9	3	2	54	Periodic inspection and continuous observation
Transformer	Oil spillage & Overheating	Bursting	Excess connected load	Inspection	5	3	3	45	BDB testing of transformer oil and maintenance of bushing and radiator.
OXYGEN PLANT									
Air feed	Pipeline rupture	Operation failure	Improper Maintenance	Detectors	4	3	2	24	Provide detectors with alarm system
CHROME BRIQUETTE MANUFACTURING PLANT									
Conveyor Belt	Friction	Fire	Improper Maintenance	Belt Sway Switch	8	2	2	32	Lubricating the rotating parts regularly
COKE OVEN PLANT									
Conveyor belt to top of the coal tower	Operation failure	Injury	Improper Maintenance	Line inspection	4	2	2	16	Periodic maintenance
ROLLING MILL (WIRE/BAR DRAWING MILL), PCM									
Conveyor rollers to feed	Friction	Fire	Improper Maintenance	Belt Sway Switch	8	2	2	32	Lubricating the rotating parts regularly
Water cooling pump	Pump failure	Explosion	No power supply	Redundant power supply	10	3	2	60	Check the fuel level of diesel generator

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ROLLING MILL (GALVANISING & PICKLING LINE)

Hot water sprayer in galvanizing	pin Holes	Gas temperature increase	Spraying hot water excessively	Monitors	7	3	2	42	Check the level for every 5 minutes
Hot pickle bath	pin Holes	Spillage	Spraying hot pickle excessively	Monitors	7	3	2	42	Check the level for every 5 minutes

LIME DOLOMITE PLANT

Lance	Tuyere puncture	Burns	Ageing	Reliable Supplier	5	4	4	80	Check defects before use
Conveyor belt to storage tanker	Friction	Fire	Improper Maintenance	Belt Sway Switch	4	2	2	16	Lubricating the rotating parts regularly

COAL WASHERY

Conveyor Belt to Travelling Gate Coal Circuit	Friction	Corrosion	Improper Maintenance	Belt Sway Switch	8	2	2	32	Lubricating the rotating parts regularly
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DOLOCHAR & COAL MIX BASED CPP

Air Supply Fluidized Bed	Flow Air Fuel Ratio	Operation Failure	Air Flow Below 30 %	Line inspection	5	3	5	75	Provide detectors with alarm system
Boiler	Corrosion Effect	Cooling of tube increases temperature	Creep Failure	Line inspection	4	4	5	80	Regular inspection
Boiler	Boiler Tube	Damage inside & outside the tube	Extremely combustion	Monitors	6	2	5	60	Periodic Maintenance
Boiler	Tube Alignment & Setting	Deformation of vibration Arrestor	Vibration increases	Inspection	6	2	4	48	Periodic Maintenance
Boiler	Incomplete Combustion	Air Fuel Losses	Insufficient air supply to Furnace	Line inspection	5	2	5	50	Regular inspection
Turbine/Steam Generator	Temp of Super Heater & Reheater	Failure of turbine blades	Changing the plant load	Line inspection	5	2	6	60	Periodic Maintenance
Turbine/Steam Generator	Loss of fuel	Abnormal Combustion	Improper air fuel mixture	Monitors	4	3	4	48	Check the level for every 5 minutes
Water Tank	Water Level of Drum	Excess Steam Pressure	Failure of Indicators	Monitor	6	3	2	36	Regular inspection

L D CONVERTER

Flow monitoring switch	Failure to operate	Rupture in Current Flow	Switch broken	Reliable Supplier	7	2	3	42	Regular Inspection
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Direction Control Valve	Failure to operate	furnace tilting control failure	Corrosion	Reliable Supplier	7	2	3	42	Periodic Maintenance and replacement before cut-off date
Flow regulating valves in furnace	Failed to Operate	Excessive Temperature	Improper Maintenance	Indicator	8	3	4	96	Periodic Maintenance and replacement before cut-off date
Hot metal lifting by crane	Rope breakage	Hot Metal ladle down	Overloading	Safe working load are marked	9	3	2	54	Interlocks with alarm and replacement of safety item (hook, rope, belt etc.) before cut-off date. Avoid overloading.
Hot metal transfer by trolley	Mechanical Failure (Gearbox, Axial, Wheel)	Spillage of hot metal	Improper Maintenance	ROW (3 m) marked, cover ladle, loading within Granted permissible limit	9	3	2	54	Regular inspection, periodic maintenance and replacement of movable item before cut-off date. Avoid overloading

PRODUCER GAS PLANT

Air Injection	Pipeline rupture	Operation failure	Improper Maintenance	Detectors	7	3	2	42	Provide detectors with alarm system
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4.7 Result of FEMA for Process Unit:

In blast furnace, highest value of risk priority number is obtained for tapping process. However, the control measures like change of hose periodically by purchasing it from the reliable supplier shall minimize the risk probability.

The hot metal from MBF/ Induction Furnace is transported by crane / trolley which carry moderate risk priority number. This is well equipped with the interlocking facility with alarm in case of any overloading. Moreover, proper marking with ROW of 3 m is already in place along with all safe guards to ensure the absence of water throughout the hot metal transfer route.

The mitigation measures suggested for the identified risk are tabulated in **Table No. 14**.

Table No 14-Potential Hazard/ Source and Mitigation measures

Type of Hazard	Source	Risk related Hazard	Mitigation measures
Heat	DRI, Ferro, Sinter, SMS, Furnace (Molten metal and hot surfaces), CCM and Process of rolling, Slag disposal area, WHRB, SMS	Burn/ stress Heat	Use of helmet, heat resistant clothing, heat resistant gloves, Use of Goggles by the workers. Workers are advised to work at a distance of 4m from the molten

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	and Sinter		metals. Rotation of workers on shift basis.
Dust and Gaseous emission	DRI, Furnace (MBF, SMS & Ferro) CCM and Process of rolling, Slag disposal area, WHRB & Sinter plant, Raw material and product storage yard, Transportation of raw material.	Pulmonary disease	Use of Nose Mask, Water sprinkling arrangement at requisite places, Provision of Bag filters and dust extraction system as required. Stack monitoring and work zone monitoring to ensure the gaseous emission and dust emission within the prescribed standard.
Electrical	Furnace, Motors, Panels, Sub Station; Electrically operated equipment	Electrical shock and burn	Electrical area to be separated and access given to authorized personnel. Spark proof motors used. Insulated cover provided in the electrical area. Proper earthing has been provided.
Explosion	Molten metal, Contaminated scrap handling, During Casting	Burn, Injury	Use of contaminated scrap is completely avoided Combustible and flammable material to be separated from the molten metal area.
Accident related to fall of machinery	Moving machinery, on-site transport, forklifts and cranes	Injury	Safety check of operation of equipment at regular intervals. Properly trained workers appointed to operate machineries, Workers working with cranes will be provided with all PPEs with safety belts.
Storage & Handling of HSD	Leak, Spill, Fire explosion, Toxicity	Injury, Burn	PPEs provided to the personnel working in the area. Fire extinguishers provided
Noise &Vibration	Rolling Mill, D.G Set, Furnace operation, melting process, Crushing, Coal washery, fuel burners, raw material, scrap and product handling, rotating equipment, furnace charging.	Hearing loss / Fatigue	Noise monitoring, Audiometric examination of workers, Workers provided with PPE like ear plug, muff isolation, substitution and engineering control installation of acoustical hood, rotation of workers and minimize the time enclose fans, insulate ventilation pipes, cover and enclose scarp and storage and handling area adopting slag practice in IF.

5 Risk Control:

5.1 On Site Emergency Planning:

The onsite emergency plan would be related to the final assessment and it is the responsibility of the management to formulate it. The plan must therefore, be specific to the site.

The plan sets out the way in which designated people at the site of the incident initiate supplementary action at an appropriate time. Designated people may or may not be from amongst the workers. An essential of the plan is the provision for making the affected unit safe, for example, by shutting it down. The plan also contains the full sequence of key personal to be called in from other sections or from off site.

Aspects to be included in an onsite emergency plan: some of the aspects to be included in onsite emergency plan are as follows.

❖ Safety Measures

The work place and surrounding area are needed to kept clean and free from all obstructions. Solid waste, Hazardous waste like oily cotton, oily rags and empty barrels are properly stored away from any source of fire. Spill of oil and grease is immediately cleaned to reduce accidental fall.

❖ Loading and transportation of Materials

- 1) Overloading of the trucks is strictly prohibited and material is properly distributed and tied as far as possible.
- 2) Care should be taken during the loading of heavy billets by crane. Supervision of the crane movement to be given importance by the safety supervisor of the industry.
- 3) Care to be taken by the drivers while moving back to avoid any accident.
- 4) The maximum speed limit of the heavy vehicle is <20Km/ hr.

❖ Operating Machineries

1. Only the authorized person should operate the machine or equipment.
2. The repairing, cleaning and oiling of machineries will do when the machineries are not in use.
3. Before switching on electricity, gas, acid, air or gas presence is ensured to be negligible by the safety supervisor that no person should be injured nearby.
4. All the exposed part of the moving machines like pulley, belt, chains, and rotating collars is properly guarded.
5. The machine guard and safety device is confirming the statutory provisions required for the machine.
6. No person allowed standing in unsafe position while a Bucket (for Scrap or Sponge) is being loaded or unloaded by crane.
7. No person is allow to stand in unsafe position while a Scrap or Sponge is being loaded or unloaded by Magnets though EOT crane.
8. No one will ride stand or walk under load suspended from cranes
9. When any defect is observed in a crane, it will be immediately reported to the officer/supervisor concerned for repair.
10. A crane driver will not make a lift without standard signals from the person with the job and he will take signal only from one person at a time. All persons in places over which crane is operating, will listen for crane bells and other signalling devices.

❖ Vehicular Traffic

1. All vehicles will comply with all the traffic regulations within the plant and they will not exceed the safe speed limits i.e. 20 Km/ hr.
2. Sitting on the side flaps or standing in a truck while in motion is strictly prohibited.
3. Overloading of the trucks are strictly prohibited.

5.2 Offsite emergency plan

The offsite emergency plan is an integral part of any major hazard control system. It should be based on those accidents identified by the works management, which could affect people and the environment outside the works. Thus, the Off Site Plan follows logically from the analysis that took place to provide the basis for the On Site Plan and the two plans should therefore complement each other. The key feature of a good off site emergency plan is flexibility in its application to emergencies other than those specifically included in the formation of the plan The role of the various parties that may be involved in the implementation of an offsite plan has been described below. The responsibility for the off site plan will be likely to rest either with the works management or with the local authority.

Aspects to be included in an offsite emergency plan: some of the aspects to be included in offsite emergency plan are as follows.

□ Emergency Control Centers:

The emergency control center is the place from which the operations to handle the emergency will be directed and coordinated. It has been attended by the site work main controller, key personnel and the senior officers of the fire and police services.

Emergency control center had therefore contained the following:

1. An adequate number of external telephones.
2. An adequate number of internal telephones
3. A plan of the workers to show
4. Areas where there are inventories of HSD and chlorine
5. Sources of safety equipment
6. Fire hydrant system and alternate supply sources
7. Assembly point, First-aid centre/ casualty treatment centre
8. Truck parking information
9. A nominal roll of employee
10. List of personnel with addresses telephone numbers
11. Specialized monitoring equipment will be available at all the sensitive points to deal with small to medium spillages of the chemical.
12. The equipment operators must be trained in development of the equipment.

5.3 General Safety Rules:

At the existing plant where fuels chemicals and other materials are reactive in nature following general guidelines are made.

1. Fitting dress and use of personnel protective equipment recommended for respective job has been adhered to by everyone.
2. All unsafe conditions or natural occurrences have been reported promptly to the supervisor/ head of the department of safety.

The above practice will also be applicable during proposed expansion phase.

