

GIRIDHAN METAL PRIVATE LIMITED

Registered Office : "PREMLATA" 39, Shakespeare Sarani, 3rd Floor, Kolkata - 700 017, West Bengal, India
Telefax : +91 33 2289 2734 / 35 / 36, E-mail : giridhanmetal@gmail.com CIN : U27320WB2019PTC234675

Ref No. GMPL/21-22/MoEF&CC/04

Date: 28.05.2021

To,
Director General of Forest
Integrated Regional Office
Ministry of Environment, Forest & Climate Change
Kolkata IB-198, Sector-III, Salt Lake City, Kolkata-700106

Ref: 1. J-11011/366/2010-IA.II(I) dated 2nd April 2012 which validity extended to 01.04.2022 on 24th May 2019

2. J-11011/366/2010-IA.II(I) dated 29th January 2020(Transfer of Environmental Clearance from Damodar Ispat Limited to Giridhan Metal Private Limited)

Sub: Submission of Six Monthly Compliance Report

Respected Sir,

We are submitting herewith the Six Monthly EC Compliance Report as on 31st March 2021 for your kind perusal.

Kindly find attached as follows:

1. Point wise Six Monthly Compliance status as on 31st March 2021
2. Plant shut down intimation letter to CPCB on dated 4th February 2020 (Annexure-1)
3. Latest Ambient Air Monitoring Reports (Annexure-2)
4. Latest Fugitive Air Monitoring Reports (Annexure-3)
5. Latest Noise Monitoring Reports (Annexure-4)
6. Risk assessment and Hazard Management Plan (Annexure-5)
7. Environment Policy (Annexure-6)
8. Health surveillance reports of workers (Annexure-7)
9. EC Advertisement (Annexure-8)
10. Details of Plantation (Annexure-9)

Thanking you.

Yours Sincerely



Manish Poddar
Giridhan Metal Private Limited
Jamuria Industrial Estate,
Paschim Bardhaman, West Bengal
Email: giridhanmetal@gmail.com

GIRIDHAN METAL PRIVAT LIMITED

Village – Ikra, P.O. – Mondalpur, Paschim Bardhaman, W.B.

Name of the Project: Expansion of existing unit of 1x50 TPD (15,000 TPA) DRI by 3x100 TPD DRI (1,05,000 TPA of sponge iron), 2x15T IF, 1x30T LF (1,05,000 TPA of MS Billets), 310 TPD Rolling mill (1,00,000 TPA of Rods/bars/light structurals), 1x9 MVA SAF (15,000 TPA of Fe-Mn/Si-Mn), 1x5 TPH, 2x10 TPH WHRB & 1x32 TPH FBC Boiler and 16 MW Captive Power Plant (7MW of WHRB and 9 MW of FBC) at Jamuria Industrial Estate, Village-Ikra, PO-Mondalpur, Tehsil-Jamuria, District-Paschim Bardhaman, West Bengal by M/s Giridhan Metal Private Limited.

Clearance Letter/s No. and date: 1. J-11011/366/2010-IA-II (I) dated 02.04.2012
2. J-11011/366/2010-IA. II (I) dated 29.01.2020 (Transfer of Environmental Clearance from M/s Damodar Ispat Limited to M/s Giridhan Metal Private Limited.

Period of Compliance Report: October 2020 to March 2021

Specific Conditions:

Sr No	Conditions	Compliance Status
i.	On-line ambient air quality monitoring and continuous stack monitoring facilities for all the stacks should be provided and sufficient air pollution control devices viz. Electrostatic precipitator (ESP), and bag filters etc. shall be provided to keep the emission levels below 50 mg/Nm ³ by installing energy efficient technology.	The former company had only one 50TPD DRI production unit. After transfer of EC (Environment Clearance) from Damodar Ispat Limited to Giridhan Metal Private Limited, the new management has stopped the 50 TPD DRI productions which have been intimated to your good office as well as Central Pollution Control Board & State Pollution Control Board. The letter with speed post document is attached for your kind reference as Annexure – 1 Regarding ambient air quality monitoring, WBPCB recognized and NABL accredited laboratory has taken samples and the analyzed results are within standard limit. The reports are attached as Annexure-2
ii.	The National Ambient Air Quality Standards issued by the Ministry vide G.S.R. No. 826(E) dated 16 th November, 2009 should be followed.	All the parameters as per National Ambient Air Quality Standards issued by the Ministry vide G.S.R. No. 826(E) dated 16 th November, 2009 is being monitored and the results are within the permissible limit. The reports are attached as Annexure-2.
iii.	Gaseous emission levels including secondary fugitive emissions from all the sources should be controlled within the latest permissible limits issued by the Ministry vide G.S.R. 414(E) dated 30 th May, 2008 and regularly monitored.	The project is now in construction phase and gaseous emission levels including secondary fugitive emission are within the permissible prescribed limit. The fugitive monitoring reports attached herewith as Annexure – 3.

	Guidelines / Code of Practice issued by the CPCB should be followed.	
iv.	As per the commitment submitted, no charcoal shall be used as fuel. Pet coke shall be used as fuel instead of charcoal from unknown sources.	Now the production is stopped, so no charcoal is generating.
v.	Dust suppression system and bag filters shall be installed to control the fugitive dust emissions at conveyor and transfer points, product handling, loading and unloading points.	Now the project is construction stage and to control the fugitive dust from road we spraying water by tanker. Dust suppression system and bag filters shall be installed for control the fugitive dust. The fugitive monitoring reports attached herewith as Annexure – 3.
vi.	Hot gases from the DRI kiln shall be passed through Dust Settling Chamber (DSC) to remove coarse solids and After Burning Chamber (ABC) to burn CO completely and used in waste heat recovery boiler (WHRB). The gas then shall be cleaned in ESP before dispersion out into the atmosphere through ID fan and stack. ESP shall be installed to control the particulate emissions from the WHRB.	Not applicable as Project is under implementation stage. We will follow the steps as advised by you.
vii.	Total make up water requirement shall not exceed 2,420 m ³ /day. The water consumption shall not exceed as per the standard prescribed for the sponge iron plants and steel plants.	It will be strictly followed.
viii.	Efforts shall further be made to use maximum water from the rain water harvesting sources. If needed, capacity of the reservoir should be enhanced to meet the maximum water requirement. Only balance water requirement should be met from other sources. Use of air cooled condensers shall be explored and closed circuit cooling system shall be provided to reduce water consumption and water requirement shall be modified accordingly.	Rain water harvesting will be implemented and has been taken care during planning & designing stage.
ix.	All the effluent should be treated and used for ash handling, dust suppression and green belt development. No effluent shall be discharged and 'zero' discharge shall be adopted. Sanitary sewage should be treated in septic tank followed by soak pit.	All treated effluent will be used for ash handling, dust suppression & green belt development. Sanitary sewage will be treated in septic tank. No effluent is discharged outside of the plant premises.
x.	Regular monitoring of influent and effluent surface, sub-surface and ground water shall be ensured and treated wastewater shall meet the norms prescribed by the State Pollution Control Board or described under the E(P) Act whichever are more stringent. Leachate study for the effluent generated and analysis should also be regularly carried out and report submitted to the Ministry's	Not applicable as Project is under implementation stage, will be followed strictly once process will start.

	Regional Office at Bhubaneswar, SPCB and CPCB.	
xi.	All the char from DRI plant shall be utilized in FBC boiler of power plant and no char shall be disposed off anywhere else. FBC boiler shall be installed simultaneously along with the DRI plant to ensure full utilization of char from the beginning.	Not applicable as Project is under implementation stage, will be followed strictly once process will start.
xii.	Slag produced in Ferro Manganese (Fe-Mn) production shall be used in manufacture of Silico Manganese (Si-Mn).The Ferro Alloy slag shall be used in the preparation of building materials.	Not applicable as Project is under implementation stage.
xiii.	No Ferro Chrome shall be manufactured without prior approval from the Ministry of Environment & Forests.	Agreed and shall be complied after implementation of 9 MVA SAF.
xiv.	Proper utilization of fly ash shall be ensured as per Fly Ash Notification, 1999 and subsequent amendment in 2003 and 2009. All the fly ash should be provided to cement and brick manufacturers for further utilization and Memorandum of Understanding should be submitted to the Ministry's Regional Office at Bhubaneswar.	Not applicable as Project is under implementation stage.
xv	Risk and Disaster Management Plan along with the mitigation measures should be prepared and a copy submitted to the Ministry's Regional Office at Bhubaneswar, SPCB and CPCB within 3 months of issue of environment clearance letter.	After transfer of EC we have prepared the Risk assessment and Hazard Management Plan along with the mitigation measures, which is attached as Annexure - 5
xvi	As proposed, green belt shall be developed in 33 % of plant area. Selection of plant species shall be as per the CPCB guidelines in consultation with the DFO.	33 % of the total area i.e 13.34 acres (5.4 ha) has been earmarked and is being developed under greenbelt & plantation. Presently 5533 trees i.e. \approx 1000 trees/ha have been planted. We are planning for another 5000 trees by next two years as the density will reach to approx 2000 trees/ha. Plantation details with schedule is enclosed as Annexure-9.
xvii	All the recommendations made in the Charter on Corporate Responsibility for Environment Protection (CREP) for the Sponge Iron Plants and Steel Plants should be implemented.	The CREP guidelines will be followed after commissioning of the plant. Now it is under implementation stage.
xviii	At least 5 % of the total cost of the project should be earmarked towards the Enterprise Social Commitment (ESC) based on locals need and item-wise details along with time bound action plan should be prepared and submitted to the Ministry's Regional Office at Bhubaneswar. Implementation of such program should be ensured accordingly in a time bound manner.	A provision has been made and the same will be implemented in consultation with District Administration.

xix	The Company shall submit within three months their policy towards Corporate Environment Responsibility which should inter-alia address (i) Standard operating process/ procedure to bring into focus any infringement/deviation/violation of environmental or forest norms/conditions, (ii) Hierarchical system or Administrative order of the Company to deal with environmental issues and ensuring compliance to the environmental clearance conditions and (iii) System of reporting of non compliance/violation environmental norms to the Board of Directors of the company and/or stakeholders or shareholders.	The Environment Policy reflecting the Corporate Environmental Responsibility of company along with Environmental Management Programme is attached herewith as Annexure - 6
GENERAL CONDITION		
i	The project authorities must strictly adhere to the stipulations made by the West Bengal Pollution Control Board and the State Government.	Giridhan Metal Private Limited believes in and has good practices to follow the every instruction given by West Bengal Pollution Control Board.
ii	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment and Forests.	Agreed
iii	The gaseous emissions from various process units shall conform to the load/mass based standards notified by this Ministry on 19th May, 1993 and standards prescribed from time to time. The State Board may specify more stringent standards for the relevant parameters keeping in view the nature of the industry and its size and location.	Agreed
iv	At least four ambient air quality monitoring stations shall be established in the downward direction as well as where maximum ground level concentration of PM ₁₀ , SO ₂ and NO _x are anticipated in consultation with the SPCB. Data on ambient air quality and stack emission shall be regularly submitted to this Ministry including its Regional Office at Bhubaneswar and the SPCB/CPCB once in six months.	Giridhan Metal Private Limited is doing environmental monitoring by State Pollution Control Board Recognized as well as NABL accredited laboratory M/s Qualissure Laboratory Services, The analysis results are found are within the permissible limit. The monitoring data are attaching herewith as Annexure – 2, 3 & 4
v	Industrial wastewater shall be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May, 1993 and 31st December, 1993 or as amended form time to time. The treated wastewater shall be utilized for plantation purpose.	Not applicable as Project is under implementation stage.
vi	The overall noise levels in and around the plant area shall be kept well within the standards (85 dBA) by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels should conform to the	Giridhan Metal Private Limited has appointed a third party external agency for Noise Monitoring, which is SPCB recognized and NABL accredited laboratory. It is found that the noise level is within the standard of EPA Rules. The reports are attached herewith as Annexure – 4.

	standards prescribed under EPA Rules, 1989 viz. 75 dBA (daytime) and 70 dBA (night time).	
vii	Occupational health surveillance of the workers should be done on a regular basis and records maintained as per the Factories Act.	Health surveillance of our workers is being started and maintained records as per Factory Act from the project implementation stage. Attaching herewith some reports as sample as Annexure - 7
viii	The company shall develop surface water harvesting structures to harvest the rain water for utilization in the lean season besides recharging the ground water table.	Roof top rain water harvesting plan is being considered from initial stage of construction and the stored water will be reused in the process.
ix	The project proponent shall also comply with all the environmental protection measures and safeguards recommended in the EIA/EMP report. Further, the company must undertake socio-economic development activities in the surrounding villages like community development programmes, educational programmes, drinking water supply and health care etc.	Will be complied immediately after commissioning of project.
x	Requisite amount shall be earmarked towards capital cost and recurring cost/annum for environment pollution control measures to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government. An implementation schedule for implementing all the conditions stipulated herein shall be submitted to the Regional Office of the Ministry at Bhubaneswar. The funds so provided shall not be diverted for any other purpose.	Will be complied
xi	A copy of clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parishad/Municipal Corporation, Urban Local Body and the local NGO, if any, from whom suggestions/representations, if any, were received while processing the proposal. The clearance letter shall also be put on the web site of the company by the proponent.	Complied
xii	The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the MOEF at Bhubaneswar. The respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels namely; PM10, SO2, NOx (ambient levels as	Will be complied.

	well as stack emissions) or critical sectoral parameters, indicated for the projects shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.	
xiii	The project proponent shall also submit six monthly reports on the status of the compliance of the stipulated environmental conditions including results of monitored data (both in hard copies as well as by e-mail) to the Regional Office of MOEF, the respective Zonal Office of CPCB and the SPCB. The Regional Office of this Ministry at Bhubaneswar/ CPCB / SPCB shall monitor the stipulated conditions.	After taken over by new management, six monthly compliance of the stipulated environmental conditions are being submitted in regular basis.
xiv	The environmental statement for each financial year ending 31st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental conditions and shall also be sent to the respective Regional Office of the MOEF at Bhubaneswar by e-mail.	Will be complied
xv	The Project Proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the SPCB and may also be seen at Website of the Ministry of Environment and Forests at http://envfor.nic.in . This shall be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same should be forwarded to the Regional office at Bhubaneswar.	Advertised accordance of environmental clearance in 'Aajkaal' (Bengali daily) on 9 th Dec 2018 and in 'The Times of India' (English daily) on 12 th Dec 2018 has been published which is attached as Annexure - 8.
xvi	Project authorities shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of commencing the land development work.	Will be complied



DAMODAR ISPAT LIMITED

Registered Office & Factory :

Damodar Ispat Limited

Jamuria Industrial Estate, P.O. Nandi, P.S. Jamuria, Jamuria, Paschim Bardhaman, W.B., Pin. 713344

Mobile : 7547914101, E-mail : info@damodarispat.in

CIN : U27310WB2003PLC095960, GST : 19AACCD0307J1ZX

Ref No. DIL/19-20/CPCB/06

Date: 04.02.2020

To,
The Chairman
Central Pollution Control Board
Parivesh Bhawan, CBD-cum-Office Complex
East Arjun Nagar, Delhi - 110032

Ref. : Ministry's EC letter No. J-11011/366/2010-IA-II(I), dated 02/04/2012

Sub: Stop the production of existing unit (50 TPD DRI)

Respected Sir,

With reference to the letter no J-11011/366/2010-IA.II(I) dated 29th January 2020 from Ministry of Environment, Forest and Climate Change it is hereby informed to your good office that project of M/s Damodar Ispat Limited has been handed over to a new company M/s Giridhan Metal Private Limited. The letter is attached herewith for your kind reference.

