

Rashmi Metaliks Limited	Risk Assessment for proposed Expansion of Ductile Iron Pipe Plant (from 0.2 MTPA to 0.55 MTPA) in the existing Steel Plant at village Gokulpur, P.O. Shyamraipur P.S. Kharagpur, District: Paschim Medinipur, West Bengal	PAGE - 1
-------------------------	---	----------

RISK ASSESSMENT

1.1 RISK ASSESSMENT

A major accident in an industry has the potential to cause serious injury or loss of life and extensive damage to environment or property or serious disruption outside the plant. It may require the assistance of outside emergency services to effectively handle the situation. Accidents are normally caused by a number of different factors, e.g. plant failure, human error, earthquake, vehicle crash or sabotage. An important element of risk mitigation is emergency preparedness, which is recognizing the potential situations & consequences and prepare on site emergency plan.

M/s Rashmi Metaliks Limited has planned to expand the Ductile Iron Pipe Plant (from 0.2 MTPA to 0.55 MTPA) in the existing Steel Plant at village Gokulpur, P.O. Shyamraipur P.S. Kharagpur, District: Paschim Medinipur in West Bengal. The Plant has lower risk potential than those industries dealing with toxic and flammable chemicals. Off-site people are not exposed to any dangers, hence the societal risk is insignificant.

For hazard identification, maximum credible accident (MCA) scenarios have been assessed. The maximum credible accident has been characterized as an accident with a maximum damage potential and the occurrence of which is most probable. Based on MCA scenario, the following hazards were identified for this project.

- (a) Handling of hot metal and solid waste
- (b) Mechanical injury to body parts

(a) Handling of hot metal and solid waste: Sudden breaks out of molten metal and slag have been known to take place during furnace operation. The break out may take place from weak portions of hearth. The spillage of hot metal or slag can cause severe burn injuries and fires. Explosions may also occur due to hot metal or slag falling in a pool of water resulting in injuries and fire due to flying hot splinters and splashing of hot metal or slag. The spillage of hot metal can also be due to hearth breakage, mould breakage and during transportation. The accidents can occur due to failure of water-cooled panels, puncture in water-cooled lances, leakage of water from the walls of mould. Through

Rashmi Metaliks Limited	Risk Assessment for proposed Expansion of Ductile Iron Pipe Plant (from 0.2 MTPA to 0.55 MTPA) in the existing Steel Plant at village Gokulpur, P.O. Shyamraipur P.S. Kharagpur, District: Paschim Medinipur, West Bengal	PAGE - 2
-------------------------	---	----------

regular checks and proper upkeep of furnace refractory and cooling panels, such incidents can be avoided.

(b) Mechanical injury to body parts: In a steel plant, there are several places where workers are likely to be involved with accidents resulting in injury to body parts. The places are main plant, workshop, during mechanical repair work in different units, during construction work, road accidents due to vehicular movement, etc. The plant machinery comprises of standard engineering designs meeting all quality specifications. Since most accidents occur due to human error and improper work practice, safety awareness workshop for the plant personnel are organized on regular basis. Workers are encouraged to wear and use appropriate safety devices like boots, gloves, helmets, aprons, goggles and safety belts.

1.2 DISASTER MANAGEMENT PLAN

A disaster is an unforeseen combination of circumstances that causes serious body injuries loss of life or extensive damage to the plant facilities or total.

Anyone or more of the following uncontrollable factors may cause disaster:

1. Reduction or failure of cooling water
2. Failure of Power
3. Rupture or damage of the line, vessel or tank
4. Excessive leakage of inflammable or corrosive or toxic material
5. Cyclone
6. Earthquake
7. Fire or explosion
8. Sabotage
10. Riot
11. Air Raid

The Disaster Management Plan of the company is divided into two parts:

- (i) Onsite Emergency Plan
In this plan, the company officers are given pre-designated responsibilities for dealing with the emergency.
- (ii) Offsite Emergency Plan
In this, different Govt. agencies will be conformed about the emergency for necessary help from them.