5.4 Personal Protective Equipment (PPE):

Personnel protective equipment play vital role in reducing the losses in case of an accident. They provide protection to the workmen from injuries during the execution of job. The various protective equipments are suggested as below.

Gloves and protective clothing: Since the chemicals are very corrosive and toxic, those called upon to handle has been provided with gloves and protective clothing.

Safety Helmets: Every one inside the plant and the visitors has to wear safety helmet.

Safety Belts: Safety belts provide protection in case of fall while working at height.

Safety Shoes: Every one inside the plant and the visitors wears safety shoes for protecting their toes and heels. The material of the shoes is resistant to the type of chemicals and heat within the plant.

Safety goggles and face shields: Suitable goggles protect the eyes from flying objects and harmful rays of welding and furnace flames and also heat, dust and chemicals substances. Standard welders goggles, face shield or hood has been used by the workers and helpers while involved in operations, wherever applicable.

3.DISASTER MANAGEMENT PLAN

Disaster can be natural or manmade which have a negative impact on society or environment or both.

1) Natural disasters

A natural disaster is the consequence of a natural hazard (e.g. earthquake, flood, tsunami, hurricane etc.) which affects humans. The damage is caused by the lack of appropriate emergency management leading to financial, environmental and human life loss. Due to the location of this plant, earthquake is the first and foremost natural hazard followed by flooding.

This area is not near the coast and thus, is not affected by tsunamis or hurricanes.

2) Man-made disasters

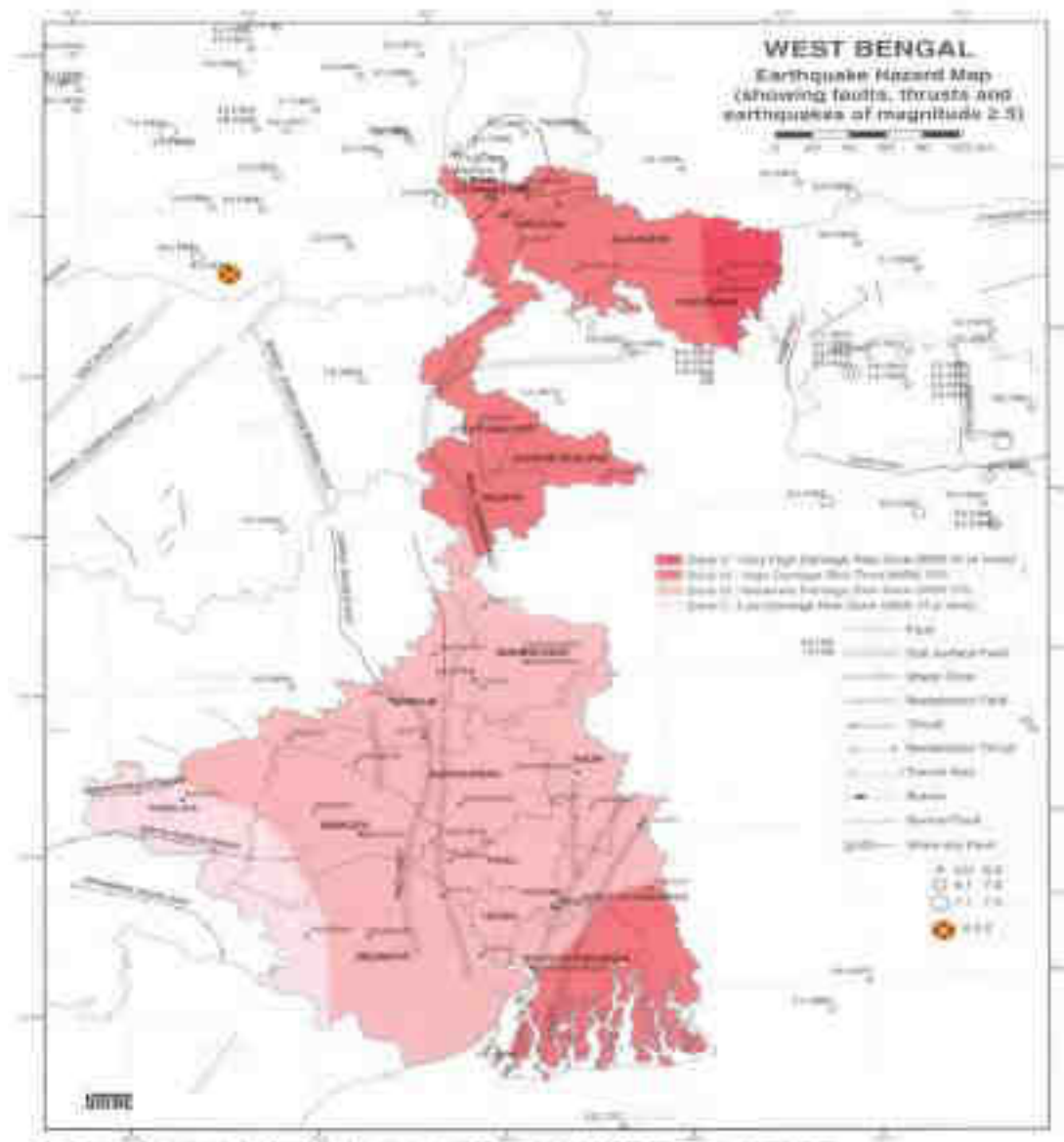
The man-made disasters are caused by human action, negligence, error, or involving the failure of a system. Human-made disasters are in turn categorized as technological disaster. Technological disasters are the results of failure of technology involving material, design, system or operational failures.

3.1 Natural disasters

3.1.1 Seismic & Earthquake risk management

According to GSHAP data, the state of West Bengal falls in a region of low seismic hazard in the south-west that rises steadily towards the east and the north of the state. As per the 2002 Bureau of Indian Standards (BIS) map, this state also falls in Zones II, III, IV & V Historically, parts of this state have experienced seismic activity in the M5.0-6.0 range.

The earthquake hazard map from National Disaster Management Agency is given in **Fig. No. 1**.



Source: <http://wbmd.gov.in/writereaddata/Hazard%20Maps/Earthquake/3.jpg>; accessed on 13.12.2021 & 21.03.2022)

Fig. No. 1: Earthquake Hazard Map of West Bengal

No major earthquake has been noticed in West Bengal state since 1897. However, details of the earthquakes in last 2 decades are given below.

Date	Description
28 November 2005	Ganga Canyon, South of the Sunderbans, Mb 4.7 21.015 N, 89.158 E, D=010.0 kms, OT=16:57:13 UTC
20 June 2002	Jayachari - Rajshahi, Bangladesh, Mw 5.1 25.868 N, 88.874 E, D=037.8 kms, OT=05:40:43 UTC
12 June 1989	Sunderbans, Bangladesh, Mw 5.7 (7) 21.861 N, 89.763 E, D=006.0 kms, OT=00:04:09 UTC (7)
26 March 1981	Chingrakhali- Bhairabnagar area, West Bengal, Mb 4.9 (4). 21.180 N, 88.620 E, OT=02:47:10 UTC (4)
19 November 1980	Gangtok area, Sikkim, Ms 6.1 (4). 27.400 N, 88.800 E, D=047.0 kms, OT=19:00:45 UTC (4)

Source: Amateur Seismic Centre, <http://asc-india.org/seismi/seis-west-bengal.htm>, accessed 13.12.2021

After assessment of the website <https://earthquaketrack.com/in-28-medinipur/recent> (accessed 13.12.2021) which lists the latest earthquakes, it was found that no earthquakes were found to have occurred in or within 10 km radius of the project site in the last ten years.

Despite the low level of seismicity and the proximity of low magnitude earthquake that has occurred in the region, the construction of the buildings will be done as per National Building Code and IS 875. In case of damage due to earthquake, the disaster management shall be done in line with National Disaster Management Authority's system. There is no threat of landslide at project site, it being flat in topography.

Management Measures:

Things that need to be done shall be as follows:

- During construction, the various building byelaws and BIS codes will be followed.
- A common meeting point inside the plant site and a contact outside the plant will be identified and known to all employees and workers.
- List important telephone numbers and torch, water, transistor, first-aid kit and non-perishable food will be kept at a designated place. An emergency kit shall be ready at all times.
- Train workers in basic first aid. Teams for first-aid; search and rescue etc. will be formed in the area and preparedness drills will be conducted for what to do in case of an event.

In case of occurrence of an earthquake, every individual would have to follow the pointers below:

- Keep calm and help others to keep calm. Do not panic.
- If you shall be inside of a building: Protect yourself by ducking under sturdy table, and staying there until the shaking stops. Turn off electricity and gas.
- If you shall be on the road in a built up area: Immediately move away from buildings, slopes, streetlights, power lines, hoardings, fly-overs etc. into open spaces. Do not run or wander; keep the roads free for movement.
- If you shall be driving: Stop the vehicle away from the buildings, slopes and electric cables; come out of the vehicle, hold it and stay by its side
- Keep calm and expect aftershocks.
- Check if you or anyone else is hurt. Use first-aid and wait for medical help.
- Do not move seriously injured people.
- Do not turn-on electrical appliances and gas.
- Check your building for damages.
- Do not waste water and do not block telephone lines.
- Do not spread rumours and don't panic.
- Volunteer to help.
- Keep the streets clear for emergency services.
- Do not use matches, lighters, camp stoves or electrical equipments, appliances until you can be sure there are no gas leaks. They may create a spark that could ignite leaking gas and cause an explosion and fire.
- Do not use your telephone except for a medical or fire emergency. It could tie up the lines needed for emergency response. If the phone doesn't work send someone for help. Conserve mobile phone & laptop batteries for use in emergency as power may be cut for long.

For general structural safety, the following codes shall be followed:

- IS: 456:2000 "Code of Practice for Plain and Reinforced Concrete.
- IS: 800-2007 "Code of Practice for General Construction in Steel.
- IS: 801-1975 "Code of Practice for Use of Cold Formed Light Gauge Steel Structural Members in General Building Construction.
- IS 875 (Part 2):1987 Design loads (other than earthquake) for buildings and structures Part 2 Imposed Loads.
- IS 875 (Part 3):2015 Design loads (other than earthquake) for buildings and structures Part 3 Wind Loads.
- IS 875 (Part 4):1987 Design loads (other than earthquake) for buildings and structures Part 4 Snow Loads.
- IS 875 (Part 5):1987 Design loads (other than earthquake) for buildings and structures Part 5 special loads and load combination (second revision).
- IS: 883:2016 "Code of Practice for Design of Structural Timber in Building.
- IS: 1904:1986 "Code of Practice for design and construction of foundations in soil".
- IS1905:1987 "Code of Practice for Structural Use of Unreinforced Masonry.
- IS 2911 (Part 1): Section 1: 2010 "Design and Construction of Pile Foundation -Code of Practice IS 2911-1-4:2010: Code of Practice for Design and Construction of Pile Foundations.
- IS 2911 (Part 2): Section 1: 1980 "Code of Practice for Design and Construction of Pile Foundation

For Earthquake Protection, the following codes shall be followed:

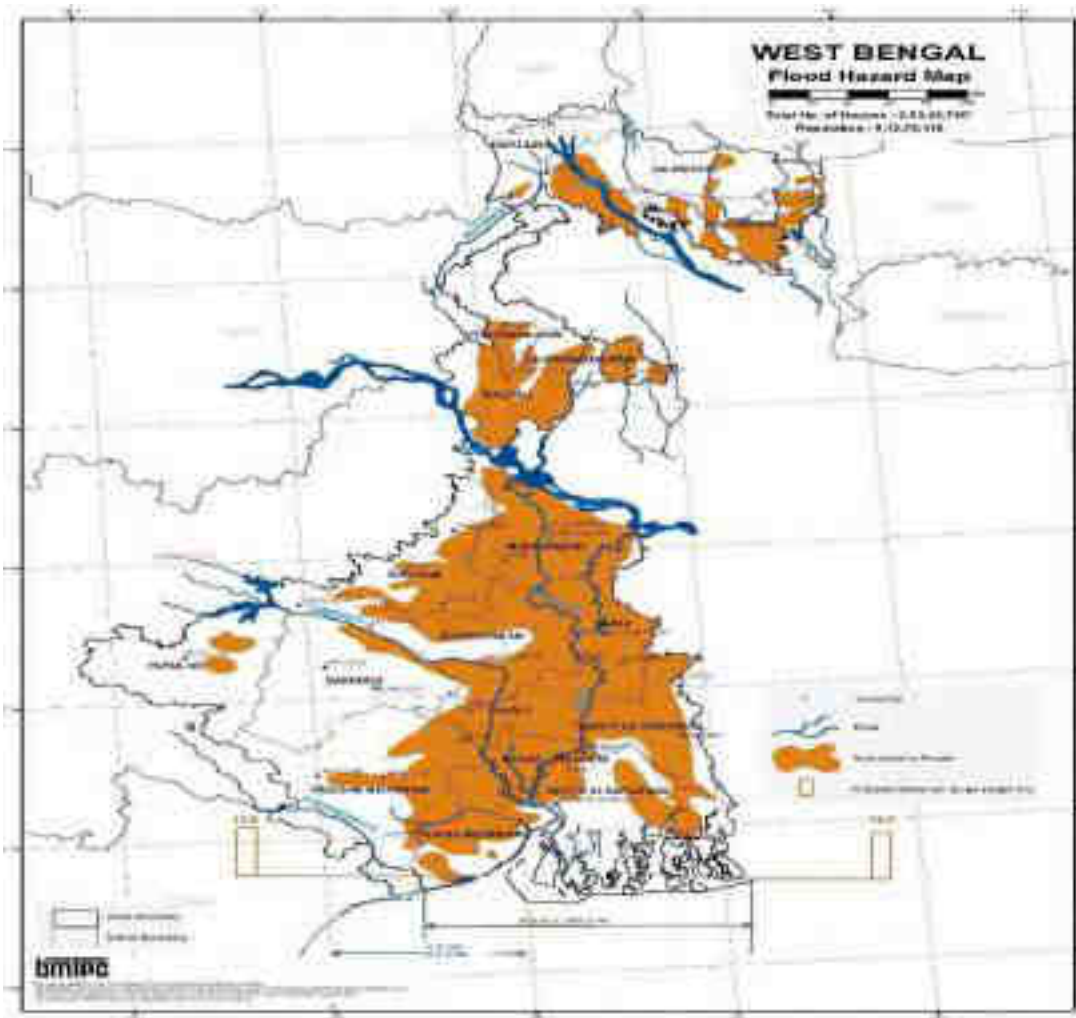
- IS: 1893-2002 "Criteria for Earthquake Resistant Design of Structures (Fifth Revision)"
- IS:13920-2016 "Ductile Detailing of Reinforced Concrete Structures subjected to Seismic Forces - Code of Practice"
- IS:4326-2013 "Earthquake Resistant Design and Construction of Buildings - Code of Practice (Second Revision)"
- IS:13828-1993 "Improving Earthquake Resistance of Low Strength Masonry Buildings - Guidelines"
- IS:13827-1993 "Improving Earthquake Resistance of Earthen Buildings - Guidelines",
- IS:13935-2009 "Seismic Evaluation, Repair and Strengthening of Masonry Buildings - Guidelines"

Flood management

In case of extreme scenario of occurrence of flood in study area, people from the nearby-flooded villages might flock for shelter to the higher elevations and this project could be one of their refuges in times of distress. Hence, arrangement of flood shelter is proposed in the project as follows:

- Several clean containers for water, large enough for a 3-5 day supply of water.
- A 3-5 day supply of non-perishable food and a non-electric can opener.
- A first aid kit and manual and prescription medicines and special medical needs.
- A battery-powered radio, flashlights, and extra batteries.
- Sleeping bags or extra blankets.
- Water-purifying supplies, such as chlorine or iodine tablets or unscented, ordinary household chlorine bleach.
- Baby food and/ or prepared formula, diapers, and other baby supplies.
- Disposable cleaning cloths, such as "baby wipes" for the whole family to use in case bathing facilities are not available.

- Personal hygiene supplies, such as soap, toothpaste, sanitary napkins, etc.
- An emergency kit for your car with food, flares, booster cables, maps, tools, a first aid kit, fire extinguisher, sleeping bags, etc.
- Rubber boots, sturdy shoes, and waterproof gloves.
- Insect repellent containing DEET or Picaridin, screens, or long-sleeved and long-legged clothing for protection from mosquitoes which may gather in pooled water remaining after the flood.



Source: <https://bmtpc.org/DataFiles/CMS/file/VAI2019/wb.html>; accessed on 13.12.2021 & 21.03.2022)

Fig. No. 2: Flood Potential Map

3.2 Manmade disasters

Disaster may occur due to following hazards in the steel complex.

- Fire
- Explosion
- Oil spillage
- Electrocution
- Hazardous waste
- Accident
- Liquid hot metal spill

In any plant there are various activities or areas which pose substantial threat to the workers and hence hazardous in nature. The potential hazardous areas and the likely accidents with the concerned area have been enlisted below in **Table No. 15**.

Table No. 15: Hazard Identification of the Proposed Steel Plant

Group	Item	Nature of Hazard	Hazard Potential	Remarks
Raw materials handling	Coal for coking	Fire	Moderate	Fire hazard
	Water treatment Chemicals like acids/alkalis	Toxic	Major	Bio-corrosive
	Lube oils/grease	Fire	Moderate	Flammable
Production units				
Coke Plant	Dusts and fumes	Asphyxiation	Moderate	Air pollution
	VOC emissions from battery	Toxic	Moderate	Health hazard
	Coke over gas	Fire & Toxic	Major	Fire and CO hazard
Agglomeration (Sintering)	Dusts	Respiratory	Moderate	Ambient air pollution
- Iron making in	Release of untreated DRI/B wastewater	Toxic	Major	Severe pollution surface water
	BFG handling	Fire	Major	Fire hazard
	Hot metal & slag Handling, dolomite	Fire	Major	Fire hazard
Steel making	Release of untreated BOFs wastewater	Toxic	Major	Severe pollution surface water
	BOFG handling	Fire	Major	Fire hazard
	Hot liq. Steel & Slag Handling	Heat radiation	Major	Bio-corrosive
Rolling Mills	Gas firing/fuel firing	Fire	Major	Fire hazard
	Release of untreated wastewater	Toxic	Major	Severe pollution surface water
Captive Power Plant (CPP)	MBF Gas, Coke over Gas	Fire	Major	Fire hazard
Utilities				
Fuel gas	Gas leaks	Fire & Toxic	Major	Fire & Co Pollution
- Electric Power Supply	Short circuit	Fire	Major	Fire hazard
Liquid fuel	Fuel handling & storage area	Fire & Toxic	Major	Fire Hazard

- Hydraulic oil and lubricants	Accidental discharge of hydraulic oil under pressure	Fire & Toxic	Moderate	Fire & personal injury
Lime Dolo production and transportation	dust	Respiratory	Moderate	Ambient air pollution

4. ACCIDENT LEVEL

If there is any disaster in any part of plant/work place due to any reason the classification of area, which may be affected, and nature of accidents can be made as follows:

Table No. 16: Levels of Accidents

1	Level	I	Operator level
2	Level	II	Local community level
3	Level	III	Regional/national level
4	Level	IV	International level

Out of the above, only level- I and level - II class of accidents can be considered applicable for steel complex.

Level - I Accidents

Accidents that may happen due to electrocution, fire, explosion, oil spillage, liquid hot metal spill and spontaneous ignition of combustible material at operator level. This level has low probability of occurrence and affects persons inside the plant. Various hazardous area, which have been mentioned above in **Table No. 17** as potential hazard area will be affected during this level of accidents.

Level- II Accidents

Accidents of this level can occur in case of sabotage and complete failure of all automatic control/warning systems, and also if the fuel oil stored in tank leaks out. However probability of occurrence of this is very low due to adequate security, training and education of persons of plant responsible for operating such systems.

5. DISASTER PREVENTIVE MEASURE:

In order to prevent disaster due to fire, explosion, oil spillage, electrocution, liquid hot metal spillage and other accidents, following preventive measures shall be adopted:

1. Design, manufacture and construction of all plant and machineries building will be as per national and international codes as applicable in specific cases and laid down by statutory authorities.
2. Provision of adequate access way for movement of equipment and personnel shall be kept.
3. Minimum two no. of gates for escape during disaster shall be provided.
4. Water spraying in coal storage shall be provided.
5. System of fire hydrants comprising electrical motor division and diesel engine drivers fire pumps with electrical motor driver jockey pump for keeping the fire hydrant system properly pressurized and automatic water sprinkling system for all important transformers.
6. Fire hydrants with fire hoses in all areas where fire can break.
7. Shielded cover will be paved on the signal cable to separate from the power cable if they shall be laid together.
8. Steam fire extinguishers shall be adopted at all the dangerous places in the workshops and plant.

9. Ventilation and temperature control facilities is set at all operation room, duty room, and assistant room as well as overhang fans to ensure labour health.
10. The design of this project is set with safety measurements such as lighting proof grounding and anti- electric shock.
11. The safety exit and safety evacuation space would meet the requirements of building design for fireproofing regulations GBJ16-87 (1997 Edition).

5.1 Site Emergency Control Room:

In order to control the disaster more effectively, a Site Emergency Control Room (SECR) will be established at the plant site. The facilities provided are given in following sections:

- Plant Layout.
- Plant Layout with inventories and locations of fuel oil, storage tanks, coal storage, assembly points, location of safety equipment, etc.
- Hazard identification chart, maximum number of people working at a time, etc.
- Population around factory.
- Internal telephone connections.
- External telephone connections.
- Hotline connection to district collector, police control room, fire brigade, hospital etc.
- Public address system.
- Torch-lights.
- List of dispensaries and registered medical practitioners around factory.
- Area map of surrounding villages.
- Nominal roll of employees.
- List of personnel with addresses, telephone numbers
- Note pads and ball pens to record message received and instructions to be passed through runners.
- The blown up copy of Layout plan showing areas where accident has occurred.
- Fire hydrant system in different location.
- Truck parking information
- Specialized monitoring & management equipment will be available at all the sensitive points to deal with small to medium spillages of the chemical.

5.2 Safety Department:

Safety department has been manned by experienced engineers and other supporting staff who would bring safety consciousness amongst the work force of plant.

The safety department has been conducted regular safety awareness courses by organizing seminars and training of personnel among the various working levels.

6. CONTINGENCY PLAN FOR MANAGEMENT OF EMERGENCY:

To tackle the situation, a disaster control room will be set up having links with all control rooms of the plant. An up to date communication facility will be provided to control rooms. In case of disaster, emergency meeting of all concerned sectional heads will be convened to decide control measures and ensure it's implementation. The emergency organisation shall be headed by emergency leader called Site Main Controller (SMC) who will be plant manager. In his absence senior most person available at plant shall be emergency leader till arrival of plant manager.

Besides the top officials described above, rest of the employees shall be divided into three action teams namely A, B, C, and a Non-action Group D. Action team 'A' will consist of staff of section in which accident has occurred. Action team „B“, will consist of staff of non-affected sections and maintenance department. Action team 'C' will consist of supporting staff i.e. Security supervisor, Warehouse Supervisor, Shift Supervisor etc. Group „D“ will consist of people not included in those teams like contractor, labour, security men etc.