Hence we are going to stop the production of our existing (1x50 TPD DRI only) unit with immediate effect and going to power off at our online continuous emission monitoring system.

Thanking You.

Yours Sincerely

For Damodar Ispat Limited

Giridhari Lal Khetan
(Director)

Enclosed: MoEF & CC letter no J-11011/366/2010-IA.II(I) dated 29th January 2020

CC: The Joint Director, Eastern Regional Office, Ministry of Environment, Forest & Climate Change, A/3, Chandrasekharpur, Bhubaneswar-751023

<Track on www.indiapost.gov.in/>



EW360401295IN IQR:698736040129

SF JANURIAHAT 90 <713336>

Counter No:1.10/02/2020,12:13

To:THE CHAIRMAN,C P C BOARD,P BH

PIN:110032, Shahdara SO

From:DANODAR ISPAT LTD,NANDI

Wt:20gms

Amt:41.30(Cash)Tax:6.30

<Track on www.indiapost.gov.in/>

sarakeshpt@gmail.com



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

TEST REPORT

Name & Address Of the Customer : M/s. Giridhan Metal Pvt. Ltd. Jamuria Industrial Estate, Damodarapur, Jamuria P.O.- Nandi, Paschim Bardhaman, Pin:713 344	Report No.	: QLS/A/20-21/C/351
	Date	: 28.11.2020
	Sample No.	: QLS/A/20-21/351
	Sample Description	: Ambient Air
	Sample Mark	: Near Proposed Cooling Tower Power Plant (South Side)
	Ref No. Date	: GMPL/JMR/2019-20/03, Dt.31.03.2020

Analysis Result

Location : Near Proposed Cooling Tower Power Plant , South Side			Date of sampling : 18-19.11.2020	
Sampling Done by: S.Ghosh/J.Sahana			Sampling done as per : CPCB Guidelines (Volume-1)	
Environmental Condition : Cloudy			GPS Co-ordination : N-23°41'44.2" E-87°5'51.3"	
Sl. No.	POLLUTANT	RESULT	LIMIT	METHOD OF TEST REFERENCE
1	Particulate matter (<10µm) in µg/m ³	88	100	IS: 5182 (Part-23)- (RA-2017)
2	Particulate matter (<2.5µm) in µg/m ³	50	60	USEPA CFR-40,Part-50, Appendix-L
3	Sulphur dioxide (SO ₂) in µg/m ³	8.2	80	IS: 5182 (Part-2)-2001, (RA-2017)
4	Nitrogen dioxide (NO ₂) in µg/m ³	33.2	80	IS: 5182 (Part- 6)- 2001, (RA-2017)
5	Carbon Monoxide (CO) in µg/m ³	515	2000	IS: 5182 (Part- 10):1999, (RA-2014)
6	Ammonia (NH ₃) in µg/m ³	<10.0	400	Air Sampling , 3 rd Edn -Method-401
7	Ozone (O ₃) in µg/m ³	23.7	180	Air Sampling , 3 rd Edn -Method-411
8	Lead (Pb) in µg/m ³	<0.02	1	EPA IO-3.2 & 5.0
9	Nickel (Ni) in ng/m ³	8.2	20	EPA IO-3.2
10	Arsenic (As) in ng/m ³	<1.0	6	Air Sampling , 3 rd Edn.Method 402 and APHA 22 nd Edition Part 3114B
11*	Benzene (C ₆ H ₆) in µg/m ³	<2.08	5	IS: 5182 (Part- 11)
12*	Benzo (a) pyrene in ng/m ³	<0.4	1	IS: 5182 (Part- 12)
NOTE: Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality. * Not in our NABL Scope				

for Qualissure Laboratory Services
 Reviewed & Prepared by

Authorized Signatory



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TEST REPORT

Name & Address Of the Customer : M/s. Giridhan Metal Pvt. Ltd. Jamuria Industrial Estate, Damodarpur, Jamuria P.O.- Nandi, Paschim Bardhaman, Pin:713 344	Report No.	: QLS/A/20-21/C/352
	Date	: 28.11.2020
	Sample No.	: QLS/A/20-21/352
	Sample Description	: Ambient Air
	Sample Mark	: Near Admin building [west side]
	Ref No. Date	: GMPL/JMR/2019-20/03, Dt.31.03.2020

Analysis Result

Location : Near Admin building [west side]			Date of sampling : 18-19.11.2020	
Sampling Done by: S.Ghosh/J.Sahana			Sampling done as per : CPCB Guidelines (Volume-1)	
Environmental Condition : Cloudy			GPS Co-ordination : : N-23°41'88.1" E-87°5'36.9"	
Sl. No.	POLLUTANT	RESULT	LIMIT	METHOD OF TEST REFERENCE
1	Particulate matter (<10µm) in µg/m ³	91	100	IS: 5182 (Part-23)- (RA-2017)
2	Particulate matter (<2.5µm) in µg/m ³	55	60	USEPA CFR-40,Part-50, Appendix-L
3	Sulphur dioxide (SO ₂) in µg/m ³	7.9	80	IS: 5182 (Part-2)-2001, (RA-2017)
4	Nitrogen dioxide (NO ₂) in µg/m ³	31.2	80	IS: 5182 (Part- 6)- 2001, (RA-2017)
5	Carbon Monoxide (CO) in µg/m ³	617	2000	IS: 5182 (Part- 10):1999, (RA-2014)
6	Ammonia (NH ₃) in µg/m ³	<10.0	400	Air Sampling , 3 rd Edn -Method-401
7	Ozone (O ₃) in µg/m ³	27.3	180	Air Sampling , 3 rd Edn -Method-411
8	Lead (Pb) in µg/m ³	<0.02	1	EPA IO-3.2 & 5.0
9	Nickel (Ni) in ng/m ³	6.6	20	EPA IO-3.2
10	Arsenic (As) in ng/m ³	<1.0	6	Air Sampling , 3rd Edn.Method 402 and APHA 22 nd Edition Part 3114B
11*	Benzene (C ₆ H ₆) in µg/m ³	<2.08	5	IS: 5182 (Part- 11)
12*	Benzo (a) pyrene in ng/m ³	<0.4	1	IS: 5182 (Part- 12)
NOTE: Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality. * Not in our NABL Scope				

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

TEST REPORT

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	Date	: 28.11.2020
	Sample No.	: QLS/A/20-21/353
	Sample Description	: Ambient Air
	Sample Mark	: Near Proposed product house [DRI] , East Side
	Ref No. Date	: GMPL/JMR/2019-20/03, Dt.31.03.2020

Analysis Result

Location : Near Proposed product house [DRI] , East Side			Date of sampling : 18-19.11.2020	
Sampling Done by: S.Ghosh/J.Sahana			Sampling done as per : CPCB Guidelines (Volume-1)	
Environmental Condition : Cloudy			GPS Co-ordination : : N-23°41'54.9" E-87°5'46.7"	
Sl. No.	POLLUTANT	RESULT	LIMIT	METHOD OF TEST REFERENCE
1	Particulate matter (<10µm) in µg/m ³	70	100	IS: 5182 (Part-23)- (RA-2017)
2	Particulate matter (<2.5µm) in µg/m ³	43	60	USEPA CFR-40,Part-50, Appendix-L
3	Sulphur dioxide (SO ₂) in µg/m ³	8.0	80	IS: 5182 (Part-2)-2001, (RA-2017)
4	Nitrogen dioxide (NO ₂) in µg/m ³	32.0	80	IS: 5182 (Part- 6)- 2001, (RA-2017)
5	Carbon Monoxide (CO) in µg /m ³	549	2000	IS: 5182 (Part- 10):1999, (RA-2014)
6	Ammonia (NH ₃) in µg/m ³	<10.0	400	Air Sampling , 3 rd Edn -Method-401
7	Ozone (O ₃) in µg/m ³	20.2	180	Air Sampling , 3 rd Edn -Method-411
8	Lead (Pb) in µg/m ³	<0.02	1	EPA IO-3.2 & 5.0
9	Nickel (Ni) in ng/m ³	7.0	20	EPA IO-3.2
10	Arsenic (As) in ng/m ³	<1.0	6	Air Sampling , 3 rd Edn.Method 402 and APHA 22 nd Edition Part 3114B
11*	Benzene (C ₆ H ₆) in µg/m ³	<2.08	5	IS: 5182 (Part- 11)
12*	Benzo (a) pyrene in ng/m ³	<0.4	1	IS: 5182 (Part- 12)
NOTE: Limit as per CPCB notification, New Delhi, 18th November 2009, for Ambient air quality. * Not in our NABL Scope				

for Qualissure Laboratory Services

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Qualissure Laboratory Services

361, Prantick Pally, 45/361, Bose Pukur Road, Kolkata -700107
 Email : qualissure@gmail.com; info@qualissure.com ; Mob.No. 98312 87086 ; 9830093976



TC-6271

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

TEST REPORT

Name & Address Of the Customer : M/s. Giridhan Metal Pvt Ltd. Jamuria Industrial Estate, Damodarpur, Jamuria P.O. - Nandi, Paschim Bardhaman , Pin:713 344	Report No.	: QLS/A/20-21/C/345
	Date	: 28.11.2020
	Sample No.	: QLS/A/20-21/345
	Sample Description	: Fugitive Air
	Ref No. Date	: GMPL/JMR/2019-20/03, Dt.31.03.2020

Analysis Result

Location : Near Daybin Fabrication Yard		Date of sampling : 19.11.2020	
Sampling Done by: S.Ghosh / J.Sahana		Sampling done as per : CPCB Guidelines (Volume-1)	
Environmental Condition : Cloudy			
Sl. No.	Pollutants	Result	Method of Test Reference
1	Total Respirable Particulate Matter in $\mu\text{g}/\text{m}^3$	187	IS: 5182 (Part-23)- (RA-2017)
2	Sulphur dioxide (SO ₂) in $\mu\text{g}/\text{m}^3$	10.1	IS: 5182, Part-2 : (RA-2017)
3	Nitrogen dioxide (NO ₂) in $\mu\text{g}/\text{m}^3$	35.2	IS: 5182, Part- 6 : (RA-2017)
4	Carbon Monoxide (CO) in mg/m^3	400	IS: 5182 (Part- 10)-2014
NOTE: ----			

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

TEST REPORT

Name & Address Of the Customer : M/s. Giridhan Metal Pvt Ltd. Jamuria Industrial Estate, Damodarpur, Jamuria P.O. - Nandi, Paschim Bardhaman , Pin:713 344	Report No.	: QLS/A/20-21/C/346
	Date	: 28.11.2020
	Sample No.	: QLS/A/20-21/346
	Sample Description	: Fugitive Air
	Ref No. Date	: GMPL/JMR/2019-20/03, Dt.31.03.2020

Analysis Result

Location : Near Kiln Fabrication Yard [DRI]		Date of sampling : 19.11.2020	
Sampling Done by: S.Ghosh /J.Sahana		Sampling done as per : CPCB Guidelines (Volume-1)	
Environmental Condition : Cloudy			
Sl. No.	Pollutants	Result	Method of Test Reference
1	Total Respirable Particulate Matter in $\mu\text{g}/\text{m}^3$	402	IS: 5182 (Part-23)- (RA-2017)
2	Sulphur dioxide (SO ₂) in $\mu\text{g}/\text{m}^3$	10.7	IS: 5182, Part-2 : (RA-2017)
3	Nitrogen dioxide (NO ₂) in $\mu\text{g}/\text{m}^3$	33.9	IS: 5182, Part- 6 : (RA-2017)
4	Carbon Monoxide (CO) in mg/m^3	629	IS: 5182 (Part- 10)-2014
NOTE: ----			