Rashmi Metaliks Limited	Risk Assessment for proposed Expansion of Ductile Iron Pipe Plant (from 0.2 MTPA to 0.55 MTPA) in the existing Steel Plant at village Gokulpur, P.O. Shyamraipur P.S. Kharagpur, District: Paschim Medinipur, West Bengal	PAGE - 3
-------------------------	---	----------

1.3 ON-SITE EMERGENCY PLAN

- A) The disaster control procedure lays down the efforts to be made to prevent fatal accidents, physical harm or injury to personnel and damage to equipment facilities materials. It requires coordinated efforts of all employees to control and eliminate a disastrous situation.
- B) All efforts to control a disaster will be coordinated among the various co-ordinators and all actions, taken will be as directed by the chief co-ordinator. The co-ordinating members will be responsible to keep him posted on the development and course of action will be followed by them (refer **Annexure-I**).

1.3.1 FACILITIES TO BE AVAILABLE WITH THE FACTORY

- a) **Fire Fighting Facility**
The entire factory will be protected with fire extinguishing system from outside and inside the shop floor.
- b) **Material Handling**
Heavy duty cranes including mobile cranes, fork lifts, trucks, trolleys will be used in the plant. The same could be used at time of emergency for handling the material.
- c) **Personnel Protective Equipments**
Safety shoe, safety helmets, safety goggles, asbestos hand gloves, rubber hand gloves, acid proof aprons, earplugs, aprons, leg guards etc. will be made available in the Central store of the plant. At the time of emergency, the same can be made easily available by safety coordinator.
- d) **Medical Facility**
The Plant will have the required emergency medical facilities and health check up for the workers will be done regularly by the visiting Doctors. In case of major accident, persons will be referred to nearest Hospital/Primary Health Centre.

1.3.2 OBJECTIVES

The objective of the On-site Emergency Plan will be to make maximum use of both the internal as well as the external resources:

- For rescue and treatment of casualties and safeguard personnel in the premises.
- To minimize damage to property and environment.
- To initially contain and ultimately bring the incident under control.
- To ensure safe rehabilitation of affected areas.

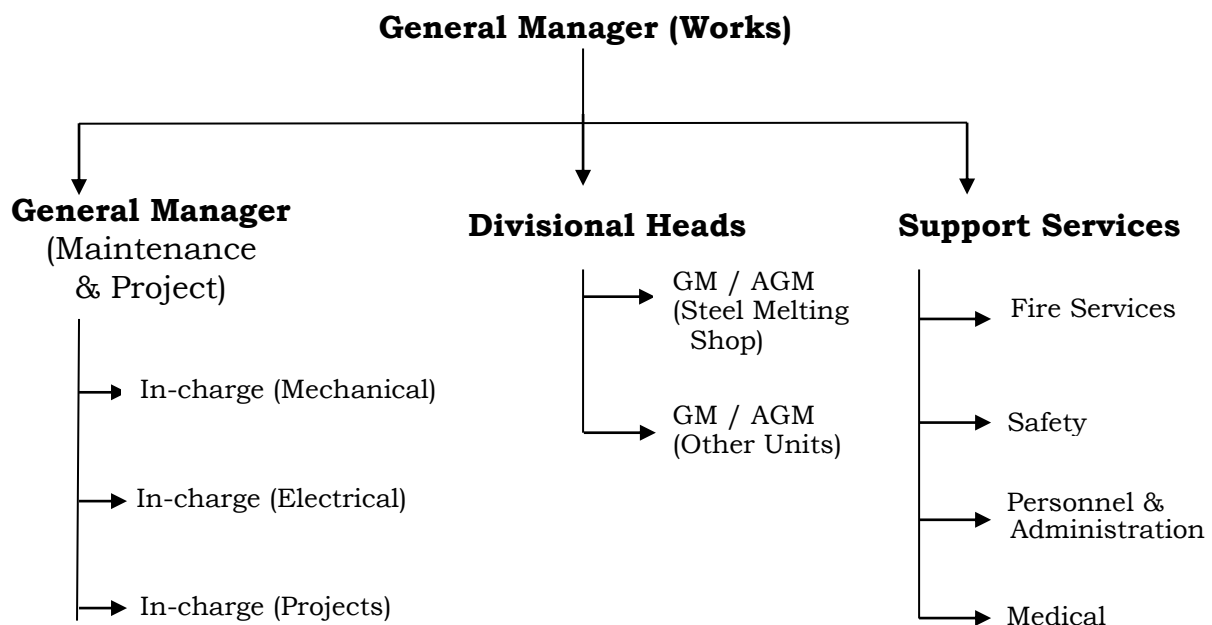
- To provide authoritative information to the news media.
- To preserve relevant records and equipment for the subsequent inquiry into the cause and circumstances of emergency.