Team 'A' comprising staff of affected section will be taking up the action in case of an emergency. Team 'B' will help team 'A' by remaining in their respective sections ready to comply with specific instructions of SMC. Team 'C' consisting of supporting staff will help team „A“ as required and directed by Team 'B'. Group „D“ will be evacuated to safe region under supervision of Team 'C'.

A multichannel communication network shall connect SECR to control rooms of plant, various shops, and other departments of plant, fire station and neighboring industrial units. Co-ordination among key personnel and their team has been shown in **Fig. No.3**.

6.1 Out-side Organizations Involved in Control of Disaster:

In the event of massive spillage of fuel oil or occurrence of fire, population inside and outside plant boundaries, vegetation and animal etc. may be affected. In such circumstances secondary fire may also take place. In such an event help shall be taken from outside agencies also.

The organizations that shall be involved shall be as follows:

- a) State and local authorities: District Collector, Revenue Divisional Officer, etc.
- b) Factory Directorate, Director of factories and boiler, Joint Director of factories and boiler, Asstt. Director of factories and boiler
- c) Environmental agencies: Member Secretary of State Pollution Control Boards, Regional Officer State Pollution Control Board.
- d) Fire Department: Chief District Officer
- e) Police Department: District Superintendent of Police, SHOS of nearby Police Stations
- f) Public Health Department:
 - District Medical Officer
 - Residential medical officers of PHCs in a radius of 4-5 km around plant site
- g) Local Community Resources
 - Regional Transport officer
 - Divisional Engineer Telephones

The outside organisations shall directly interact with district magistrate, who in consultation with SMC, shall direct to interact with plant authorities to control the emergencies.

List of Key persons of Off- Site Emergency Plan has been shown below:

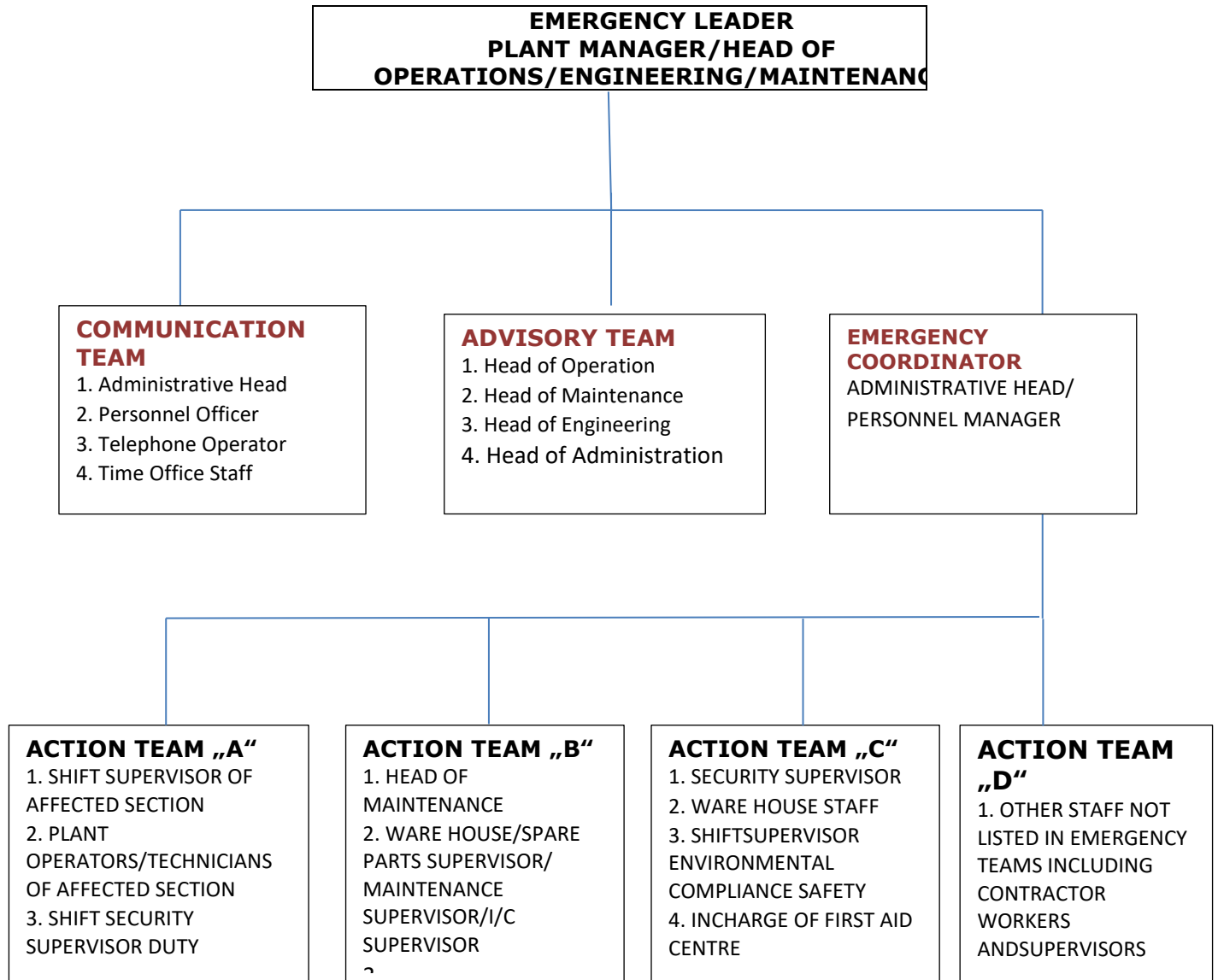
1.	Collector & Magistrate of District
2.	Additional District Magistrate
3.	Block development Officer
4.	Industrial Development Officer
3.	Fire & Disaster Office
4.	Controller of Explosive
5.	District Informatics Officer
6.	Superintendent of Police
7.	District Health Officer

Table – 17-Local Statutory Government bodies

S. No	Authority	Contact. No
1.	Collector Office	03222-275571
2.	District police, Paschim Medinipur	03222-275609
3.	District Control Room	03222-267983
3.	SDM, Kharagpur	03222-225345
5.	Emergency Control Room	100
6.	District Fire Brigade	101 / 03222-263895
7.	Fire Station, Kharagpur	03222-255709, 8584027174, 8584027175

8.	Nearest Police Station, Kharagpur	03222 227 841
9.	Medical Helpline	03222-275764, 275102
10.	Nearest Hospital, Kharagpur	094340 61074
11.	Ambulance	03222-275646, 275384, 275753, 275764

Fig. No. 3: General Coordination Among on Site Emergency Team Members



6.2 Hazard emergency control procedure

The onset of emergency will in all probability, commence with a major fire or explosion, the following activities will immediately take place to interpret and take control of emergency.

1. Staff member on duty will go to nearest fire alarm call point and trigger off the fire alarm.
2. On site fire crew led by fireman will arrive at the site of incident with fire foam tenders and necessary equipments.
3. Site main controller will arrive at SECR, from where he will receive information continuously from incident controller and give decisions and direction to the incident controller, plant control room, Emergency security controllers and to the site medical officer to take care of casualties.

Site Main Controller will be directing and deciding a wide range of following disparate issues. In particular SMC has to decide and direct.

- Whether incident controller requires reinforcement of manpower and facilities
- Whether plant is to be shut down or more importantly kept running.
- Whether staff in different locations is to remain indoor or to be evacuated and assembled at designated collection center.
- Whether missing staff members are to be searched or rescued.
- Whether off-site emergency plan to be activated and a message to that effect is to be sent to district headquarter.

When the incident has eventually been brought under control as declared by the Incident Controller, the SMC shall send two members of his advisory team as inspectors to incident site for:

- An assessment of total damage and prevailing conditions with particular attention to possibility of re-escalation of emergency which might, for the time being, be under control.
- Inspection of other parts of site, which might have been affected by impact of incident.
- Inspection of personnel collection and roll call centers to check if all persons on duty have been accounted for.
- Inspection of all control rooms of plant to assess and record the status of respective plants and any residual action deemed necessary.

Post emergency, the inspectors will return to SECR with their observations and report of finding and will submit the same to SMC.

7. MISCELLANEOUS PREVENTIVE MEASURES

7.1 Alarm system to be followed during disaster

On receiving the message of "Disaster, from Site Main Controller, fire station control room attendant will sound SIREN I WAILING TYPE FOR 5 MINUTES. Incident controller will arrange to broadcast disaster message through public address system.

On receiving the message of "Emergency Over" from Incident Controller the fire station control room attendant will give "All Clear Signal, by sounding alarm straight for two minutes. The features of alarm system will be explained to one and all to avoid panic or misunderstanding during disaster.

7.2 Actions to be taken on hearing the warning signal

On receiving the disaster message following actions will be taken:

- All the members of advisory committee, personnel manager, security controller, etc. shall reach the SECR.
- The process unit persons will remain ready in their respective units for crash shutdown on the instruction from SECR.
- The persons from other sections will report to their respective officer.
- Residents of township will remain alert.

7.3 Safety devices/equipment

In order to make the services more effective the workers and rescue team will be provided with the safety equipment and items like gas mask respirators, fire entry suits, fire blankets, rubber shoes or industrial shoes, rubber glove, ladders, ropes, petromax lamp torches etc.

7.4 Fire extinguishers

As per The different type of fire extinguishers have been provided within plant site. During expansion phase also, strategic locations in the plant will be identified and applicable fire extinguishers will be provided. For the expansion phase, the types of fire extinguisher which have been proposed is given in **Table No. 18**.

Table No. 18: Different Fire Extinguishers at Different Sites

Name of Site	Type of Fire Extinguishers
Generator area	CO2 & Foam Type, Dry Chemical Powder

Cable galleries	CO ₂ & Foam type, Dry chemical powder
High voltage panel	CO ₂ & Foam type, Dry chemical powder
Control rooms	CO ₂ & Foam type, Dry chemical powder
MCC rooms	CO ₂ & Foam type, Dry chemical powder
Pump Houses	CO ₂ & Foam type, Dry chemical powder
Fuel storage	CO ₂ & Foam type, Dry chemical powder sand basket
Guest houses and offices	Dry chemical powder, foam type
Godowns, store	CO ₂ & Foam type

7.5 Casualty services

The casualty services section is and will be headed by a medical officer who is responsible for immediate medical aid and first aid. The section is and will be fully equipped with all first aid medical facilities. An ambulance has been provided for on duty round the clock to tackle the emergency. On receiving the call of emergency, the medical officer will report immediately to disaster site along with mobile first aid equipment and ambulance. The immediate first aid will be made available and the medical officer will assess further line of action in the best interest of victim.

7.6 Specific Treatment

Specific treatment / preventive measures for injuries and hazards will be provided in the Medical Centre. Eye and body showers will be provided in different required places of plant which shall be identified by the Safety Officer. Major hazards/injuries and treatment facilities in the plant shall comprise of All primary pathological diagnosis, X-Ray, Ultra sound, ECG, Trauma cases, Audiometry Test, Spirometry test, Vision testing, Eye treatment, Burn treatment, Poisoning treatment Electrical Shock treatment and Ambulance Facility.

The emergency, critical cases & diseases which cannot be treated shall be referred & treated at larger hospitals in the district or Medical Colleges or super speciality hospitals.

8. INDUSTRIAL SAFETY

For protection of working personnel, equipment and machineries from any damage or loss and to ensure uninterrupted production, adequate safety and fire-fighting measures have been planned for the proposed plant. Important provisions are as follows:

- Laying down specific Safety, Health & Environment policy to guide
- Provision of adequate personal safety appliances to workers engaged in hazardous installations.
- Practices of safety inspections / monitoring at regular intervals by a team of experienced professionals to guide & educate the workforce.
- Provision of detection and alarm system to allow a developing fire to be detected at an early stage.