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

TEST REPORT

Name & Address Of the Customer : M/s. Giridhan Metal Pvt Ltd. Jamuria Industrial Estate, Damodarpur, Jamuria P.O. - Nandi, Paschim Bardhaman , Pin:713 344	Report No.	: QLS/A/20-21/C/347
	Date	: 28.11.2020
	Sample No.	: QLS/A/20-21/347
	Sample Description	: Fugitive Air
	Ref No. Date	: GMPL/JMR/2019-20/03, Dt.31.03.2020

Analysis Result

Location : Near main Fabrication Yard		Date of sampling : 19.11.2020	
Sampling Done by: S.Ghosh / J.Sahana		Sampling done as per : CPCB Guidelines (Volume-1)	
Environmental Condition : Cloudy			
Sl. No.	Pollutants	Result	Method of Test Reference
1	Total Respirable Particulate Matter in $\mu\text{g}/\text{m}^3$	189	IS: 5182 (Part-23)- (RA-2017)
2	Sulphur dioxide (SO ₂) in $\mu\text{g}/\text{m}^3$	9.5	IS: 5182, Part-2 : (RA-2017)
3	Nitrogen dioxide (NO ₂) in $\mu\text{g}/\text{m}^3$	35.6	IS: 5182, Part- 6 : (RA-2017)
4	Carbon Monoxide (CO) in mg/m^3	561	IS: 5182 (Part- 10)-2014
NOTE: ----			

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

TEST REPORT

Name & Address Of the Customer : M/s. Giridhan Metal Pvt Ltd. Jamuria Industrial Estate, Damodarpur, Jamuria P.O. - Nandi, Paschim Bardhaman , Pin:713 344	Report No. : QLS/A/20-21/C/348 Date : 28.11.2020 Sample No. : QLS/A/20-21/348 Sample Description : Fugitive Air Ref No. Date : GMPL/JMR/2019-20/03, Dt.31.03.2020
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Analysis Result

Location : Near main Gate		Date of sampling : 20.11.2020	
Sampling Done by: S.Ghosh / J.Sahana		Sampling done as per : CPCB Guidelines (Volume-1)	
Environmental Condition : Clear			
Sl. No.	Pollutants	Result	Method of Test Reference
1	Total Respirable Particulate Matter in $\mu\text{g}/\text{m}^3$	271	IS: 5182 (Part-23)- (RA-2017)
2	Sulphur dioxide (SO ₂) in $\mu\text{g}/\text{m}^3$	9.2	IS: 5182, Part-2 : (RA-2017)
3	Nitrogen dioxide (NO ₂) in $\mu\text{g}/\text{m}^3$	34.2	IS: 5182, Part- 6 : (RA-2017)
4	Carbon Monoxide (CO) in mg/m^3	503	IS: 5182 (Part- 10)-2014
NOTE: ----			

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

TEST REPORT

Name & Address Of the Customer : M/s. Giridhan Metal Pvt Ltd. Jamuria Industrial Estate, Damodarpur, Jamuria P.O. - Nandi, Paschim Bardhaman , Pin:713 344	Report No.	: QLS/A/20-21/C/349
	Date	: 28.11.2020
	Sample No.	: QLS/A/20-21/349
	Sample Description	: Fugitive Air
	Ref No. Date	: GMPL/JMR/2019-20/03, Dt.31.03.2020

Analysis Result

Location : Near Boiler Fabrication Yard of power point		Date of sampling : 20.11.2020	
Sampling Done by: S.Ghosh / J.Sahana		Sampling done as per : CPCB Guidelines (Volume-1)	
Environmental Condition : Clear			
Sl. No.	Pollutants	Result	Method of Test Reference
1	Total Respirable Particulate Matter in $\mu\text{g}/\text{m}^3$	214	IS: 5182 (Part-23)- (RA-2017)
2	Sulphur dioxide (SO ₂) in $\mu\text{g}/\text{m}^3$	11.3	IS: 5182, Part-2 : (RA-2017)
3	Nitrogen dioxide (NO ₂) in $\mu\text{g}/\text{m}^3$	34.0	IS: 5182, Part- 6 : (RA-2017)
4	Carbon Monoxide (CO) in mg/m^3	595	IS: 5182 (Part- 10)-2014
NOTE: ----			

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TEST REPORT

Name & Address Of the Customer : M/s. Giridhan Metal Pvt. Ltd. Jamuria Industrial Estate, Damodarpur, Jamuria P.O.: Nandi, Paschim Bardhaman , Pin:713 344	Report No.	: QLS/A/20-21/C/354
	Date	: 28.11.2020
	Sample No.	: QLS/A/20-21/354(A-D)
	Sample Description	: Noise Monitoring
	Ref No. Date	: GMPL/JMR/2019-20/03, Dt.31.03.2020

Monitoring Result of Noise

Sampling Done By: S.Ghosh/J.Sahana				
Sampling Guideline : As per IS: 9876: 1981 (RA-2001)				
Sl No	Date of Monitoring	Location	Leq dB (A) Day Time	Leq dB (A) Night Time
A	18-19.11.2020	Near Admin Building	61.3	53.4
B		North East Side- (Fabrication Of Coal Shed)	63.5	54.9
C	19-20.11.2020	South East Side (Fabrication Of Power Plant)	63.8	52.4
D		Near Batching Plant Area	61.0	50.6

Code/ Category	Leq dB Day Time(A)	Leq dB Night Time(A)	NOTE: Day Time : 06.00 Hr. – 22.00 Hr. Night Time : 22.00 Hr. – 06.00 Hr.
A/Industrial	75	70	
B/Commercial	65	55	
C/Residential	55	45	
D/Ecological Sensitive	50	40	

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**PROJECT PROPOSAL – Sponge Iron, DRI, Induction Furnace, Rolling Mill & Captive Power Plant for
GIRIDHAN METAL PRIVATE LIMITED.
At – Jamuria Industrial Estate P.O- Nandi, P.S- Jamuria, Paschim Bardhaman, West Bengal, India**

Report of Functional Area Expert

For

“Risk Assessment &

Hazard Management” (RH)

Occupational Health & Safety

Prepared and submitted by –

- ❖ **Functional Area Expert (RH): Mr.Mahesh Chandra**
- ❖ **Study Period:**

PROJECT PROPOSAL – Sponge Iron, DRI, Induction Furnace, Rolling Mill & Captive Power Plant for GIRIDHAN METAL PRIVATE LIMITED.

At – Jamuria Industrial Estate P.O- Ikra, P.S- Jamuria, Paschim Bardhaman- 713344 West Bengal, India

INTRODUCTION

Project Proponent: M/S. Giridhan Metal Private limited

Name of the Project: Expansion of existing unit of 1x50 TPD (15,000 TPA) DRI by 3x100 TPD DRI (1,05,000 TPA of sponge iron), 2x15T IF, 1x30T LF (1,05,000 TPA of MS Billets), 310 TPD Rolling mill (1,00,000 TPA of Rods/bars/light structurals), 1x9 MVA SAF (15,000 TPA of Fe-Mn/Si-Mn), 1x5 TPH, 2x10 TPH WHRB & 1x32 TPH FBC Boiler and 16 MW Captive Power Plant (7MW of WHRB and 9 MW of FBC) at Jamuria Industrial Estate, Village-Ikra, PO-Mondalpur, Tehsil-Jamuria, District-Paschim Bardhaman, West Bengal of M/S Giridhan Metal Private Limited

Location: Jamuria Industrial Estate,
P.O. Ikra, P.S - Jamuria
District- Paschim Bardhaman, West Bengal

1.0 SCOPE OF WORK AS PER REQUIREMENT LIST

Req. Point (13):

1. Hazard identification and details of proposed safety systems

Req. Point (22):

1. Onsite and Offsite Disaster (natural and Man-made) Preparedness and
2. Emergency Management Plan including Risk Assessment and damage control.
3. Disaster management plan should be linked with District Disaster Management Plan.

Req. Point (23):

- a) Details of existing Occupational & Safety Hazards. What are the exposure levels of above mentioned hazards and whether they are within Permissible Exposure level (PEL). If these are not within PEL, what measures the company has adopted to keep them within PEL so that health of the workers can be preserved,
- b) Details of exposure specific health status evaluation of worker. If the workers' health is being evaluated by pre designed format, chest x rays, Audiometric, Spirometry. Vision testing (Far & Near vision. color vision and any other ocular defect) ECG, during pre placement and periodical examinations give the details of the same. Details regarding last month analyzed data of abovementioned parameters as per age, sex, duration of exposure and department wise.
- c) Annual report of health status of workers with special reference to Occupational Health and Safety.

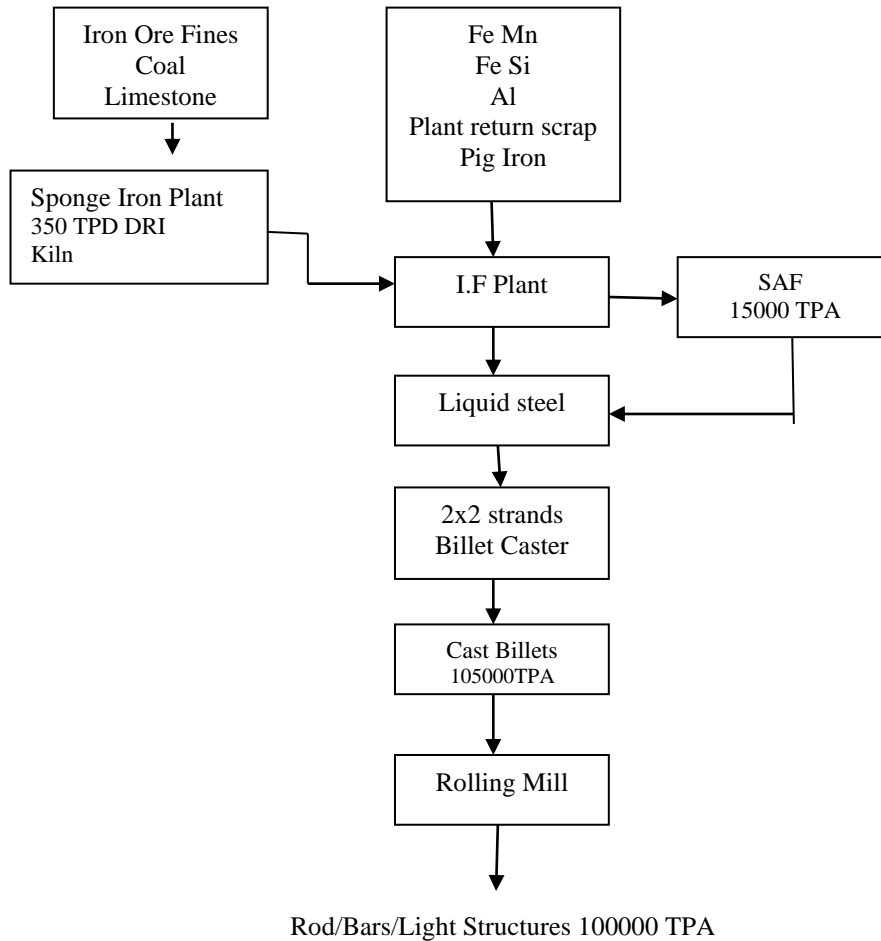
2.0 REPORT REFERENCE

- 1) <http://environmentclearance.nic.in/writereaddata/Form-1A/HomeLinks/ommodel3.html>

3.0 Project Proposal

DRI or Sponge Iron process can use either gas or coal as a reducing agent. Since, in India availability of gas is limited, coal based DRI are predominant. The capacity of proposed project activity has been tabulated below **Fig 1.1:**

Fig 1.1: Project Details



Risk Assessment & Damage Control

Risk assessment is the determination of quantitative and qualitative value of risk related to a concrete situation and a recognized threat. Activities requiring assessment of risk due to occurrence of most probable instances of hazard and accident are both onsite and off-site.

Maximum Credible Accident Analysis (MCA)

Increasing fatal accidents that have occurred during transportation have to be taken into consideration and, therefore have prompted the Ministry of Environment and Forests (MoEF), Government of India, to make Risk Assessment a mandatory requirement for all Industry sector.

MCA stands for Maximum Credible Accident or in other words, an accident with maximum damage distance, which is believed to be probable. MCA analysis does not include quantification of the probability of occurrence of an accident. In practice the selection of accident scenarios for MCA analysis is carried out on the basis of engineering judgment and expertise in the field of risk analysis especially in accident analysis.

Methodology of MCA Analysis

The MCA analysis involves ordering and ranking of various sections in terms of potential vulnerability. The data requirements for MCA analysis are:

- ✓ Operating manual
- ✓ Flow diagram and P&I diagrams
- ✓ Detailed design parameters
- ✓ Physical and chemical properties of all the chemicals
- ✓ Detailed plant layout
- ✓ Detailed area layout

Following steps are involved in the MCA analysis:

- ✓ Identification of potential hazardous sections and representative failure cases
- ✓ Visualization of release scenarios considering type and the quantity of the hazardous material
- ✓ Damage distance computations for the released cases at different wind velocities and atmospheric stability classes for heat radiations and pressure waves

Hazard Identification & Risk Assessment (HIRA)

The steel manufacturing industry is labor intensive and uses large scale and potentially hazardous manufacturing processes. The industry experiences accident rates that are high compared with some other manufacturing industries. Some examples of such hazards likely to

**PROJECT PROPOSAL – Sponge Iron, DRI, Induction Furnace, Rolling Mill & Captive Power Plant for
GIRIDHAN METAL PRIVATE LIMITED.
At – Jamuria Industrial Estate P.O- Ikra, P.S- Jamuria, Paschim Bardhaman- 713344 West Bengal, India**

occur in proposed *Sponge Iron Plant, Induction Furnace, Billet Caster Rolling Mill, CPP at M/s. Giridhan Metal Private Ltd* are given below.

These mainly impact on those working within the industry, although health hazards can also impact on local communities.

- ✓ Fire
- ✓ Explosion
- ✓ Physical Hazards
- ✓ Fugitive Dust at Raw Material Handling section, Crusher, DRI Kiln
- ✓ Collapse of Structures/Fall of Material
- ✓ Loading/ Unloading /Packaging Operations failures
- ✓ Cleaning operation failures/ Cyclone Jamming
- ✓ Electrocution/ Electrical Hazards
- ✓ Accidental Spillage of hot molten metal

Identification of source of Ignition

- ✓ Creation of hotspots during operation or maintenance of Process equipments
- ✓ Self ignition of hot material
- ✓ The electrical Discharge(thunderbolt, electrostatic charges, short circuits)

Identification of sources of Fire & Explosion at GMPL

- ✓ Oil and Lubricant Room (spillage)
- ✓ Fine Coal Hoppers
- ✓ Coal Storage area
- ✓ Electrical Substations (Short circuit)
- ✓ Boiler
- ✓ ESP

Thermal radiation

Table 1.2 Enlists damage consequences due to different Heat Loads

Table 1.2: List of Damages Envisaged at Various Heat Loads

S. No.	Heat loads (kW/m ²)	Type of Damage Intensity	
		Damage to Equipment	Damage to People
1	37.5	Damage to process equipment	100% lethality in 1 min. 1% lethality in 10 sec
2	25.0	Minimum energy required to ignite wood	50% Lethality in 1 min. Significant injury in 10 sec
3	19.0	Maximum thermal radiation intensity allowed on thermally unprotected equipment	--

**PROJECT PROPOSAL – Sponge Iron, DRI, Induction Furnace, Rolling Mill & Captive Power Plant for
GIRIDHAN METAL PRIVATE LIMITED.**

At – Jamuria Industrial Estate P.O- Ikra, P.S- Jamuria, Paschim Bardhaman- 713344 West Bengal, India

4	12.5	Minimum energy required to melt plastic tubing	1% lethality in 1 min
5	4.0	--	First degree burns, causes pain for exposure longer than 10 sec
6	1.6	--	Causes no discomfort on long exposures
Source: World Bank (1988). <i>Technical Report No. 55: Techniques for Assessing Industrial Hazards.</i> , Washington, D.C: The World Bank.			

Loading/Unloading operation/ Storage

- ✓ Approach of heavy good vehicles for unloading material
- ✓ Work inside hopper/Silo for unblocking of mouth
- ✓ Excessive Dust during Loading/Unloading operation
- ✓ Airborne dust
- ✓ Conveyor moving parts
- ✓ Cleaning of overflows
- ✓ Unauthorized passages ,travelling over transportation system
- ✓ Motor overloading
- ✓ Unclean platforms causing staggering and falls

Silo cleaning operation

- ✓ Work in confined spaces
- ✓ Falling of material
- ✓ Falling of personal from working platform
- ✓ Exposure to dust
- ✓ Use of lifting equipments
- ✓ Use of hand held work equipment during cleaning

Electrical Hazard due to Dust

Electrical equipment such as motors, circuit breakers, transformers, and switchgear can produce sparks and ignite dust clouds and hybrid dust/air mixtures in the vicinity. Reference is taken from *CCPS Guidelines for safe handling of Bulk solids.*

- ✓ Ingress of dust into enclosures with subsequent ignition causes smoldering or burning (fires)
- ✓ Dust that enters an enclosure will settle out as layers on internal surfaces and become heated
- ✓ Electrically conductive dusts causes short-circuiting when deposited on exposed electrical components and circuits
- ✓ Abrasive and/or corrosive dusts damages components of electrical equipment

- ✓ Electric shock

Captive Power plant (CPP Unit)

- ✓ Steam Handling and Pressure drop(Steam Explosion)
- ✓ Fly Ash handling
- ✓ Exposure to High temperatures
- ✓ Physical Hazards
- ✓ Blast overpressure
- ✓ Design failure
- ✓ Failure of Safety Relief devices
- ✓ Id fan/PA fan/SA fan failure
- ✓ Circulation line failure
- ✓ Turbine system failure
- ✓ Furnace bed maintenance for FBC Boiler
- ✓ Dosing System Failure(HP and LP)
- ✓ Failure of fuel firing system / Burner Management system(BMS)
- ✓ RCC chimney blockage
- ✓ Temperature drop and failure of Air cooled condenser, Low pressure(LP) and High Pressure(HP) heater and Drain cooler
- ✓ Failure of re-circular system
- ✓ Pump failure(Boiler feed, HSD unloading, Transfer)

Waste Heat Recovery Boiler (WHRB Unit)

- ✓ Blast Over pressure
- ✓ Steam Pressure drop
- ✓ Leak , Catastrophic rupture in gas lines
- ✓ Temperature drop in Boiler, Pre heater
- ✓ Process failure

Natural and Manmade Calamities which can lead to Emergency

Earthquake

The Paschim Bardhaman District area falls under the seismic zone-III, which is the Low risk quake upto magnitude 4.1 and may trigger into a technological disaster, includes collapse of old structures, buildings leading to fire and explosion. Earthquake cannot usually be forecasted and therefore precautions immediately prior to such event are not usually possible. Emergency recovery plan

**PROJECT PROPOSAL – Sponge Iron, DRI, Induction Furnace, Rolling Mill & Captive Power Plant for
GIRIDHAN METAL PRIVATE LIMITED.**

At – Jamuria Industrial Estate P.O- Ikra, P.S- Jamuria, Paschim Bardhaman- 713344 West Bengal, India

has been considered by the emergency management team as per the situation and site conditions as follows in **Table No 1.3**:

Table No 1.3

Step	Activity	Action By
Preparedness	<ul style="list-style-type: none"> • Constitute Emergency Response Team • Identify ECC, if the identified ones are damaged • Control centers to be equipped with <ul style="list-style-type: none"> ❖ Alarming ❖ Communication facilities ❖ Emergency vehicles/ equipment ❖ List of emergency contacts & suppliers ❖ Medical facilities 	Plant Key Person
Action during effective period	<ul style="list-style-type: none"> • Do not panic. Raise alarm • Avoid standing near to windows, external walls • Stand near the columns or duck under sturdy furniture. • Assemble at emergency assembly point as there may be aftershocks 	Individual(s)
Action after effective Period (Establish Emergency Control Center. Site Main Controller to direct all activities)	<ul style="list-style-type: none"> • Assess situation and initiate shut down of plants (if required) • Initiate search & rescue (if required) • Evacuation of people. • Recovery/ Rehabilitation Work • Medical care for the injured. • Supply of food and drinking water. • Temporary shelters like tents, metal sheds etc. • Repairing lines of communication and information. • Restoring transport routes • Take head count • Activate emergency plan as situation demands • Assess damage 	Site Controller, Incident Controller, Primary Controller Coordinators – Fire & Security, Safety, Material and Medical

Storm

The contingency actions during storm shall be based on the weather forecasts obtained from meteorological stations and the local meteorological department. Some of the important actions to be carried out are as follows:

Prior to Storm

- ✓ Communication with the local meteorological department.
- ✓ Maintain distances from storm in order to execute preparatory actions in a shorter time.
- ✓ Considering the consequences about the emergency might have on operations and personnel.

**PROJECT PROPOSAL – Sponge Iron, DRI, Induction Furnace, Rolling Mill & Captive Power Plant for
GIRIDHAN METAL PRIVATE LIMITED.**

At – Jamuria Industrial Estate P.O- Ikra, P.S- Jamuria, Paschim Bardhaman- 713344 West Bengal, India

- ✓ Review all operations carefully to ensure that systems in jeopardy are taken care of or shut down.
- ✓ Ensure the readiness of first aiders, emergency vehicles, medical centre, medicines etc.
- ✓ Metallic sheets, loose materials, empty drums and other light objects shall be properly secured.
- ✓ Flush the drainage systems.

During Storm

- ✓ Remain calm.
- ✓ Avoid going outdoors.
- ✓ Do not seal the office completely as the suction created by the difference in atmospheric pressure inside and outside can rip open a window or door by breaking window glass panes.

After the Storm

- ✓ Do not touch electric lines.
- ✓ Stay away from the disaster area.
- ✓ Take special precautions in driving vehicles since the under-pavement could cave in due to the weight of automobile.

Air Raid

Air raid warning is obtained from the District Emergency Authority during which total blackout of the entire complex should be considered. Some of the contingency actions to be considered during an air raid are as follows:

- ✓ The Aviation Lights installed on highest point inside the factory shall be switched off.
- ✓ All the lighting on the Streets shall be put off.
- ✓ All the plant lighting shall be put off.
- ✓ Brown curtains shall be provided for all windows inside the building.
- ✓ Other emergency actions shall be followed in addition as per the general procedure.

Food and Water Poisoning

Food and water poisoning to a no. of persons, due to canteen food or other means, is another scenario which can lead to major emergency. In this case Medical Officer would be informed immediately by the Primary Controller at site and then to incident Controller(IC) and Site

**PROJECT PROPOSAL – Sponge Iron, DRI, Induction Furnace, Rolling Mill & Captive Power Plant for
GIRIDHAN METAL PRIVATE LIMITED.**

At – Jamuria Industrial Estate P.O- Ikra, P.S- Jamuria, Paschim Bardhaman- 713344 West Bengal, India

Controller (SC). In such situation doctors will act and if situation demands additional help such as ambulances, doctors and medicine would be arranged from nearby factories and hospitals.

Fire & Explosion Index

Fire and Explosion Index (FEI) is useful in identification of areas in which the potential risk reaches a certain level. It estimates the global risk associated with a process unit and classifies the units according to their general level of risk. FEI covers aspects related to the intrinsic hazard of materials, the quantities handled and operating conditions. This factor gives index value for the area which could be affected by an accident, the damage to property within the area and the working days lost due to accidents.

Fire and explosion index is then calculated as the product of Material Factor (MF) and Unit Hazard Factor. Degree of hazards based on F& EI given in the following **Tables 1.4** and **Table 1.5** respectively.

Table 1.4: Degree of Hazards Based on F& EI

FEI Range	Degree of Hazard
0 – 60	Light
61 – 96	Moderate
97 – 127	Intermediate
128 – 158	Heavy
159 and Above	Severe

Table 1.5: Calculated Degree of Hazards Based for Giridhan Metal Pvt. Ltd.

S. No.	Unit	Parameter	Hazard F&EI Potential	Remarks
1.	Raw materials & Products	Iron ore	Light	Physical Hazard
		Coal	Moderate	Fire
		Other fluxing minerals	Light	
		Product steel	Light	Physical Hazard
2.	Iron making in Rotary kiln	Coal reduction fuel gas	Intermediate	Flammable and CO pollution
		Hot Metal	Intermediate	Personnel injury & fire
		Burning coal	Intermediate	Personnel injury & fire
3.	Rolling Mills	Hot metal	Intermediate	Fire
4.	Fuel gas Distribution	Gas leaks	Intermediate	Fire and CO pollution
5.	Electric power supply	Short circuit	Intermediate	Fire
6.	Transformer		Light	Explosion & fire
7.	Steam turbine generator building		Moderate	Fires in Lube oil system, Short circuit in control room/switch gear, cable galleries & oil drum storage
8.	Boilers	Heat recovery boilers	Moderate	Fire/steam explosion
9.	Coal Handling plant	Storage shed	Moderate	Fire or dust explosion
10.	Coal Storage	Storage shed	Moderate	Spontaneous combustion

Mitigation Measures

Risk Mitigation measures for the proposed Expansion and new Installation activities require adoption of best safety practice at the respective construction zones as well as operational phase within the works boundary. In addition, the design and engineering of the proposed facilities will take into consideration of the proposed protection measures for air and water environmental as outlined in earlier Chapter.

Coal Handling Plant

- ✓ Coal handling unit shall be minimum 500 meters away from the residential area, school/colleges, Historical Monuments, Religious Places, Ecological sensitive area as well as forests area. Also from Railway line, Express ways, National Highways, State ways and District Roads and from water bodies like River, Nala, Canal, Pond etc.
- ✓ Coal storage unit shall provide paved approach with adequate traffic carrying capacity.
- ✓ Compound wall with adequate height should be constructed around the coal storage area
- ✓ The unit should have adequate water supply through pipe/ surface water before selection of the site.
- ✓ Coal storage unit should ensure that stacking of coal in heaps does not get higher than the compound wall of premises of unit
- ✓ Adequate dust suppression measures should be provided to prevent fugitive emission and also risk of fire. Similar measures should be adopted for loading/unloading operations. Coal ash should be transported in tankers, which are covered and closed and there is no chance of spillage during transportation.
- ✓ Fire fighting measures should be provided to avoid any fire and ensure that there is no explosive or chemical reaction in storage yard.
- ✓ Coal unit should take measures to control the air pollution while loading/handling coal. Specific measures should be under-taken to avoid fugitive emission at the time of loading/unloading of coal by individual coal yard unit.

Induction Furnace

- ✓ Gas safety man would accompany the team and would test the atmosphere for the presence of CO, before starting the work. If CO, concentration is found exceeding the safe limit, the job would be undertaken using necessary safety appliances viz., Oxygen Breathing Apparatus/Blower type Gas mask.
- ✓ Any gas cutting /welding job would be undertaken with the clearance from Gas safety man.