Plant uses a wide variety of specialized equipments and methods for handling construction materials. This equipment ranges from the most basic forklift to Cranes, Derricks, Hoists, Elevators and Conveyors. The hazards of using powerful equipment and of moving heavy materials require a wide variety of protective measures for employees on the site. The work talks about regulatory requirements and safe use for this equipment. The work covers safe rigging and slings for proper lifting, and safety requirements for specific types of Cranes, Derricks, Hoists, Elevators, Conveyors, and forklifts. Bearing this in mind the cranes, hoists, lifts are periodically tested and certificate issued for continuous use.

8.1 Safety Management

No. of elements of safety management are quite large. They also vary from case to case. They can be grouped under five broad categories or sub-systems.

1. Managerial Systems
2. Accident Prevention Systems
3. Support Systems
4. Event Management Systems

5. Evaluation Systems**Managerial Systems**

- Safety Policy
- Safety Organization
- Safety Objectives
- Safety Responsibilities
- Safety Accountability
- Safety Coordination

• Safety Budget

- Safety Committees
- Safety Meetings
- Safety Laws / Rules

Accident Prevention Systems

- Equipment and workplace standards
- Maintenance & Testing Procedures
- Contractor & Visitor Control
- Safety Work Permit (SWP)
- Hazard Identification, Reporting, Investigation & corrective Action
- Inspection Systems
- Monitoring Systems
- Risk Assessment
- Personal Protective Equipments

Support Systems

- Induction
- Management skills training
- Job specific training
- Safety Awareness Promotion
- Safety Information Services

Event Management Systems

- Emergency Management
- Occurrence Reporting, Investigation & Analysis
- Compensation & Rehabilitation

Evaluation Systems

- Safety Performance Reviews
- Safety systems audits (Internal)
- Safety systems reviews
- SWPs compliance
- Safety action plan review
- Safety system audits (External)

8.2 Appropriate Personal Protective Equipments (PPE)

Personal protective equipments are given in **Table No. 19**.

Table No. 19: Personal Protective Equipments

Sl. No.	Unit	Hazard	Injury	Use of PPE
1.	Material handling and	Dust pollution Hands going	Eye Injury, Dust inhalation	a) Safety Goggles Eye wash taps

HIRA & DISASTER MANAGEMENT PLAN**ANNEXURE: IX**

	storage	between running parts of conveyors Machine"s sound	Physical injury Hearing system damage	b) Safety boot, Hand leather gloves c) Ear muffles Fire-fighting equipments
2.	All manufacturing sub-units	Dust pollution, hand going into parts of machines/ conveyors, body part touching hot components, machine"s sound, explosion/ blast, hot air/ steam release, hot metal spillage	Burn injury, physical injury, fatality, damage to ear drum	a) Safety Goggles Eye wash taps b) Safety boot, Hand leather gloves, leather aprons c) Ear muffles Fire-fighting equipments

OHS RECORD

ANNEXURE : X

FDIM NO. 17

HEALTH

(Prescribed under Sub-Section 43-B of The West Bengal Factories Act, 1948)

1. Name of the Employer: ONGC

2. Name of worker: Abul Kalam

3. Age: 44 4. Sex: M 5. Date of Birth: 24/11/1952

Sl. No.	Date of examination	Employer's certificate	Name of the doctor	Date of the certificate	Name of the doctor	Remarks	Signature of the doctor	Signature of the employer
1.	11/11/2017							
2.	11/11/2017							
3.	11/11/2017							
4.	11/11/2017							
5.	11/11/2017							
6.	11/11/2017							
7.	11/11/2017							
8.	11/11/2017							
9.	11/11/2017							
10.	11/11/2017							
11.	11/11/2017							
12.	11/11/2017							
13.	11/11/2017							
14.	11/11/2017							
15.	11/11/2017							
16.	11/11/2017							
17.	11/11/2017							
18.	11/11/2017							
19.	11/11/2017							
20.	11/11/2017							
21.	11/11/2017							
22.	11/11/2017							
23.	11/11/2017							
24.	11/11/2017							
25.	11/11/2017							
26.	11/11/2017							
27.	11/11/2017							
28.	11/11/2017							
29.	11/11/2017							
30.	11/11/2017							

Note: - 1. Separate page should be maintained for individual worker.
2. First entry should be made for each examination.

REGISTER

(Prescribed under Sub-Section 43-B of The West Bengal Factories Act, 1948)

Sl. No.	Name of the worker	Age	Sex	Date of Birth	Date of Examination	Name of the doctor	Remarks	Signature of the doctor	Signature of the employer
1.	Abul Kalam	44	M	24/11/1952	11/11/2017				
2.	Abul Kalam	44	M	24/11/1952	11/11/2017				
3.	Abul Kalam	44	M	24/11/1952	11/11/2017				
4.	Abul Kalam	44	M	24/11/1952	11/11/2017				
5.	Abul Kalam	44	M	24/11/1952	11/11/2017				
6.	Abul Kalam	44	M	24/11/1952	11/11/2017				
7.	Abul Kalam	44	M	24/11/1952	11/11/2017				
8.	Abul Kalam	44	M	24/11/1952	11/11/2017				
9.	Abul Kalam	44	M	24/11/1952	11/11/2017				
10.	Abul Kalam	44	M	24/11/1952	11/11/2017				
11.	Abul Kalam	44	M	24/11/1952	11/11/2017				
12.	Abul Kalam	44	M	24/11/1952	11/11/2017				
13.	Abul Kalam	44	M	24/11/1952	11/11/2017				
14.	Abul Kalam	44	M	24/11/1952	11/11/2017				
15.	Abul Kalam	44	M	24/11/1952	11/11/2017				
16.	Abul Kalam	44	M	24/11/1952	11/11/2017				
17.	Abul Kalam	44	M	24/11/1952	11/11/2017				
18.	Abul Kalam	44	M	24/11/1952	11/11/2017				
19.	Abul Kalam	44	M	24/11/1952	11/11/2017				
20.	Abul Kalam	44	M	24/11/1952	11/11/2017				
21.	Abul Kalam	44	M	24/11/1952	11/11/2017				
22.	Abul Kalam	44	M	24/11/1952	11/11/2017				
23.	Abul Kalam	44	M	24/11/1952	11/11/2017				
24.	Abul Kalam	44	M	24/11/1952	11/11/2017				
25.	Abul Kalam	44	M	24/11/1952	11/11/2017				
26.	Abul Kalam	44	M	24/11/1952	11/11/2017				
27.	Abul Kalam	44	M	24/11/1952	11/11/2017				
28.	Abul Kalam	44	M	24/11/1952	11/11/2017				
29.	Abul Kalam	44	M	24/11/1952	11/11/2017				
30.	Abul Kalam	44	M	24/11/1952	11/11/2017				

OHS RECORD

ANNEXURE : X

FORM NO. 17

HEALTH

1. Name of the Employer: ONGC (PVT)
 2. Name of worker: Manoj KJ
 3. Age: 45 4. Date of birth: 10/04/1961

(Downloaded under Rules 81 & 82 of the Motor Vehicle (Central) Rules, 1989)

Sl. No.	Date of Examination	Examination Station	Name of the Inspector	Particulars of the Examination as required by	Test in writing	Test of driving skills on road	Remarks for driving licence	Remarks for driving licence
1	2	3	4	5	6	7	8	9
01	10/11/15				100/100			
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REGISTER

(Downloaded under Rules 81 & 82 of the Motor Vehicle (Central) Rules, 1989)

Sl. No.	Name of the Driver	Class of License	Issue Date	Valid Till	Remarks
1	2	3	4	5	6
01	Manoj KJ	VE - 02	10/11/15	10/11/16	
02					
03					
04					
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OHS RECORD

ANNEXURE : X

FORM NO. 11

HEALTH

REGISTER

1. Roll No. in the Register of this school: 2472

(Prescribed under Rules 15 & 16 of The State Board, Madras 1956, 1959)

2. Name of school: St. Ignace's School

as prescribed under Regulation No. 1185/19/1951 dated 15th Nov. 1951

3. Sex: M 4. Date of birth: 05/11/1982

Sl. No.	Date of Examination	Examination	Result	Remarks	Remarks	Remarks	Remarks	Remarks
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Sl. No.	Date of Examination	Examination	Result	Remarks	Remarks	Remarks	Remarks	Remarks
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Notes: - 1. Entries should be made in this record as per...

ORISSA METALLURGICAL INDUSTRY PVT. LTD.

CORPORATE ENVIRONMENT POLICY

M/s. Orissa Metallurgical Industry Private Limited was originally incorporated under the Companies Act 1956 on 17th October, 2019 by the name of M/s Rashmi Metallurgical Industry Private Limited. Ministry of Corporate Affairs, Government of India on 17th November, 2020 approved the change in name from M/s Rashmi Metallurgical Industry Private Limited to M/s Orissa Metallurgical Industry Private Limited. OMIPL is wholly owned subsidiary company of M/s Orissa Metaliks Private Limited (OMPL). OMPL was incorporated on 29.07.2006, having its registered office at 1, Garstin Place, 3rd floor, Kolkata-700001 in West Bengal.

- The company, Orissa Metallurgical Industry Private Ltd. recognizes its joint responsibility with the Government and the Public to protect environment and is committed to regulate all its activities so as to follow best practicable means for minimizing adverse environmental impact arising out of its operations.
- The aim of the Policy is to do all that is reasonably practicable to prevent or minimize, encompassing all available knowledge and information, the risk of an adverse environmental impact arising from manufacturing and supply of our products.
- This Policy document reflects the continuing commitment of the Board for sound Environment Management of its operations. The Policy is applicable to all company operations covering manufacturing, sales and distribution and other offices. This document defines the aims and scope of the Policy as well as responsibilities for the achievement of the objectives laid down.

THE VISION

Our business approach not only seeks to minimize our environmental footprint but also contribute in enhancing the environmental quality in and around our work area.

ENVIRONMENT POLICY

Orissa Metallurgical Industry Limited (OMIPL) is committed to meeting the needs of customers in an environmentally sound manner, through continuous improvement in environmental performance in all our activities. Management at all levels, jointly with employees, is responsible and will be held accountable for company's environmental performance.

Accordingly, OMIPL aims to:

- ❖ Continuously assess our environmental impacts and measure and improve our environmental performance by adopting best practices for prevention and control of pollution.
- ❖ Ensure safety of its products and operations for the environment by using standards of environmental safety, which are scientifically sustainable and commonly acceptable.
- ❖ Develop, introduce and maintain environmental management systems across the company to meet the company standards as well as statutory requirements for environment. Verify compliance with these standards through regular auditing.
- ❖ Make continuous efforts to reduce water intensity and fresh water usage by increased use of harvested and recycled water in our operation.
- ❖ Reduce waste, conserve energy and explore opportunities for reuse and recycle.

- ❖ Conduct all our operations in an environmentally responsible manner that is better than statutory environment compliances and applicable standards.
- ❖ Involve all employees in the implementation of this Policy and provide appropriate training.
- ❖ Work in partnership with external bodies and Government agencies to promote environmental care, increase understanding of environmental issues and disseminate good practices.

CORPORATE RESPONSIBILITIES

The Directors/ Chairman of the Company is responsible for the Compliance of the Policy. The Directors/ Chairman shall constitute a Cell called as Corporate Environment Cell (CEC). The CEC is committed to conduct the company operations in an environmentally sound manner. The CEC will:

- ❖ Set standards and establish environmental improvement objectives and targets for OMIPL as a whole and for individual units, and ensure these are included in the annual operating plans.
- ❖ Formally review environment performance of the company and report environmental performance to the Board of Directors/ Chairman of the company directly once every quarter.
- ❖ In case of emergency (non-compliance/deviation/violation/ major accident) immediate reporting to be done to the Directors/ Chairman of the Company.
- ❖ Review environment performance on monthly basis and recognise exemplary performance.