Control Rooms

- ✓ Control rooms shall be blast proof and shock proof

**PROJECT PROPOSAL – Sponge Iron, DRI, Induction Furnace, Rolling Mill & Captive Power Plant for
GIRIDHAN METAL PRIVATE LIMITED.
At – Jamuria Industrial Estate P.O- Ikra, P.S- Jamuria, Paschim Bardhaman- 713344 West Bengal, India**

- ✓ The building shall be located upwind of the process storage and handling facilities. The building shall not be at a lower level than the tank farm.
- ✓ Adequate number of doors shall be provided in the control room for safe exit
- ✓ Smoke detectors system shall be provided for control rooms at suitable locations
- ✓ One hydrant (minimum) for every 45m per wall of the building shall be positioned all around the building

Gas Explosion, Prevention & Preventive Measure

The following actions would be taken to prevent any gas explosions in case of gas leakage.

- ✓ For works on gas lines/equipment, non-sparkling copper tools will be used. If such tools are not available, grease coated steel tools would be used.
- ✓ Electrical drill & other electrical equipment will not be used as these can give rise to sparks.
- ✓ The gas line would be thoroughly purged with steam before undertaking the job on the same.
- ✓ Naked lights will not be used near any de-pressurized gas main or equipment unless the same has been thoroughly purged.
- ✓ In case of profuse leakage of gas, action would be taken for water sealing and isolating that portion.
- ✓ The approach road to the gas line complex would be kept free from any obstructions.
- ✓ If gas catches fire due to some leakage, it will be extinguished with plastic clay, steam or water.
- ✓ The portion of gas main affected would be cooled down with water. The valve will not be closed when fire is still there and the pressure in the main will be maintained at minimum 100mm (WC).
- ✓ Gas tapping points of flow or pressure measurement will be cleaned with wooden stick or grease coated wire.
- ✓ If lighting is necessary near gas line, portable spark, proof electrical lamps of low voltage or explosion proof torchlight will be used for enclosed areas.

Steel Melting Shop

The main hazards arise out of the use of hot metal and oxygen at the spillage of hot metal cause serious burn injuries and fires. Severe explosions are also caused due to hot metal falling over a pool of water, resulting in injuries to persons, fire and damage to equipment due to flying of hot splinters & splashing of liquid metal/slag

Hot Metal

Sudden break out of molten metal result in heavy explosions, due to their coming in contact with water, thereby causing serious burn injuries to persons and damage to equipment. Any accumulation of water will be prevented in such vulnerable areas.

- ✓ In case of minor leakages, the flow of molten metal will be controlled.
- ✓ If there is major breakout, the area would be cut off and cordoned.
- ✓ Vital connections e.g. water, gas, compressed air, oxygen etc., would be cut off or regulated as per requirement.

Electrical safety

- ✓ Adequately rated and quick response circuit breakers, aided by reliable and selective digital or microprocessor based electromagnetic protective relays would be incorporated in the electrical system design for the proposed activities.
- ✓ The metering and instruments would be of proper accuracy class and scale dimensions.

Fire Fighting Facilities

All the fire extinguisher system will be controlled by the Security Department. Safety department will consist of qualified safety manager, safety officer and supporting staff.

- ✓ Portable fire extinguishers
- ✓ Fire Hydrant system
- ✓ Sprinkler system employed near fire prone areas
- ✓ Fire Buckets

Table no 1.6: Details of Fire Fighting Facilities onsite

S. No.	Name of site	Type of Extinguisher
1	Cable galleries	CO ₂ & Foam type, Dry chemical powder
2	High voltage panel	CO ₂ & Foam type, Dry chemical powder
3	Control rooms	CO ₂ & Foam type, Dry chemical powder
4	MCC rooms	CO ₂ & Foam type, Dry chemical powder
5	Pump Houses	CO ₂ & Foam type, Dry chemical powder
6	Guest houses and offices	Dry chemical powder, foam type
7	Godowns	Foam type
8	Bunkers, Silo, enclosed dust collector	CO ₂ type, N ₂ type, automatic sprinkler, fixed spray nozzle(unless water reactive)

Personal Protective Equipment (PPE)

Personal Protective equipments to be kept onsite to be made readily available to plant personnel.

Table 1 .7 shows the lists of recommended Personal Protective equipments (PPE) onsite.

**Table 1.7: Summary of Recommended Personal Protective Equipment
According to Hazard**

	Workplace Hazards	Suggested PPE
Eye and face protection	Flying particles, molten metal, gases or vapors, light radiation	Safety glasses with side-shields, protective shades, etc.
Head protection	Falling objects, inadequate height clearance, and overhead power cords	Plastic helmets for top and side impact protection
Hearing protection	Noise	Hearing protectors (ear plugs or ear muffs)
Foot protection	Falling or rolling objects, points objects. Corrosive or hot liquids	Safety shoes and boots for protection against moving and falling objects, liquids and chemicals
Hand protection	Hazardous materials, cuts or lacerations, vibrations, extreme temperatures	Gloves made of rubber or synthetic material (Neoprene), leather, steel, insulation materials, etc.
Respiratory protection	Dust, fogs, fumes, mists, gases, smokes, vapors	<ul style="list-style-type: none"> ➤ Facemasks with appropriate filters for dust removal and air purification (chemical, mists, vapors and gases). ➤ Single or multi-gas personal monitors, if available
	Oxygen deficiency	Portable or supplied air (fixed lines). Onsite rescue equipment
Body / leg protection	Extreme temperatures, hazardous materials, biological agents, cutting and laceration	Insulating clothing, body suits, aprons etc. of appropriate materials
Fly Ash	Fly ash handling and storage	<ul style="list-style-type: none"> ➤ For handling, dust-proof goggles and rubber or PVC gloves. ➤ For large quantities or where heavy contamination is likely, wear: coveralls. ➤ For high dust levels, wear: a Full-face Class P3 (Particulate) or an Air-line respirator. ➤ For inhalation risk exists, wear: a Class P1 (Particulate) respirator.

Occupational Health Hazards

- Dust Exposure level of shop floor workers is to be appropriately monitored.
- Check of the effectiveness of preventive and control measures on regular basis.
- Adequate supplies of potable drinking water is to be provided .Water supplied to areas of Plant food preparation or for the purpose of personal hygiene (washing or bathing) are according to drinking water quality standards
- Where there is potential for exposure to harmful dusts by ingestion arrangements are to be made for clean eating areas, where workers are not exposed to the hazardous or noxious substances
- Periodic medical hearing checks are to be performed on workers exposed to high noise levels

**PROJECT PROPOSAL – Sponge Iron, DRI, Induction Furnace, Rolling Mill & Captive Power Plant for
GIRIDHAN METAL PRIVATE LIMITED.**

At – Jamuria Industrial Estate P.O- Ikra, P.S- Jamuria, Paschim Bardhaman- 713344 West Bengal, India

- Provisions are to be made to provide OHS orientation training to all new employees to ensure they are apprised of the basic site rules of work at / on the site and of personal protection and preventing injury to fellow employees
- Contractors that have the technical capability to manage the occupational health and safety issues of their employees are to be hired, extending the application of the hazard management activities through formal procurement agreements
- Ambulances and First aid treatment facilities are made available for any emergency situation

DISASTER MANAGEMENT PLAN

INTRODUCTION TO THE TERM “DISASTER”

The term “Disaster” refer to extensive damage of property and serious disruption both inside, outside the work system and its surrounding that can be natural or human interfered. Emergency may be caused by a number of different factors, e.g. plant failure it will normally manifest itself in three basic forms viz fire, explosion or toxic release and requires the assistance of emergency control services to handle mass devastation effectively.

NEED OF DISASTER MANAGEMENT

The aim of Disaster management plan is concerned with preventing accidents through following guidelines of good design practice, operation, maintenance and inspection, by which it is possible to reduce the risk of an accident. Since it is known to all it is not possible to eliminate entire risk since, absolute safety is not achievable.

After Assessing and quantifying the possible scenarios, consequence analysis approach to emergency preparedness and emergency planning delineates Disaster Management Plan for both on-site and off-site. These plans are needed to be implemented in the event of a disaster.

OBJECTIVE OF DISASTER MANAGEMENT PLAN

The objective of Disaster Management plan is to give a broad framed layout to tackle emergency situation that may lead to a hazardous situation. It defines detail organizational responsibilities, actions, reporting requirements, broad and specific key roles and responsibilities of personal with Organograms and organization charts. The overall objectives of the emergency plan will be:

- ✓ Ensure safety of people, protect the environment
- ✓ To ensure localization of risk
- ✓ To minimize and reduce the effects of the accident on people and property.
- ✓ Immediate response to emergency scene with effective communication network and organized procedures

- ✓ To obtain and mitigate early warning of emergency conditions so as to prevent impact on personnel, assets and environment
- ✓ To prevent injuries by following proper onsite, offsite emergency plans that can protect personnel from the hazard

The potential areas prone to Disaster and the likely accidents with the concerned area have been enlisted below **Table No.1.8**

TABLE 1.8: Possible Hazardous Locations onsite

S. No.	Hazardous Area	Likely Accident
1.	Boiler Area	Explosion
2.	Turbine room	Explosion
3.	Electrical rooms	Fire and electrocution
4.	Transformer area	Fire and electrocution
5.	Cable tunnel	Fire and electrocution
6.	Storage yard	Sliding/Fall
7.	Chimney	Air pollution
8.	Coal/ fuel storage area	Fire and spillage

PHASES OF DISASTER

There are various phases of Disaster including pre and Post Management of Hazardous Event that may or has occurred.

Warning Phase

Emergencies /disasters are generally preceded by warnings during which preventive measures may be initiated. For example uncontrollable build-up of pressure in process equipment, weather forecast give warning about formation of vapour cloud, equipment failure etc.

Period of Impact Phase

This is the phase when emergency /disaster actually strike and preventive measures may hardly be taken. However, control measures to minimize the effects may be taken through a well- planned and ready-to-act disaster management plan already prepared by organization. The duration may be from seconds to days.

Rescue Phase

This is the phase when impact is almost over and efforts are concentrated on rescue and relief measures.

Relief Phase

In this phase, apart from organization and relief measures internally, depending on severity of the disaster, external help are also to be summoned to provide relief measures (like evacuations to a safe place and providing medical help, food clothing etc.). This phase will continue till normalcy is restored.

Rehabilitation Phase

This is the final and longest phase. During which measures required to put the situation back to normal as far as possible are taken. Checking the systems, estimating the damages, repair of equipments and putting them again into service are taken up. Help from revenue/insurance authorities need to be obtained to assess the damage, quantum of compensation to be paid etc.

KEY ELEMENTS

Basis of Plan

Hazard Identification necessitates preparation and planning the prevention and methods by which accidental failure can be tackled without much damage to life. HAZID and consequence analysis combines and requires planning for the following:

- ✓ Hazards from spread of fire or release of flammable from storage and process units
- ✓ Hazards due to formation of pressure waves due to vapour cloud explosion of flammable gases

Emergency planning and Response procedure

The Emergency Response Plan is plan for dealing with emergencies are implemented immediately whenever there is a fire, explosion, or release of a hazardous substance that threatens human health or the environment. The emergency response plan is reviewed and immediately amended whenever:

- ✓ The plan fails in an emergency
- ✓ The list of emergency contacts change
- ✓ The list of emergency equipment changes
- ✓ The facility changes in its design, construction, operation, maintenance, or other circumstances in a way that increases the potential for fire, explosions, or release of a hazardous substance

Incident Response Plan

It is the Frame work of addressing the emergency situation arose due to failure scenario.

- ✓ Incident Response Plan (IRP) and Emergency Preparedness Plan
- ✓ Incident Response Team (IRT)
- ✓ Emergency Response Team (ERT)
- ✓ Crisis Management Team (CMT)

Onsite Disaster Management Plan

Disaster management plan are prepared with an aim of taking precautionary step to control the hazard propagation, avert disaster, take action after the disaster which limits the damage to the minimum and follow the on-site emergency planning.

Onsite Emergency Plan

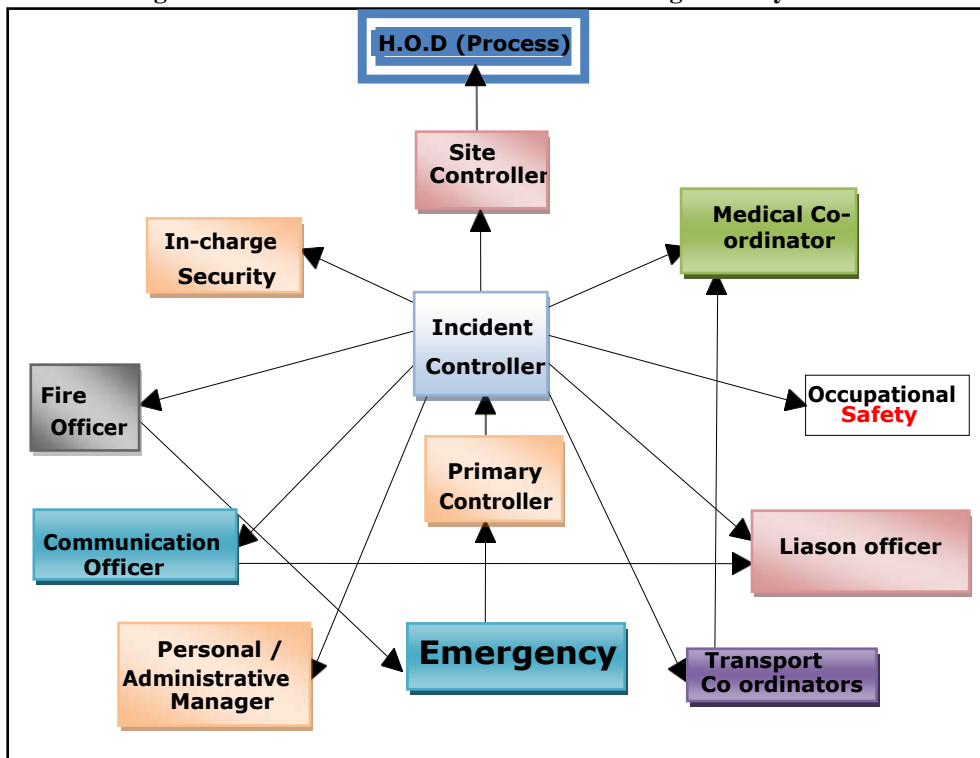
The onsite emergency is an unpleasant situation that causes extensive damage to plant personnel and surrounding area and its environment due to in operation, maintenance, design and human error. Onsite plan will be applied in case of proposed expansion. Following point are taken into consideration:

- ✓ To identify, assess, foresee and work out various kinds of possible hazards, their places, potential and damaging capacity and area in case of above happenings.
- ✓ Review, revise, redesign, replace or reconstruct the process, plant, vessels and control measures if so assessed.
- ✓ Measures to protect persons and property of processing equipments in case of all kinds of accidents, emergencies and disasters
- ✓ To inform people and surroundings about emergency if it is likely to adversely affect them

Disaster control Management system

Disaster Management group plays an important role in combating emergency in a systematic manner. Schematic representation Emergency Control Management system for GMPL is shown in **Fig. 1.9**

Fig. 1.9: Onsite DMP - Disaster Control / Management System



Emergency Control Centre (ECC)

An Emergency Control Centre (ECC) is established from which emergency operations are directed and co-ordinate. Centre will be activated as soon as on-site emergency is declared. The ECC will consist of one room, located in an area that offers minimal risk being directly exposed to possible accidents. During an emergency, the Emergency Management Staff, including the main controller will gather in the ECC. Therefore, the ECC will be equipped with adequate communication systems in the form of telephones and other equipments to allow unhampered organization and other nearby facility personnel.

The ECC will provide shelter to its occupants against the most common accidents; in addition, the ECC's communication systems will be protected from possible shutdown. The ECC will have its own emergency lighting arrangement and electric communication systems operation. The ECC will always be ready for operation and provided with the equipment and supplies necessary during the emergency such as:

- ✓ Hazard identification chart, All Emergency response plans
- ✓ Population around factory
- ✓ Internal telephone connections and External telephone connections
- ✓ A list of key personnel, with addresses, telephone numbers, etc.
- ✓ Hotline connection to district collector, police control room, fire brigade, Hospital etc.
- ✓ Public address system (PAS)
- ✓ MSDS of all the materials used in Plant site
- ✓ List of dispensaries and registered medical practitioners around factory
- ✓ Area map of surrounding villages
- ✓ Note pads and ball pens to record message received and instructions
- ✓ The blown up copy of Layout plan showing areas where accident has Occurred
- ✓ Undated copies of the On-site Disaster Management Plan
- ✓ Emergency telephone numbers
- ✓ The names, phone number, and address of external agencies, response organizations and neighboring facilities
- ✓ The adequate number of telephone
- ✓ Emergency lights
- ✓ List of fire extinguishers with their type no. and location, capacity, etc
- ✓ Personal protective equipment(PPE)
- ✓ Safety helmets

**PROJECT PROPOSAL – Sponge Iron, DRI, Induction Furnace, Rolling Mill & Captive Power Plant for
GIRIDHAN METAL PRIVATE LIMITED.
At – Jamuria Industrial Estate P.O- Ikra, P.S- Jamuria, Paschim Bardhaman- 713344 West Bengal, India**

- ✓ Clock
- ✓ Material safety data sheets for chemicals handled at the facility
- ✓ Several maps of the facility including drainage system for surrounding area showing:
- ✓ Areas where hazardous materials are stored
- ✓ Plant layout
- ✓ Plot plans of storage tanks, routes of pipelines, all water permanent lines etc.
- ✓ The locations where personal protective equipment are stored
- ✓ The position of pumping stations and other water sources
- ✓ Roads and plant entrances
- ✓ Assembly areas
- ✓ Lay out of Hydrant lines

Roles and Responsibility

A team of following Essential persons shall be taking necessary action in case of emergency. The roles and responsibilities of these personnel are defined subsequently:

- Site Controller (SC)
- Incident Controller(IC)
- Primary Controller
- Liaison Officer
- Communication Officer
- Observer
- In charge (Security)
- In charge (Medical)
- Shift In charge (Security)

Site controller

The Unit Head shall have overall responsibility for the factory and its personnel. In absence of Unit Head, Chairman OHS Committee shall assume the responsibility of Site Controller. His duties during emergency shall be:

- ✓ To assess the magnitude of the situation and decide if employees need to be evacuated from assembly points.
- ✓ To give necessary instructions to Liaison Officer, HOD(HR&A) regarding the help to be obtained from outside agencies like Fire Brigade, Police and Medical

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GIRIDHAN METAL PRIVATE LIMITED.**

At – Jamuria Industrial Estate P.O- Ikra, P.S- Jamuria, Paschim Bardhaman- 713344 West Bengal, India

- ✓ To advise Liaison Officer to pass on necessary information about the incident to News Media and ensure that the evidences are preserved for enquiry to be conducted by statutory authorities.

Incident Controller

The HOD of affected department shall have overall responsibility for controlling the incident and directing the personnel. Section In charge of the affected department shall assume the responsibility of Incident Controller(IC) in the absence of HOD of affected department. His duties during emergency shall be:

- ✓ To inform Communication Officer about the emergency, Control Center & Assembly point.
- ✓ To direct all operations` within the affected area with priorities for safety of personnel, to minimize damage to the Plant and environment and to minimize loss of material.
- ✓ To act as Site Controller till the later arrives.
- ✓ To advise and provide information to Fire Squad, Security Officer and Local Fire Services when they arrive.
- ✓ To ensure that all non-essential persons are sent to the assembly point.

Primary Controller

The Primary Controller is the employee who gives the first information about the incident/accident. He will be responsible for:

- ✓ To inform the Security office (Main Gate), & Engineers/Sr. Engineers / Shift In-Charges/HOD of Section of the aforesaid Department/Section from the nearest available telephone about the location and nature of incident.
- ✓ To assist rescue operation as well as clear obstruction, if any, in the same.
- ✓ To carry out all instructions from Incident Controller.

Liaison Officer

HOD (HR&A) shall be the Liaison officer. He shall be responsible for: -

- ✓ To contact Fire Brigade, Police, and Medical facilities on intimation from Site Controller & arrange for the rescue operation.
- ✓ To ensure that the casualties receive attention.
- ✓ To inform relatives of the affected employee at the earliest.
- ✓ To arrange for additional transport if required.
- ✓ To arrange for relief of personnel & organize refreshment/catering facility, in case the duration of emergency is prolonged.

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GIRIDHAN METAL PRIVATE LIMITED.
At – Jamuria Industrial Estate P.O- Ikra, P.S- Jamuria, Paschim Bardhaman- 713344 West Bengal, India**

- ✓ To issue authorized statements to news media and ensure that evidence is preserved for enquiry to be conducted.

In charge (Medical)

On receiving the information he will reach hospital immediately and take following actions :-

- ✓ He will keep necessary first aid medicines and artificial respiration equipment ready.
- ✓ Inform doctors at other places to be ready, for attending serious injury, burn cases and food poisoning

Observer

- ✓ During Mock Drill for Emergency Situations they shall be placed at different locations in plant to note down the movement and action taken by people and give feed back to the Site Controller.

Communication Officer

In-Charge (Safety) shall act as Communication officer. He shall work from Control Centre and maintain communication between relevant personnel. He shall be responsible for: -

- ✓ To apprise the site controller of the situation, based on the information received, suggest the evacuation of personnel from assembly points, if needed.
- ✓ To arrange for suitable persons to act as runners/messengers in case of failure of communication system.
- ✓ To carry out any other works as assigned by Site Controller/Incident Controller

In charge - Security

- ✓ The In charge (Security) shall guide the crew, according to the condition of emergency site, for the actions required to handle the emergency i.e. for fire fighting, removal of debris, arresting of dust, removal of oil soaked earth etc. He shall give instructions to Security Guards to cordon off areas as required by Incident Controller. He shall render all help to incident controller to handle the emergency and carry out the work as assigned to him.
- ✓ He shall be responsible for ensuring the discipline at control points and for preventing the entry of unauthorized persons inside the affected area as well as inside the factory during emergency.

Shift Incharge – Security

He shall be responsible for

- ✓ To arrange the necessary help as requested by Primary Controller.
- ✓ To inform Incharge (Security).

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GIRIDHAN METAL PRIVATE LIMITED.
At – Jamuria Industrial Estate P.O- Ikra, P.S- Jamuria, Paschim Bardhaman- 713344 West Bengal, India**

- ✓ To blow emergency siren, if instructed by the HOD (HR&A)/Incident Controller.
- ✓ To send Ambulance near accident area.
- ✓ To rush to the accident site with fire brigade along with available trained security persons.

Automatic Fire Detection System

Unattended vulnerable premises like electrical control rooms, cable tunnels, MCC, oil cellars, etc. will be provided with automatic fire detection and alarm systems.

Manual Call Point Systems

All major units and welfare/administrative building will be provide with manual call points for summoning the fire fighting crew from the fire station for necessary assistance.

Fire Station

The following equipment will be provided in the fire posts.

- ✓ Water tender
- ✓ Foam tender
- ✓ Portable pump
- ✓ Wireless set
- ✓ Hoses
- ✓ Hot line telephone

Alarm System

A hooter installed at the Security Office shall be blown alternately with high and low pitch for 2 minutes to indicate major emergency in the plant. In such case, all non-essential employees are expected to gather at assembly point i.e. Company's Main Gate/Time Office. Signal for the clearance of emergency shall be given by blowing the hooter continuously for one minute.

First Aid

- ✓ Fully equipped Hospital with Ambulance Van is available. Doctors and nurse are available round the clock to handle any emergency in the plant. The Ambulance shall be periodically checked through preventive maintenance programme .To ensure that the system is strictly followed, In-charge (Safety) shall cross check randomly once in a fortnight the preparedness of Ambulance as per the check list and counter sign
- ✓ The injured shall be shifted to nearby hospital, as per the opinion of the Medical Officer.
- ✓ A list of First Aid boxes is available in every department as mentioned in ECC
- ✓ Medical Officer shall ensure that refilling is done on monthly basis and he shall maintain a record of refilling.

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GIRIDHAN METAL PRIVATE LIMITED.
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- ✓ The names & contact numbers of trained First Aiders are provided the same is displayed at all the prominent locations in the premises.
- ✓ In case of Injury caused due to Hazardous Chemicals, Material Safety Data Sheet (MSDS) available with the user department / Hospital shall be referred.

Mock Drill

For reviewing and assessing the level of preparedness, In-charge (Safety) shall conduct Mock trials twice in a year (one in each half) simulating the covered emergencies and will maintain records of the trials. The team of Prime & Deputy Responsible persons will review the records and events of the emergency preparedness trials along with the observations taken by the observer and report shall be put forward to the Site Controller. Corrective and Preventive measures, if suggested/directed, will be initiated and relevant records of the same are maintained. Fire drills will be exercised once in every six months under the leadership of Incharge (Security). The records of Fire drill are maintained.

The findings of the mock drills shall be used for improvements in preparedness and response. All team leaders shall be responsible for implementing the suggestions based on mock drill findings within reasonable time frame.

Training

On a yearly basis class room training for fire fighting and mitigating measures to be adopted to reduce environmental impact & OHS risks, will be imparted covering at least 20% employee by the In-charge (Safety) and In-charge (Security). The records of the same are maintained.

Evacuation Plan

To establish method of systematic, safe and orderly evacuation of all the occupants in case of fire or any emergency, in the least possible time, to a safe assembly point through nearest safe means of escape. Additionally to use available fire appliances provided for controlling or extinguishing fire and safeguarding of human life.

- ✓ Facility staff will be notified of evacuation by one or more of the following method(s):
Verbal, Intercom, Portable Radio, Alarm, Other
- ✓ Notification to emergency services to ECC
- ✓ Staff will follow predetermined evacuation routes and assemble at designated areas.
Evacuation maps must be displayed throughout the facility.
- ✓ Individuals responsible for coordinating evacuations must confirm the process

Off-Site Emergency Planning

The off-site emergency plan is an integral part of any hazard control system. It is 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 therefore complement each other. The

Roles of the various parties that may be involved in the implementation of an off-site plan are described below. The responsibility for the off-site plan will be likely to rest either with the works management or with the local authority. Schematic representation of various organisation involved during emergency is shown below in **Fig. 1.10**.

Either way, the plan must identify an emergency coordinating officer who would take overall command of the off-site activities. Consideration of evacuation may include the following factors:

- ✓ In the case of a major fire but without explosion risk (e.g. an oil storage tank), only houses close to the fire are likely to need evacuation
- ✓ If fire is escalating very fast it is necessary to evacuate people nearby as soon as possible
- ✓ In acute emergency people are advised to stay indoors and shield themselves from the fire.