The overall responsibilities for environment management at plant level rest with Head of Environment Department. The Head of Environment Department will:

- ❖ Ensure implementation of Policy on environment at plant level and review, report environment performance of the plant to the Board of Directors/ Chairman of the company through CEC Cell once every quarter.
- ❖ In case of emergency (non-compliance/deviation/violation/ major accident) Head of Environment Department will do immediate reporting to the Directors/ Chairman of the Company.

The Corporate Environment Cell in coordination with Head of Environment Department will:

- ❖ Ensure implementation of Policy on environment and compliance with the Company's environmental standards and the standards stipulated as per law.
- ❖ Prevention of incidents or accidents that might result from abnormal operating conditions and
- ❖ Reduction of adverse effects that result from normal operating conditions.
- ❖ Establish appropriate management systems for environment management and ensure regular auditing to verify compliance.
- ❖ Establish systems for appropriate training in implementation of Environment Management Systems at work.
- ❖ Ensure periodic 3rd party environment audits through certification bodies to check efficacy of the Environment Management Systems
- ❖ Participate, wherever possible, with appropriate industry and Government bodies advising on environmental legislation and interact with national and local authorities concerned with protection of environment.

INDIVIDUAL UNITS RESPONSIBILITIES

The overall responsibility for environment management at each unit will rest with the unit's head who will ensure implementation of Policy on environment at unit level and report to Head of Environment Department

or CEC Cell as the case may be on monthly basis. Concerned line managers / heads of departments are responsible for environmental performance at department levels.

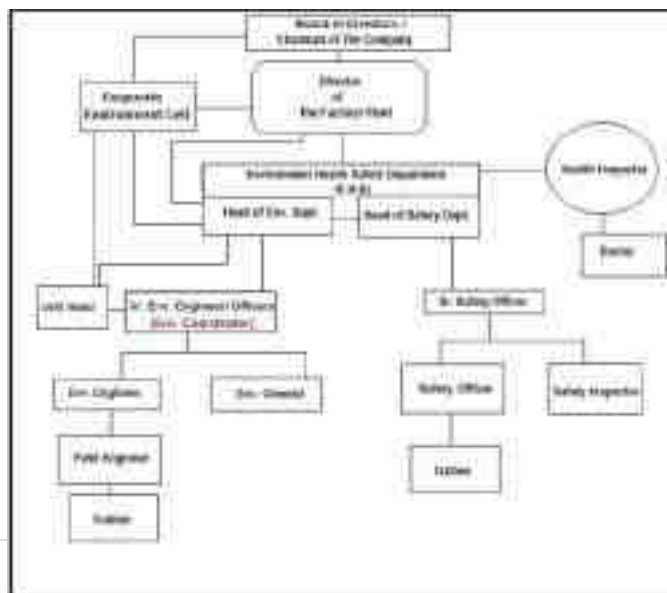
In order to full fill the requirements of the Policy at each site, the Unit Head will:

- ❖ Designate a unit environment coordinator who will be responsible for co-ordinating environmental activities at unit, collecting environmental data and providing expert advice and reporting environmental performance to the Unit Head on day to day or weekly basis as the case may be.
- ❖ Agree with the coordinator responsible for the unit specific environmental improvement objectives and targets for the unit and ensure that these are incorporated in the annual objectives of the concerned managers and officers and are reviewed periodically.
- ❖ Ensure that the unit complies with OMIPL environmental standards and the relevant national and state regulations with respect to environment.
- ❖ Ensure that all new operations are subjected to a systematic and formal analysis to assess environmental impact. Findings of such exercises should be implemented prior to commencement of the activity.
- ❖ Regularly review environment performance of the unit against set objectives and targets and strive for continual improvement.

The Unit Head, through the Designate unit environment coordinator will:

- ❖ Ensure periodic audits to verify compliance with environment management systems.
- ❖ Ensure dissemination of relevant information on environment within the unit and to outside bodies, and regularly interact with Government authorities concerned for protection of environment.
- ❖ Maintain appropriate emergency procedures consistent with available technologies to prevent / control environmental incidents.
- ❖ Also ensure periodic 3rd party environment audits through certification bodies to check efficacy of the Environment Management Systems.
- ❖ Sustain a high degree of environmental awareness through regular promotional campaigns and employee participation through training, safety committees, emergency drills etc.
- ❖ Provide appropriate training to all employees.
- ❖ Report environmental performance to Corporate Environment Cell on a monthly basis.

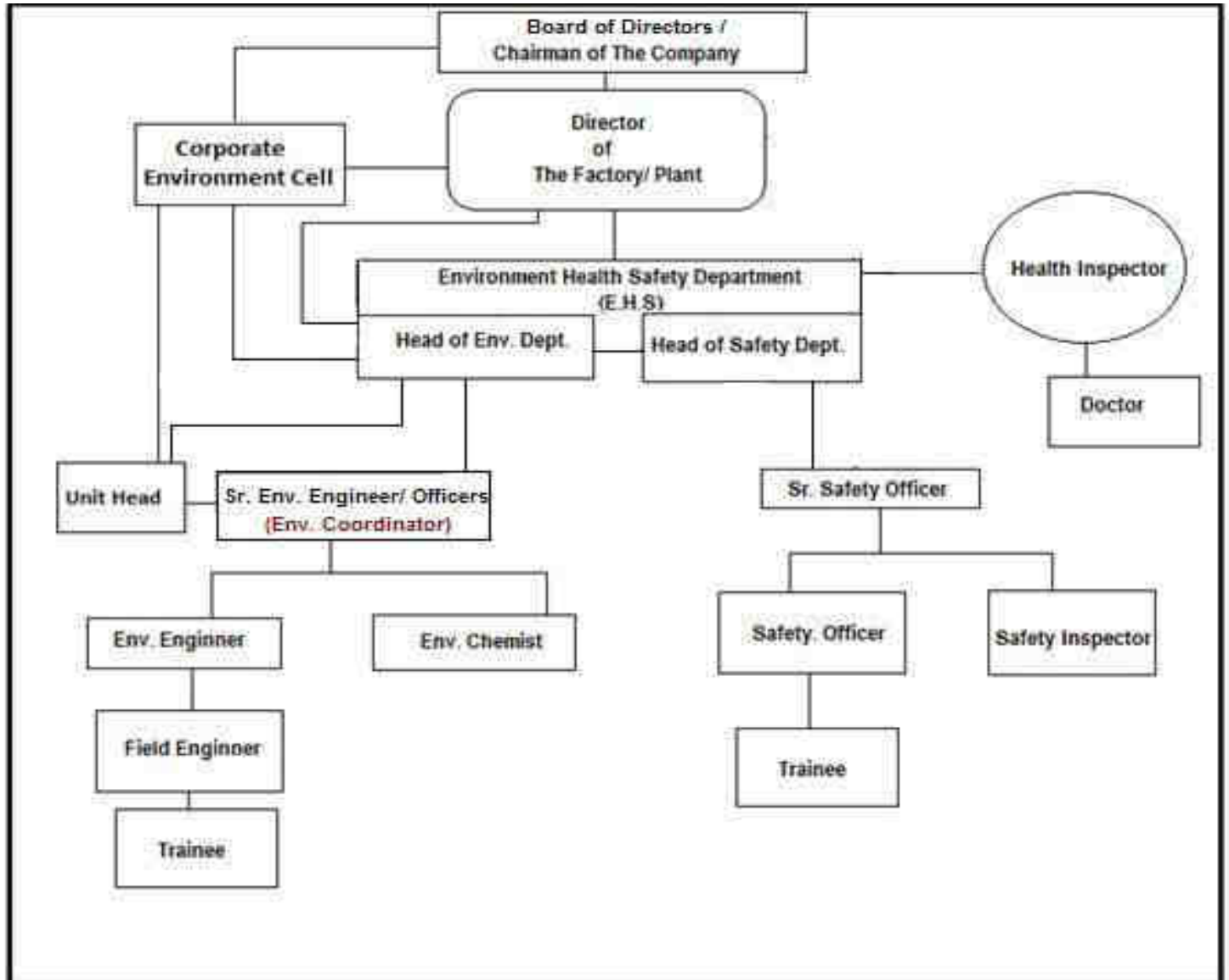
The Hierarchy of our Corporate Environment management Cell that is being strictly followed is:



Date:-10.08.2020

CERTIFIED TRUE COPY
 [Signature]
 Director, Advanced Engineering

HIERARCHY OF ENVIRONMENT MANAGEMENT CELL



CHANGE OF NAME

I, Giridharlal Meghraj Purohit & Giridharlal Meghraj Purohit S/o Meghraj Rajpurohit R/O 44, Bakul Bagan Road, P.O. & P.S. Bhowanipur, Kolkata-700025 shall henceforth be known as Giridharlal Rajpurohit by virtue of affidavit sworn before the Notary Public Kolkata on 12-10-2022.

NOTICE

Notice is hereby given that Share Certificate No(s) 29309, 44643 for 100 share(s) bearing distinctive nos. 3782670-719, 4184520-569 (both inclusive) of IFB INDUSTRIES LTD., having its Registered Office at P-22, Bondel Road, Kolkata-700019 registered in the name(s) of SAMIRAN MAJILYA & ANITA MAJILYA has/have been lost. I/we, have now applied to the Company for issue of duplicate share certificate(s) in lieu of the above. Any person having any objection to the issue of duplicate share certificate(s) in lieu of said original share certificate(s), is requested to lodge his/her objection thereto with the Company at the above address or with their Registrars, CB MANAGEMENT SERVICES (P) LTD., P-22, Bondel Road, Kolkata-700019, in writing, within 15 days from the date of publication of this Notice.

Samiran Majilya & Anita Majilya
22, Parcous Road,
Burdwan-713101
Place: Burdwan
Date: 25.04.2022

CHANGE OF NAME

I, Indrani Das, W/o Shyamal Das, R/O 31/B, Chowdhury Para Bye Lane, P.O. Chatra, P.S. Sreerampur, Dist-Hooghly 712204, W.B. declare that I have change my name Indrani Chatterjee Das to Indrani Das. As per affidavit before the Notary Public at Kolkata on 11 OCT 2022 both Indrani Das and Indrani Chatterjee Das is same and one identical person.

CHANGE OF NAME

I, Reenee C Bhattacharya, D/O Jawahar Kumar Chatterjee, R/O Subarnarekha Apartment, Flat-501, 4th Floor, 50, Dosti Lane (K.B.Lane), P.S.-Serampore, Dist-Hooghly, Pin-712201. W.B. That my actual and correct name is Reenee Chatterjee which was recorded in my Passport bearing no-L4618219, Date of issue-16/09/2013, Date of expiry-15/09/2023 issued from Kolkata, Pan card no-AFCPC6045G, Bank Passbook and others relevant documents and papers. That in my son's (Reyanish Bhattacharya) Birth Certificate, Date of issue-29/07/2017 issued from Kolkata Municipal Corporation my name also recorded as Reenee C Bhattacharya. That Reenee Chatterjee and Reenee C Bhattacharya both are the same and one identical person vide an affidavit before the notary public at Kolkata on 10/10/2022.