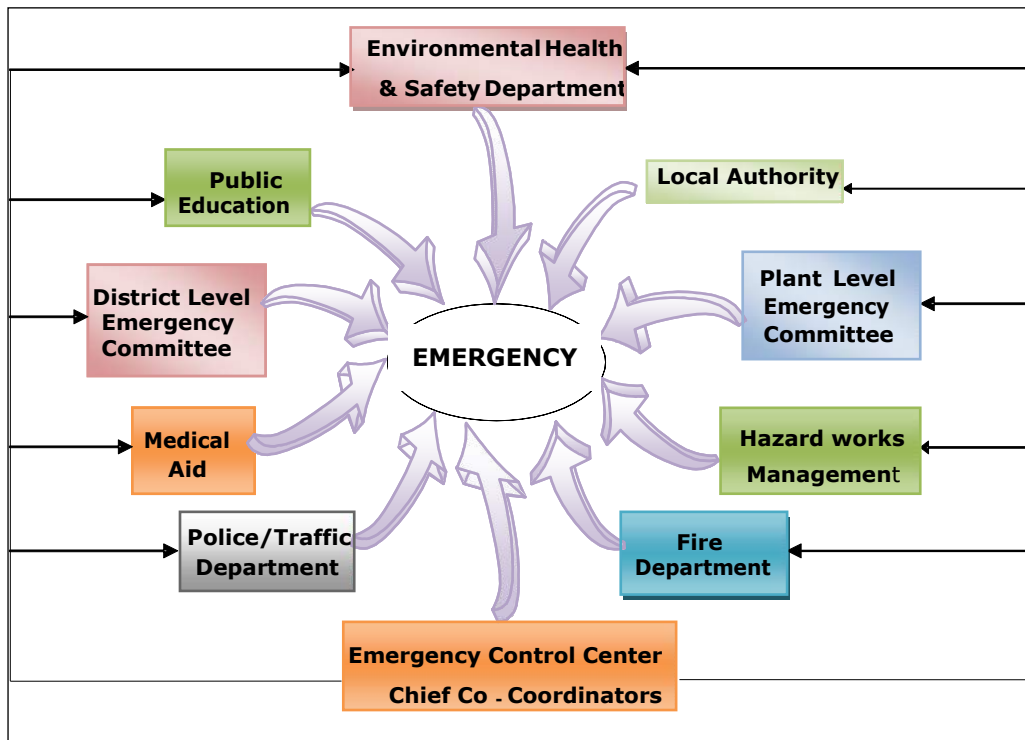


Fig. 1.10: Various Organizations Involved During Emergency

Organization

Organizational details of command structure, warning systems, implementation procedures, emergency control centers include name and appointments of incident controller, site main controller, their deputies and other key personnel involved during emergency.

Communications

Identification of personnel involved, communication centre, call signs, network, list of telephone numbers.

Special Emergency Equipment

Details of availability and location of heavy lifting gear, specified fire-fighting equipment, fireboats etc.

Voluntary Organizations

Details of Voluntary organizations, telephone numbers nearby of hospitals, Emergency helpline, resources etc are to be available with chief authorities.

Non-governmental Organizations (NGO)

NGO's could provide a valuable source of expertise and information to support emergency response efforts. Members of NGOs could assist response personnel by performing specified tasks, as planned during the emergency planning process.

- ✓ Evacuation of personnel from the affected area
- ✓ Arrangements at rallying posts and parking yards
- ✓ Rehabilitation of evacuated persons

Chemical information

Details of the hazardous substances (MSDS information) and a summary of the risks associated with them are to be made available at respective site.

Meteorological information

There is to be arrangements for obtaining details of weather conditions prevailing at r before the time of accident and weather forecasts updates.

Humanitarian Arrangements

Transport, evacuation centers, emergency feeding, treatment of injured, first aid, ambulances, temporary mortuaries.

Public Information

- ✓ Dealing with the media-press office
- ✓ Informing relatives, etc.

Assessment

- ✓ Collecting information on the causes of the emergency
- ✓ Reviewing the efficiency and effectiveness of all aspects of the emergency plan.

Role of local authority

Local Authorities like Panchayat, Sabha, Samity, municipalities can help in combating emergency situation after assessing the impact scenario in rescue phase.

Role of police

The police is to assist in controlling of the accident site, organizing evacuation and removing of any seriously injured people to hospitals.

- ✓ Co-ordination with the transport authorities, civil defence and home guards

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- ✓ Co-ordination with army, navy, air force and state fire services
- ✓ Arrange for post mortem of dead bodies
- ✓ Establish communication centre with easy contact with ECC

Role of Fire Brigade

The fire brigade is to be organized to put out fires and provide assistance as required during emergency.

Media

- ✓ The media is to have ready and continuous access to designated officials with relevant information, as well as to other sources in order to provide essential and accurate information to public throughout the emergency and to avoid commotion and confusion
- ✓ Efforts are made to check the clarity and reliability of information as it becomes available, and before it is communicated to public
- ✓ Public health authorities are consulted when issuing statements to the media concerning health aspects of chemical accidents
- ✓ Members of the media are to facilitate response efforts by providing means for informing the public with credible information about accidents involving hazardous substances

Role of health care authorities

- ✓ Hospitals and doctors must be ready to treat all type of injuries to casualties during emergency.
- ✓ Co-ordinate the activities of Primary Health Centers and Municipal Dispensaries to ensure required quantities of drugs and equipments
- ✓ Securing assistance of medical and paramedical personnel from nearby hospitals/institutions
- ✓ Temporary mortuary and identification of dead bodies

10.0 CONCLUSION

As discussed in above sections, adequate risk assessment measures for process needs to be considered for to say that the Proposed expansion New Project Activity is not likely to cause any significant risk to onsite, offsite & environment. Suitable Mitigation Measures will be taken by GMPL to ensure safety. In the event of disaster onsite, offsite and all the emergency planning procedures are to be followed so as to minimise the impact on working personnel, plant surrounding and environment.



GIRIDHAN METAL PRIVATE LIMITED

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GIRIDHAN METAL PRIVATE LIMITED

Environment Policy

Protection of environment is of prime concern and an important business objective at Giridhan Metal Private Limited. With a leading role in providing services in Manufacturing industry value chain in India, Giridhan Metal Private Limited is conscious of its responsibility towards creating, maintaining and ensuring a safe and clean environment for sustainable development. In particular Giridhan Metal Private Limited is committed to;

- 1) Operate the manufacturing and other facilities in compliance with all applicable laws and regulations related to environment and health & safety of employees and surrounding communities.
- 2) Continually improve the environmental performance of organisational process and products through waste minimization and pollution abatement.
- 3) Minimize consumption of natural resources through the reduction, reuse or recycling of materials, as much as possible.
- 4) Encourage efficient use of energy, water and utilities
- 5) Purchase products and services as far as possible, that do the least damage to the environment on a life cycle basis.
- 6) Promote environmental awareness among the employees and encourage them to work in environmentally responsible manner.
- 7) Communicate the environmental commitment and performance of the organization to its clients, customers and the public.
- 8) Develop and maintain appropriate emergency and response programs where required by legislation or where significant health, safety or environmental hazards exist.
- 9) Develop and maintain greenery in and around its mines, plants and other project units.

Date: 4/3/2020.


Sanjay Agarwal
Director



59	Manoj Kumar Mishra (50000010)	Store	Male	13.02.1973	NIL	NIL	Office Work	Eye	09.10.20	N/A	N/A	Normal	Eye Test	Fit	N/A	N/A	N/A	N/A
60	Ajite Nayak (50000019)	Civil	Male	04.05.1998	NIL	NIL	Civil	Lungs	09.10.20	N/A	N/A	Normal	X-Rays	Fit	N/A	N/A	N/A	N/A
61	Sandip Kumar Nandi (50000024)	Mechanical	Male	01.07.1978	NIL	NIL	Mechanical	Ear	10.10.20	N/A	N/A	Normal	Audiometric	Fit	N/A	N/A	N/A	N/A
62	Indrajit Mukherjee (50000026)	HR	Male	16.11.1981	NIL	NIL	Office Work	Eye	10.10.20	N/A	N/A	Normal	Eye Test	Fit	N/A	N/A	N/A	N/A
63	Purnashanti Yadav (50000028)	Civil	Male	09.12.1969	NIL	NIL	Civil	Lungs	10.10.20	N/A	N/A	Normal	X-Rays	Fit	N/A	N/A	N/A	N/A
64	Sukesh Chandra Das (50000029)	Purchase	Male	28.10.1964	NIL	NIL	Office Work	Eye	10.10.20	N/A	N/A	Normal	Eye Test	Fit	N/A	N/A	N/A	N/A
65	Rahul Kumar Raor (50000040)	Store	Male	23.05.1989	NIL	NIL	Office Work	Eye	12.10.20	N/A	N/A	Normal	Eye Test	Fit	N/A	N/A	N/A	N/A
66	Rajesh Kumar Yadav (50000045)	Security	Male	23.03.1987	NIL	NIL	Field Work	Eye	12.10.20	N/A	N/A	Normal	Eye Test	Fit	N/A	N/A	N/A	N/A
67	Anil Sharma (50000046)	Weight Bridge	Male	05.04.1963	NIL	NIL	Office Work	Eye	12.10.20	N/A	N/A	Normal	Eye Test	Fit	N/A	N/A	N/A	N/A
68	Anirban Hazra (50000049)	Store	Male	19.05.1985	NIL	NIL	Office Work	Eye	13.10.20	N/A	N/A	Normal	Eye Test	Fit	N/A	N/A	N/A	N/A
69	Prasenjit Dutta (50000070)	Mechanical	Male	04.12.1977	NIL	NIL	Mechanical	Ear	13.10.20	N/A	N/A	Normal	Audiometric	Fit	N/A	N/A	N/A	N/A
70	Satyanarayan Budamuru (50000073)	Mechanical	Male	09.08.1982	NIL	NIL	Mechanical	Ear	13.10.20	N/A	N/A	Normal	Audiometric	Fit	N/A	N/A	N/A	N/A
71	Sanjay Kumar Pandey (50000075)	HR	Male	05.12.1965	NIL	NIL	Office Work	Eye	14.10.20	N/A	N/A	Normal	Eye Test	Fit	N/A	N/A	N/A	N/A
72	Surojit Paul (50000078)	Mechanical	Male	29.04.1979	NIL	NIL	Mechanical	Ear	14.10.20	N/A	N/A	Normal	Audiometric	Fit	N/A	N/A	N/A	N/A
73	Narendra Kumar Tewari (50000081)	Mechanical	Male	25.11.1973	NIL	NIL	Mechanical	Ear	14.10.20	N/A	N/A	Normal	Audiometric	Fit	N/A	N/A	N/A	N/A
74	Pranab Mohanty (50000093)	Project (DR)	Male	01.06.1971	NIL	NIL	Project (DR)	Lungs	14.10.20	N/A	N/A	Normal	X-Rays	Fit	N/A	N/A	N/A	N/A