EASTERN RAILWAY

Detailed Tender No. 06WTCACOR 2022-23 (Open Tender in Two packet system) e-tendering, dated 11.10.2022. Tender for e-tendering is invited by Chief Administrative Officer/Con, Eastern Railway, Kolkata for the following work: Name of work: Balance work of proposed Road Over Bridge (ROB) Proper and Approach portion including RE wall on either side (Span details: 1x32.00m & 2x25.0m PSC Girder, 1x30.00m Composite Girder, 8x25.00m RCC T Beam and 1x15m solid Slab) in lieu of Level Crossing No. 27 Sp/E at km 316/33 - 317/01 from Howrah in between Station Shankarpur-Jasidih on Main Line section in Asansol Division. Approx Value: ₹ 29,71,03,754.68. Earnest Money: ₹ 16,35,500/- Cost of tender document: 0.0. Completion period: 10 (Ten) Months. Date of closing: 04.11.2022 at 15.00 hrs. The tender documents and other details can be obtained from the website www.reps.gov.in the bidding for the tender is to be submitted through the e-tendering on above website. Manual offers are not allowed against this tender and any manual offer if received, shall not be accepted and will be summarily rejected. (CON-67/2022-23) Tender Notice is also available at websites: www.indianrailways.gov.in / www.reps.gov.in Follow us at: @EasternRailway Eastern Railway Headquarter

EASTERN RAILWAY

Tender Notice No. EPD/WCON/AIL/5400 TFP/23/22-23, dated 10.10.2022. Open e-Tender is invited by Dy. Chief Electrical Engineer (P&D), Eastern Railway, Kanchrapara for the following work: Tender No. EPD/WCON/AIL/5400 TFP/23/22-23. Name of work: Rehabilitation of Aluminium Foil 5400 KVA Transformer. Quantity: 13 nos. Approx. cost of the work: ₹ 3,26,45,234/- Cost of Tender form: NIL. Address of the office from e-tender initiated: Office of the Deputy Chief Electrical Engineer/Planning & Development/Eastern Railway/ Kanchrapara Workshop, Pin-743145. Bid security amount is to be deposited through e-payment get way or bank guarantee bond: ₹ 3,13,200/- Completion period of the work: 24 (twenty four) months. Bid submission start date: From 19.10.2022. Bid submission end date: Up to 14.05 hrs. on 02.11.2022. Date and time of opening of tender: Tender will be opened on 02.11.2022 at 15.00 hrs. Website particulars & notice board location where complete details of tender can be seen: <http://www.reps.gov.in> (MISC-230/2022-23) Tender Notice is also available at websites: www.indianrailways.gov.in / www.reps.gov.in Follow us at: @EasternRailway Eastern Railway Headquarter

Stanley reservoir reaches full capacity, flood alert sounded in delta districts

COIMBATORE, OCT 12 /- /- With copious rains being experienced in catchment areas of Karnataka, the inflow into Stanley reservoir in Mettur in Salem district has increased resulting in water level touching 120 feet, the second time in the last 25 days, officials said on Wednesday. The administration sounded a flood alert to the people living in the

CHANGE OF NAME

I, No 15373644N Rank Ex Naik Name MUNSHI ABDURRAHIM resident of Vill RAIGRAM, PO RAIGRAM, DIST PURBA BARDHAMAN (WB), Pin-713422 have change my son's Name from MUNSHI MOHAMMED TASNIN to MUNSHI MAHAMMAD TASNIN vide Affidavit dated 08.09.2022 before EXECUTIVE MAGISTRATE, PURBA BARDHAMAN.

CHANGE OF NAME

I, Purohit Arunaban Maganlal, Arunaban Giridharlal Purohit and Aruna Devi W/o Giridhari Lal Rajpurohit & D/o Maganlal Jethaji Purohit R/O 44, Bakul Bagan Road, P.O. & P.S. Bhowanipur, Kolkata-700025 shall henceforth be known as Aruna Rajpurohit by virtue of affidavit sworn before the Notary Public Kolkata on 12-10-2022.

CHANGE OF NAME

I, Parula Rani Kirtania spouse of Late Nalati Chandra Kirtania residents of Vill + PO - Bhaduka, PS - Kotwali, Dist-Nadia(WB) have changed my name and DOB from Parula Rani Kirtania DOB 25.02.1951 to Parul Kirtania DOB 10.10.1955 vide Affidavit dated 30.09.2022 before the Court of LD. Judicial Magistrate (1st Class) at Krishnagar, Dist-Nadia (WB).

Publication has been done in the Govt website: "wbenders.gov.in." 2 nos (Two) Tenders for Outdoor lighting of various playgrounds and External Electrical Works of LED Street lighting along various roads in view of safety point under Green City Mission, Dum Dum Municipality via 680/DDM/GEN22, Dtd. 12.10.2022. Last date for dropping bids is 29.10.2022. Technical Bid opening date is 01.11.2022. Sd/- Chairman Dum Dum Municipality

NOTICE

This is to inform that the Environment Clearance for Expansion of Integrated Steel Plant (1.0 to 2.0 Million TPA Finished Steel) with 385MW Captive Power Plant by M/s. Orissa Metallurgical Industry Pvt. Ltd. located at Mouza - Amba, Mathurakimbat, Ghosalchalk, Radhanagar, Serampuria, Mollarchak, Katapole, Tarabami and Dhularchak, Village - Gokulpur, P.O. - Shyamraipur, P.S. - Kharagpur (L), Dist. Paschim Medinipur, West Bengal has been accorded by Ministry of Environment, Forest and Climate Change, Government of India vide EC Identification No. EC22A008WB158432 & File No - IA-J-11011/56/2017-IA-II(I) dated 11.10.2022. The copy of the Environmental Clearance is available at West Bengal Pollution Control Board and seen in MoEF & CC website at <http://parivesh.nic.in/>.

OFFICE OF THE RECOVERY OFFICER - I

Debits Recovery Tribunal Kolkata (DRT 2) 7th Floor, Jeevan Sudha Building, 42-C, Jawahar Lal Nehru Road, Kolkata - 700071. DEMAND NOTICE Notice under Sections 25 to 28 of the Recovery of Debts & Bankruptcy Act, 1993 and Rule 2 of Second Schedule to the Income Tax Act, 1961. RC/43/2022, 16.08.2022 CANARA BANK - Versus - TAPAS KUMAR KARAN To,

UTTARPARA-KOTRUNG MUNICIPALITY

1. e-N.I.Q. No.: UKM/PHC/001(e)/2022-23 dt. 10.10.2022 Chairman, Uttarpara-Kotrung Municipality invites e-tender for Procurement of M.S. Angle, M.S. Flat and G.I. Sheet in required nos and required Sections and size. Documents download start date & Bid submission start date - 13.10.2022. Bid Submission Closing Date - 03.11.2022. For Details: <https://www.wbtenders.gov.in> Sd/- Chairman Uttarpara-Kotrung Municipality

Mumbai crime branch's EOW to probe firm obtaining 'illegal' contract to operate Covid-19 jumbo units

MUMBAI, OCT 12 /- /- The probe against a hospital management firm for allegedly providing forged documents to bag contracts to operating jumbo centres during the Covid-19 outbreak and causing death by negligence has been transferred to Mumbai Police's crime branch, an official said Wednesday. The investigation was hitherto handled by the Mumbai Police which had registered a First Information Report (FIR) against the firm and four persons associated with it on a complaint lodged by former Bharatiya Janata Party (BJP) MP Kirit Somaiya. The case has been handed over to the Economic Offences Wing (EOW) of the crime branch for further investigation, the official said. As per the FIR, in June 2020, the partners in the hospital management firm submitted a fake partnership deed to the Brihanmumbai Municipal Corporation (BMC) and obtained contracts for jumbo Covid-19 centres at NSEL, Worli, Mulund, Dahisar (in Mumbai) and in Pune without having any experience in the medical field. The firm had submitted bills of these centres to the BMC and collected Rs 38 crore, it said. For their personal gains, these persons cheated the government machinery and common citizens. Many people lost their lives due to the alleged negligence of these persons, the FIR said. After verification, it was found that staffers and doctors at these Covid-19 centres did not have medical certificates and allegedly failed to provide proper treatment due to which people suffered, as per the FIR. The case was registered under Indian Penal Code Sections 420 (cheating), 406 (criminal breach of trust), 304-A (causing death by negligence), 465, 467, 468, and 471 (related to forgery) and 34 (common intention), the official said. (PTI)

CHANGE OF NAME

I, Mohammad Hafizullah (Old Name) S/o Late Mohammed Jahiruddin R/o 43/11, M. H. Khan Road, Budge Budge Diamond Harbour, Kolkata-700138 W.B shall henceforth be known as Hafizullah (New Name) by virtue of affidavit sworn before the Notary Public Kolkata on 12-10-2022.

CHANGE OF NAME

I, Debashis Chattopadhyay S/o Krishna Chandra Chatterjee R/o Flat No. G-5/8, Dankuni Housing Estate, Dankuni, Dist. Hooghly, Pin-712311 W.B shall henceforth be known as Debashis Chatterjee by virtue of affidavit sworn before the Notary Public Kolkata on 12-10-2022.

CHANGE OF NAME

I, Asgar Ali, S/o Late Munshi Mandal, R/o Baro Khowaspur Sawdhani Karandighi, Uttar Dinajpur, Pin-733215 W.B. declare that I have change my name Asgar to Asgar Ali. As per affidavit before the Notary Public at Kolkata on 12 OCT 2022 both Asgar and Asgar Ali is same and one identical person.

CHANGE OF NAME

I, DEEPSHIKHA DUBEY D/o. Satya Prakash Dubey & Pushpa Dubey, W/o, Abhishek, presently residing at 4th floor, Flat 4/B, Chokhani Pearl, 394, Jessore Road, Behind Madhumita Hotel, PO, Bangur Avenue, PS-Lake Town, Kolkata - 700055, Sworn before Notary Public, CMS Court, Kolkata on 12.10.2022 my name Deepshikha Dubey. Deepshikha Upadhyay & Deepshikha Dubey is the same and one identical person from the date.

CHANGE OF NAME

I, Debapriya Roy S/o Dilip Roy residing at 6, Taki Road, Bidhan Park, P.O. & P.S. Barasat, Dist-NO24 Pgs, Pin-700124 vide affidavit dated 11/10/2022 of the Ld 1st Class Judicial Magistrate at Barasat Court that Debapriya Roy & Debopriya Roy is the same and one identical Person.

PWD (GOVT. OF WB) TENDER NOTICE

The Executive Engineer, PWD Kolkata East Division invites e-Tender through e-Procurement system from the bonafide and resourceful Contractors & Outsiders for NIT No.: 018/15/FC(Tied)/2022, Dated: 28/09/2022, NIT No.: 019/15/FC(Tied)/2022, Dated: 28/09/2022, NIT No.: 020/15/FC(Tied)/2022, Dated: 28/09/2022, NIT No.: 021/OWN FUND/2022, Dated: 29/09/2022, NIT No.: 022/OWN FUND/2022, Dated: 29/09/2022, NIT No.: 023/OWN FUND/2022, Dated: 11/10/2022, NIT No.: 024/OWN FUND/2022, Dated: 11/10/2022, NIT No.: 025/OWN FUND/2022, Dated: 11/10/2022, NIT No.: 026/OWN FUND/2022, Dated: 11/10/2022, NIT No.: 027/OWN FUND/2022, Dated: 29/09/2022, NIT No.: 028/OWN FUND/2022, Dated: 29/09/2022. Last Date of Bid submission 19/10/2022 upto 11.00 a.m. For details may be seen in website: <https://wbtenders.gov.in> and Contact at the office of the undersigned. Email ID: bilkanda1_gp@gmail.com, Contact No.: (033) 2537 0075. Sd/- Proddhan, Bilkanda-I Gram Panchayat Barrackproe-II Dev. Block N 24 Pgs.