Dr. Goutam Kumar
12/12/2020

Dr. Goutam Kumar
MBBS
General Physician
Regd. No. - 86670

26	Sandeep Kumar (50000090)	Mechanical	Male	08.03.1998	NIL	NIL	Mechanical	Ear	28.09.20	N/A	N/A	Normal	Audiometric	Fit	N/A	N/A	N/A	N/A
27	Shalendra Kumar (50000060)	Process	Male	28.03.1972	NIL	NIL	Process	Ear	29.09.20	N/A	N/A	Normal	Audiometric	Fit	N/A	N/A	N/A	N/A
28	Manoj Kumar Yadav (50000035)	Mechanical	Male	18.09.1980	NIL	NIL	Mechanical	Ear	29.09.20	N/A	N/A	Normal	Audiometric	Fit	N/A	N/A	N/A	N/A
29	Sanjay R. Mundada (50000094)	Mechanical	Male	25.09.1968	NIL	NIL	Mechanical	Ear	29.09.20	N/A	N/A	Normal	Audiometric	Fit	N/A	N/A	N/A	N/A
30	Jay Sanyal (50000038)	IT	Male	05.01.1981	NIL	NIL	Office Work	Eye	30.09.20	N/A	N/A	Normal	Eye Test	Fit	N/A	N/A	N/A	N/A
31	Amit Kumar Jain (50000079)	Accounts	Male	10.06.1985	NIL	NIL	Office Work	Eye	30.09.20	N/A	N/A	Normal	Eye Test	Fit	N/A	N/A	N/A	N/A
32	Shubram Sharma (50000057)	Mechanical	Male	05.11.1994	NIL	NIL	Mechanical	Ear	30.09.20	N/A	N/A	Normal	Audiometric	Fit	N/A	N/A	N/A	N/A
33	Prem Deep Sharma (50000063)	HR	Male	09.08.1983	NIL	NIL	Office Work	Eye	30.09.20	N/A	N/A	Normal	Audiometric	Fit	N/A	N/A	N/A	N/A
34	Digvijay Singh (50000056)	Safety	Male	01.09.1979	NIL	NIL	Office Work	Ear	01.10.20	N/A	N/A	Normal	Audiometric	Fit	N/A	N/A	N/A	N/A
35	Ankit Kumar Kedia (50000101)	Accounts	Male	17.03.1990	NIL	NIL	Office Work	Eye	01.10.20	N/A	N/A	Normal	Eye Test	Fit	N/A	N/A	N/A	N/A
36	Ravi Prakash Singh (50000065)	Civil	Male	09.02.1990	NIL	NIL	Civil	Lungs	01.10.20	N/A	N/A	Normal	X-Rays	Fit	N/A	N/A	N/A	N/A
37	Manoj Pasi (50000059)	Electrical	Male	01.01.1973	NIL	NIL	Electrical	Ear	03.10.20	N/A	N/A	Normal	Audiometric	Fit	N/A	N/A	N/A	N/A
38	Navleen Khena (50000076)	Accounts	Male	13.01.1994	NIL	NIL	Office Work	Eye	03.10.20	N/A	N/A	Normal	Eye Test	Fit	N/A	N/A	N/A	N/A
39	Subhashis Jana (50000080)	HR	Male	08.04.1994	NIL	NIL	Office Work	Eye	03.10.20	N/A	N/A	Normal	Eye Test	Fit	N/A	N/A	N/A	N/A
40	Pabitra Mohan Rout (50000061)	Process	Male	15.06.1979	NIL	NIL	Process	Ear	03.10.20	N/A	N/A	Normal	Audiometric	Fit	N/A	N/A	N/A	N/A
41	Sunil Kumar Pattnaik (50000071)	Mechanical	Male	22.06.1979	NIL	NIL	Mechanical	Ear	05.10.20	N/A	N/A	Normal	Audiometric	Fit	N/A	N/A	N/A	N/A
42	Rahul Ranjan (50000087)	Electrical	Male	05.10.1988	NIL	NIL	Electrical	Ear	05.10.20	N/A	N/A	Normal	Audiometric	Fit	N/A	N/A	N/A	N/A
43	Sanjay Yadav (50000058)	Mechanical	Male	01.01.1980	NIL	NIL	Mechanical	Ear	05.10.20	N/A	N/A	Normal	Audiometric	Fit	N/A	N/A	N/A	N/A
44	Dipankar Pramanik (50000052)	Electrical	Male	20.05.1988	NIL	NIL	Electrical	Ear	05.10.20	N/A	N/A	Normal	Audiometric	Fit	N/A	N/A	N/A	N/A
45	Nirajan Chhotaray (50000055)	Mechanical	Male	15.07.1992	NIL	NIL	Mechanical	Ear	06.10.20	N/A	N/A	Normal	Audiometric	Fit	N/A	N/A	N/A	N/A
46	Surajit Patra (50000041)	Electrical	Male	12.02.1992	NIL	NIL	Electrical	Ear	06.10.20	N/A	N/A	Normal	Audiometric	Fit	N/A	N/A	N/A	N/A
47	Akshay Gope (50000086)	Mechanical	Male	14.07.1996	NIL	NIL	Mechanical	Ear	06.10.20	N/A	N/A	Normal	Audiometric	Fit	N/A	N/A	N/A	N/A
48	Prakash Kr. Sahu (50000097)	Process	Male	06.02.1975	NIL	NIL	Process	Ear	06.10.20	N/A	N/A	Normal	Audiometric	Fit	N/A	N/A	N/A	N/A
49	Biswajit Sinha (50000083)	Mechanical	Male	29.07.1995	NIL	NIL	Mechanical	Ear	07.10.20	N/A	N/A	Normal	Audiometric	Fit	N/A	N/A	N/A	N/A
50	Lakshman Karmakar (50000054)	Electrical	Male	12.12.1980	NIL	NIL	Electrical	Ear	07.10.20	N/A	N/A	Normal	Audiometric	Fit	N/A	N/A	N/A	N/A
51	Sabir Ahmed (50000062)	Accounts	Male	19.09.1983	NIL	NIL	Office Work	Eye	07.10.20	N/A	N/A	Normal	Eye Test	Fit	N/A	N/A	N/A	N/A
52	Gyanesh Kumar Lal (50000031)	Safety	Male	25.01.1978	NIL	NIL	Field Work	Lungs	07.10.20	N/A	N/A	Normal	X-Rays	Fit	N/A	N/A	N/A	N/A
53	Pranod Kr. Sharma (50000002)	Civil & Structure	Male	15.03.1964	NIL	NIL	Field Work	Lungs	08.10.20	N/A	N/A	Normal	X-Rays	Fit	N/A	N/A	N/A	N/A
54	Sanjay Kr. Gupta (50000003)	Power Plant	Male	20.01.74	NIL	NIL	Field Work	Lungs	08.10.20	N/A	N/A	Normal	X-Rays	Fit	N/A	N/A	N/A	N/A
55	Sudhar Jopli (50000005)	Project	Male	01.04.1965	NIL	NIL	Field Work	Lungs	08.10.20	N/A	N/A	Normal	X-Rays	Fit	N/A	N/A	N/A	N/A
56	Shudhanshu Bhownick (50000007)	Power Plant	Male	21.01.1967	NIL	NIL	Field Work	Lungs	08.10.20	N/A	N/A	Normal	X-Rays	Fit	N/A	N/A	N/A	N/A
57	Manoj Kumar Tiwary (50000008)	Mechanical	Male	31.12.1973	NIL	NIL	Mechanical	Ear	09.10.20	N/A	N/A	Normal	Audiometric	Fit	N/A	N/A	N/A	N/A
58	Vijay Pratap Singh (50000009)	Electrical	Male	11.12.1978	NIL	NIL	Electrical	Ear	09.10.20	N/A	N/A	Normal	Audiometric	Fit	N/A	N/A	N/A	N/A

Dr. Goutam Kumar
M.B.B.S
12/12/2020

Dr. Goutam Kumar
General Physician
Regd No - 86670

M/S GIRDHAN METAL PVT.LTD.JAMURIA
FORM NO.17
HEALTH REGISTER

S.No.	Employee Name	Department Name	Sex	Date of Birth	Name of Hazardous Process	Dangerous Process/ Operation	Nature of job or occupation	Raw Material Produced or Bi-Products likely to be exposed to	Date of posting	Date of leaving/tra nsfer or other work	Reason for such withdrawal	Sign & Symptoms observed during examination	Nature of Tests & Result thereof	Result/Fit/Unfit	Period of temporary withdrawal from that work	Reason for such withdrawal	Date of declaring him unfit for that work	Signature with date of the Factory Medical
1	Gourab Gupta (50000014)	E & I	Male	17.03.1994	NIL	NIL	Electrical	Ear	21.09.20	N/A	N/A	Normal	Audiometric	Fit	N/A	N/A	N/A	
2	Anil Kumar Khetan (50000015)	Store	Male	02.06.1973	NIL	NIL	Commercial	Ear	21.09.20	N/A	N/A	Normal	Audiometric	Fit	N/A	N/A	N/A	
3	Bachhu Ray (50000016)	Electrical	Male	22.03.1956	NIL	NIL	Electrical	Ear	21.09.20	N/A	N/A	Normal	Audiometric	Fit	N/A	N/A	N/A	
4	Manash Ch. Pal (50000017)	Civil	Male	02.11.1988	NIL	NIL	Civil	Ear	21.09.20	N/A	N/A	Normal	Audiometric	Fit	N/A	N/A	N/A	
5	Himom Nandi (50000018)	Electrical	Male	06.10.1956	NIL	NIL	Electrical	Ear	21.09.20	N/A	N/A	Normal	Audiometric	Fit	N/A	N/A	N/A	
6	Chandan K. Ray (50000021)	Admin	Male	01.02.1987	NIL	NIL	Office Boy	Ear	22.09.20	N/A	N/A	Normal	Audiometric	Fit	N/A	N/A	N/A	
7	Jagdish Chandra Bera (50000022)	Mechanical	Male	03.11.1970	NIL	NIL	Mechanical	Ear	22.09.20	N/A	N/A	Normal	Audiometric	Fit	N/A	N/A	N/A	
8	Sajal K. Ray (50000023)	Civil	Male	22.02.1981	NIL	NIL	Civil	Lungs	22.09.20	N/A	N/A	Normal	X-Rays	Fit	N/A	N/A	N/A	
9	Nirmal Kr Maji (50000025)	Civil	Male	02.02.1967	NIL	NIL	Civil	Lungs	23.09.20	N/A	N/A	Normal	X-Rays	Fit	N/A	N/A	N/A	
10	Vikash Ch. Chakraborty (50000027)	Civil & Structure Civil	Male	26.03.1976	NIL	NIL	Civil	Lungs	23.09.20	N/A	N/A	Normal	X-Rays	Fit	N/A	N/A	N/A	
11	Sanjib Ghosh (50000030)	(O&R&A) Safety	Male	16.12.1991	NIL	NIL	Civil	Lungs	23.09.20	N/A	N/A	Normal	X-Rays	Fit	N/A	N/A	N/A	
12	Saurav Banerjee (50000095)	Safety	Male	04.02.1994	NIL	NIL	Field Work	Lungs	23.09.20	N/A	N/A	Normal	X-Rays	Fit	N/A	N/A	N/A	
13	Niranjan Kumar Singh (50000039)	Mechanical	Male	23.01.1989	NIL	NIL	Mechanical	Ear	24.09.20	N/A	N/A	Normal	Audiometric	Fit	N/A	N/A	N/A	
14	Sudip Dey (50000047)	Accounts	Male	22.04.1984	NIL	NIL	Office Work	Eye	24.09.20	N/A	N/A	Normal	Eye Test	Fit	N/A	N/A	N/A	
15	Sushant Raja Singh (50000085)	Store	Male	04.11.1985	NIL	NIL	Office Work	Eye	24.09.20	N/A	N/A	Normal	Eye Test	Fit	N/A	N/A	N/A	
16	Sukanto Ghosh (50000077)	Store	Male	16.01.1982	NIL	NIL	Office Work	Eye	24.09.20	N/A	N/A	Normal	Eye Test	Fit	N/A	N/A	N/A	
17	Somnath Bhattacharya (50000069)	Mechanical	Male	18.01.1987	NIL	NIL	Mechanical	Ear	25.09.20	N/A	N/A	Normal	Audiometric	Fit	N/A	N/A	N/A	
18	Amrsh Kumar (50000033)	Civil	Male	15.07.1996	NIL	NIL	Civil	Lungs	25.09.20	N/A	N/A	Normal	X-Rays	Fit	N/A	N/A	N/A	
19	Madhusudan Sahu (50000072)	Admin	Male	01.01.2000	NIL	NIL	Office Work	Ear	25.09.20	N/A	N/A	Normal	Audiometric	Fit	N/A	N/A	N/A	
20	Pratap Karmakar (5000100)	Electrical	Male	04.03.1998	NIL	NIL	Electrical	Ear	25.09.20	N/A	N/A	Normal	Audiometric	Fit	N/A	N/A	N/A	
21	Ganesh Mahata (50000099)	Electrical	Male	14.04.1995	NIL	NIL	Electrical	Ear	25.09.20	N/A	N/A	Normal	Audiometric	Fit	N/A	N/A	N/A	
22	Tanmay Pal (50000043)	Civil	Male	22.07.1988	NIL	NIL	Civil	Lungs	26.09.20	N/A	N/A	Normal	X-Rays	Fit	N/A	N/A	N/A	
23	Rajdeep Kaur (50000032)	Mechanical	Male	26.08.1991	NIL	NIL	Mechanical	Ear	26.09.20	N/A	N/A	Normal	Audiometric	Fit	N/A	N/A	N/A	
24	Ranet K. Mandal (50000091)	Mechanical	Male	03.02.1998	NIL	NIL	Mechanical	Ear	28.09.20	N/A	N/A	Normal	Audiometric	Fit	N/A	N/A	N/A	
25	Santosh Yadav (50000042)	Electrical	Male	16.04.1988	NIL	NIL	Electrical	Ear	28.09.20	N/A	N/A	Normal	Audiometric	Fit	N/A	N/A	N/A	

Dr. Goutam Kumar MBBS
10/12/2020

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General Physician
Regd No. - 86670

One agency can be linked cases

Rape survivors must not be identified, says apex court

More than 100 cases of rape filed in application is 06.01.2019.

Further details, refer to the News dated 14th December 2018 or website www.sacon.in.

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PUBLIC NOTICE

General Public is hereby informed that Damodar legal limited, Jamuria Industrial Estate, Mouza: Ikra, P.O. Jamuria, Dist: Burdwan (Presently: Paschim Burdwan) has obtained Environmental Clearance from Ministry of Environment, Forest and Climate Change, Government of India, vide F No. J-110/11/366/2010-(A-II) dated 02/04/2012 for expansion of its existing unit of 1x50 TPD (15000 TPA) DRI by 3x100 TPD DRI (1,05,000 TPA of Sponge Iron), 2x15 Ton IF, 1x30 T LF (1,05,000 TPA of MS Billets), 310 TPD Rolling Mill (1,00,000 TPA of Rods / bars / light structural), 1x8 MVA SAF (15000 TPA Fe-Mn/Si-Mn), 1x5 TPH, 2x10 TPH WHRB & 1x32 TPH FBC Boiler, and 16 MW Captive Power Plant (7 MW of WHRB and 9 MW of FBC). Owing to circumstances beyond control of the Company, the Company, which could not earlier complete the projects as per clearance, has now embarked on the same.

ADMISSIONS

*UNIVERSITY of Calcutta: Please visit University website for admission in 2018 Ph.D. programme in Geography. LDOA: 18-12-18.

P.G. Diploma course in Counselling session 2018. University of Calcutta (Ashtilata). Phone: 93275 3101 / 93275 3101

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EXISTING PLANTATION

YEARS	AREA OF PLANTATION	NAME OF PLANTS	TOTAL NO. OF PLANTS
Existing Old	Boundary wall, surroundings of Adm building, weigh bridge, temple area	Arjun, Ashoke, Bail, Banseris, Bargad, China plam, Chatim, Coconut, Eucalyptus, Guava, Jamun, Jawa, Kadam, Kaju, Mango, Neem, Sagwan, Pipple, Sonajhuri, Uka, Jarul	654
2019-2020	Boundary wall, surroundings of Admin building, weigh bridge, temple area	Neem, Arjun, Sheesam Legestromia, Sawan, Chatim, Gulmohar, Karanj, Shrish, Euclyptus, Pathila, Bokul, Krishnachura, Debbaru,	1867
2020-2021	Boundary wall	Neem, Gulmohar, Bokul, Debbaru.	3012
Total Plantation as on date			5533

Action plan for developing greenbelt along the periphery of plant premises and inside the earmarked area

S. No	Year	Type of species	No. of plantation
1	2021-2022	Neem, Arjun, Sheesham Lagerstroemia, Sawan, Chatim, Gulmohar, Moulasari, Kamini, Karanja, Shirish , Tecoma, Areca, Kadam, Mahogany, Eucalyptus, Pathila, Bakula, Krishnachura, Debbaru, Guava, Mango, Chiku, Kadam, Jamun, Sampain Palm, Kaju	3000
2	2022-2023		2000
Total			5,000

Some Photographs