BILKANDA-IGRAM PANCHAYAT

Jugberia, New Barrackproe, North 24 Parganas e-Tender Notice The Proddhan, Bilkanda-I Gram Panchayat, invites e-Tender Through e-Procurement system from the bonafide and resourceful Contractors & Outsiders for NIT No.: 018/15/FC(Tied)/2022, Dated: 28/09/2022, NIT No.: 019/15/FC(Tied)/2022, Dated: 28/09/2022, NIT No.: 020/15/FC(Tied)/2022, Dated: 28/09/2022, NIT No.: 021/OWN FUND/2022, Dated: 29/09/2022, NIT No.: 022/OWN FUND/2022, Dated: 29/09/2022, NIT No.: 023/OWN FUND/2022, Dated: 11/10/2022, NIT No.: 024/OWN FUND/2022, Dated: 11/10/2022, NIT No.: 025/OWN FUND/2022, Dated: 11/10/2022, NIT No.: 026/OWN FUND/2022, Dated: 11/10/2022, NIT No.: 027/OWN FUND/2022, Dated: 29/09/2022, NIT No.: 028/OWN FUND/2022, Dated: 29/09/2022. Last Date of Bid submission 19/10/2022 upto 11.00 a.m. For details may be seen in website: <https://wbtenders.gov.in> and Contact at the office of the undersigned. Email ID: bilkanda1_gp@gmail.com, Contact No.: (033) 2537 0075. Sd/- Proddhan, Bilkanda-I Gram Panchayat Barrackproe-II Dev. Block N 24 Pgs.

DAINHAT MUNICIPALITY

PO:- DAINHAT, DIST:- PURBABURDWAN For Details of floated Corrigendum Notice against E-NIT 05 D.M/ENGG Date-20/09/2022, E-NIT 06 D.M/ENGG Date-20/09/2022, ENIT 07 D.M/ENGG Date-21/09/2022, E-NIT 08 D.M/ENGG Date-21/09/2022, E-NIT 09 D.M/ENGG Date-21/09/2022 & E-NIT 10D.M/ENGG Date-21/09/2022. Memo no-604 D.M/ENGG date-12/10/2022, 605 D.M/ENGG date-12/10/2022, 606D.M/ENGG date-12/10/2022, 607 D.M/ENGG date-12/10/2022, 608 D.M/ENGG date-12/10/2022, 609 D.M/ENGG date-12/10/2022. For Details Visit: wbtenders.gov.in & <http://dainhatmunicipality.org>. Office ph no 7478003845. Sd/- Chairman Dainhat Municipality

Disha Educational Institute

A Composite for B.Ed. & D.El. Ed. (Recognised by ERC, N.C.T.E. Bhubaneswar And Affiliated To W.B.U.T.E.P.A. & W.B.B.P.E.) Vill-Serapur, Post: Panpur P.S. Amta, Dist.: Howrah, West Bengal, Pin: 711401 Mob.: 9836566754/9231872436 Wanted full-time Assistance Professor for-Bengali, Education, Sanskrit, English, Geography & Fine-Arts. (With 55% marks in P.G., B.U., M.ed., Ph.D./NET/SET NCTE Norms). Apply with relevant documents with 10 days from today. To, The President, Disha Educational Institute, Serpur, Panpur, Amta, Howrah-711401. Contact:- 9331083555; 9830262675. E-mail ID: dishaeducationalinstitute.edu@gmail.com Sd/- President, Disha Educational Institute Serpur, Panpur, Amta, Howrah-711401

West Bengal Forest Development Corporation Limited

(WBFDCL), KB-19, Sector-III, Salt Lake, Kolkata - 700106 ABRIDGED TENDER NOTICE The undersigned invites e-tender Notice on behalf of the DM, Bankura Forest Corporation Division & Executive Officer, WBFDCL, KB-19, Kanyasabati (North) Division, WBFDCL as follows:-

CHANGE OF NAME I, Asgar Ali, S/o Late Munshi Mandal, R/o Baro Khowaspur Sawdhani Karandighi, Uttar Dinajpur, Pin-733215 W.B. declare that I have change my name Asgar to Asgar Ali. As per affidavit before the Notary Public at Kolkata on 12 OCT 2022 both Asgar and Asgar Ali is same and one identical person.

CHANGE OF NAME

I, DEEPSHIKHA DUBEY D/o. Satya Prakash Dubey & Pushpa Dubey, W/o, Abhishek, presently residing at 4th floor, Flat 4/B, Chokhani Pearl, 394, Jessore Road, Behind Madhumita Hotel, PO, Bangur Avenue, PS-Lake Town, Kolkata - 700055, Sworn before Notary Public, CMS Court, Kolkata on 12.10.2022 my name Deepshikha Dubey. Deepshikha Upadhyay & Deepshikha Dubey is the same and one identical person from the date.

CHANGE OF NAME

I, Debapriya Roy S/o Dilip Roy residing at 6, Taki Road, Bidhan Park, P.O. & P.S. Barasat, Dist-NO24 Pgs, Pin-700124 vide affidavit dated 11/10/2022 of the Ld 1st Class Judicial Magistrate at Barasat Court that Debapriya Roy & Debopriya Roy is the same and one identical Person.

PWD (GOVT. OF WB) TENDER NOTICE

The Executive Engineer, PWD Kolkata East Division invites e-Tender through e-Procurement system from the bonafide and resourceful Contractors & Outsiders for NIT No.: 018/15/FC(Tied)/2022, Dated: 28/09/2022, NIT No.: 019/15/FC(Tied)/2022, Dated: 28/09/2022, NIT No.: 020/15/FC(Tied)/2022, Dated: 28/09/2022, NIT No.: 021/OWN FUND/2022, Dated: 29/09/2022, NIT No.: 022/OWN FUND/2022, Dated: 29/09/2022, NIT No.: 023/OWN FUND/2022, Dated: 11/10/2022, NIT No.: 024/OWN FUND/2022, Dated: 11/10/2022, NIT No.: 025/OWN FUND/2022, Dated: 11/10/2022, NIT No.: 026/OWN FUND/2022, Dated: 11/10/2022, NIT No.: 027/OWN FUND/2022, Dated: 29/09/2022, NIT No.: 028/OWN FUND/2022, Dated: 29/09/2022. Last Date of Bid submission 19/10/2022 upto 11.00 a.m. For details may be seen in website: <https://wbtenders.gov.in> and Contact at the office of the undersigned. Email ID: bilkanda1_gp@gmail.com, Contact No.: (033) 2537 0075. Sd/- Proddhan, Bilkanda-I Gram Panchayat Barrackproe-II Dev. Block N 24 Pgs.

BILKANDA-IGRAM PANCHAYAT

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Disha Educational Institute

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(WBFDCL), KB-19, Sector-III, Salt Lake, Kolkata - 700106 ABRIDGED TENDER NOTICE The undersigned invites e-tender Notice on behalf of the DM, Bankura Forest Corporation Division & Executive Officer, WBFDCL, KB-19, Kanyasabati (North) Division, WBFDCL as follows:-

NIT No.	Name of Projects	Bid Submission Start Date	Last date of Bid Submission
10/3/2022	Carriage of CFC produce 2022-23 from various mouzas of Simlipal, Khatla & Pirmangal Range of Bankura South Division to Taldangra Timber Depot under DM, Bankura Forest Corporation Division, WBFDCL.	13.10.2022	29.10.2022
10/4/2022	Carriage of CFC produce 2022-23 from various mouzas of Simlipal & Pirmangal Range of Bankura South Division to Taldangra Timber Depot under DM, Bankura Forest Corporation Division, WBFDCL.	13.10.2022	29.10.2022
12/1/2022	Carriage of CFC produce 2022-23 from CFC Coupe (Ptm. site) to Sidpur Timber Depot under Purulia Para Range of Kanyasabati North Division. (Project_1)	13.10.2022	29.10.2022
12/2/2022	Carriage of CFC produce 2022-23 from CFC Coupe (Ptm. site) to Raghabpur Timber Depot under Raghabpur Range of Kanyasabati North Division. (Project_2)	13.10.2022	29.10.2022
12/3/2022	Carriage of CFC produce 2022-23 from CFC Coupe (Ptm. site) to Keshipur Timber Depot under Keshipur Range of Kanyasabati North Division. (Project_3)	13.10.2022	29.10.2022
12/4/2022	Carriage of CFC produce 2022-23 from CFC Coupe (Ptm. site) to Bishupura Depot & Keshurpur Depot under Hura Range of Kanyasabati North Division. (Project_4)	13.10.2022	29.10.2022
12/5/2022	Carriage of CFC produce 2022-23 from CFC Coupe (Ptm. site) to Dumardargur Depot & Kenda Depot under Pancha Range of Kanyasabati North Division. (Project_5)	13.10.2022	29.10.2022

CHANGE OF NAME I, DEEPSHIKHA DUBEY D/o. Satya Prakash Dubey & Pushpa Dubey, W/o, Abhishek, presently residing at 4th floor, Flat 4/B, Chokhani Pearl, 394, Jessore Road, Behind Madhumita Hotel, PO, Bangur Avenue, PS-Lake Town, Kolkata - 700055, Sworn before Notary Public, CMS Court, Kolkata on 12.10.2022 my name Deepshikha Dubey. Deepshikha Upadhyay & Deepshikha Dubey is the same and one identical person from the date.

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I, Debapriya Roy S/o Dilip Roy residing at 6, Taki Road, Bidhan Park, P.O. & P.S. Barasat, Dist-NO24 Pgs, Pin-700124 vide affidavit dated 11/10/2022 of the Ld 1st Class Judicial Magistrate at Barasat Court that Debapriya Roy & Debopriya Roy is the same and one identical Person.

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Ref: OMJPL/EC Expansion/22-23/01

Date: 13.10.2022

To,
The District Magistrate
Office of the District Magistrate,
Paschim Medinipur,
West Bengal - 721101

Sub: Intimation for obtaining Environment Clearance for Expansion of Integrated Steel Plant (1.0 To 2.0 Million TPA Finished Steel) with 385 MW Captive Power Plant by M/s. Orissa Metallurgical Industry Pvt. Ltd located at Mouza- Amba, Mathurakismat, Ghosalchalk, Radhanagar, Serampurgia, Mollarchak, Katapole, Tarabamni and Dhularchak, Village- Gokulpur, P.O.- Shyamraipur, P.S.-Kharagpur (L), Dist. Paschim Medinipur, West Bengal.

Dear Sir,

With reference to the above subject, we would like to intimate you that Environment Clearance for Expansion of Integrated Steel Plant (1.0 To 2.0 Million TPA Finished Steel) with 385 MW Captive Power Plant by M/s. Orissa Metallurgical Industry Pvt. Ltd located at Mouza- Amba, Mathurakismat, Ghosalchalk, Radhanagar, Serampurgia, Mollarchak, Katapole, Tarabamni and Dhularchak, Village- Gokulpur, P.O.- Shyamraipur, P.S.-Kharagpur (L), Dist. Paschim Medinipur, West Bengal has been accorded by Ministry of Environment, Forest and Climate Change, Government of India vide EC Identification No. EC22A008WB158432 & File no- IA-J-11011/56/2017-IA-II(I) dated 11.10.2022.

Environment Clearance copy is attached herewith.

This is for your kind information.

Thanking you,

For, M/s Orissa Metallurgical Industry Private Limited

Authorized Signatory

Encl: As above

Priscilla
Priscilla

14/X/2022
Central Record Section
Paschim Medinipur

Ref: OMIPL/EC Expansion/22-23/01

Date: 13.10.2022

To,
Kalaikunda Gram Panchayet
Kharagpur-I Panchayet Samiti
P.O- Shyamraipur, P.S- Kharagpur Rural,
Dist.- Paschim Medinipur, West Bengal

Sub: Intimation for obtaining Environment Clearance for Expansion of Integrated Steel Plant (1.0 To 2.0 Million TPA Finished Steel) with 385 MW Captive Power Plant by M/s. Orissa Metallurgical Industry Pvt. Ltd located at Mouza- Amba, Mathurakismat, Ghosalchalk, Radhanagar, Serampurgia, Mollarchak, Katapole, Tarabamni and Dhularchak, Village- Gokulpur, P.O.- Shyamraipur, P.S.-Kharagpur (I), Dist. Paschim Medinipur, West Bengal.

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Thanking you,

For M/s Orissa Metallurgical Industry Private Limited

For OMIPL METALLURGICAL INDUSTRY PRIVATE LIMITED

Authorised Signatory

Encl: As above

Received
Bama
14.10.22