1.3.3 KEY PERSONNEL AND RESPONSIBILITIES

The actions necessary in an emergency will clearly depend upon the surrounding circumstances. Nevertheless, it is imperative that the required actions will be initiated and directed by nominated people, each having specified responsibilities as part of coordinated plan. Such nominated personnel will be known as Key Personnel.

1.3.4 ORGANIZATION

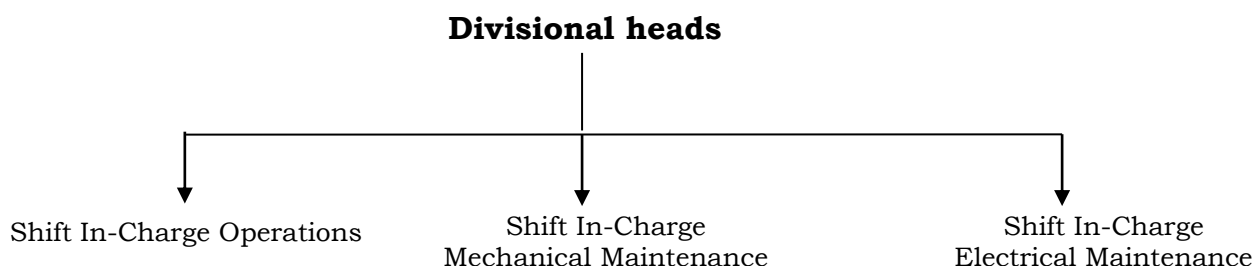
The Central Disaster Management Cell (DMC) will be set up under the direct charge of General Manager (Works). Organizational structure is as below:



General Manager (Works) will be empowered to declare emergency and he would be in charge of all operations in such situations. He will be supported by GM (Maintenance & Projects), Divisional Heads of respective all Plants, Security and Fire Fighting, Administration, Medical Officer, In-charge Safety and In-charge Environment in handling such a situation.

Disaster Control Cell will operate from the Administrative block during emergency.

There will be shop level Disaster management cell in each division. Divisional heads will be nominated as controllers for their respective divisions. They will support central team as required. Organizational structure is as below:



1.4 **HAZARDOUS CHEMICALS & ASSOCIATED HAZARDS**

The plant will have the storage facilities for the hazardous chemicals like Furnace oil, HSD etc., which may result in the fire or explosion hazard within the plant. The relevant details of the chemicals along with the range of the consequences are given in **Annexure-II**.

1.5 **OFF SITE EMERGENCY PLAN**

Type of emergency facilities/ actions required from outside bodies:

- a) Fire fighting facilities required: Factory will have its own fire fighting facilities but during emergency, fire brigade may be called.
- b) Police help required during emergency for evacuation of the people, traffic control security arrangements etc. shall be available.
- c) Medical help required: seriously injured personnel may be referred to the Hospital/Primary Health Centre depending upon the gravity and type of injuries.

List of Key persons of Off- Site Emergency Plan has been given in **Annexure - III**.

1.6 **EDUCATION OF PUBLIC**

People living within the influence zone will be educated on the emergency in a suitable manner. This can be achieved only through the Local and District Authorities. However, necessary information can be extended to the Authorities.

ANNEXURE - I

List of Key persons of on Site Emergency Plan

Sl. No.	Emergency Co-ordinator
1	Executive Director
2	General Manager (Works)
3	General Manager (Maintenance & Projects)
4	General Manager/ Asstt. General Manager (Steel Melting Shop)
5	General Manager/ Asstt. General Manager (Other Units)

ANNEXURE-II

CHEMICAL DATA SHEET

The factory will have only fire hazardous chemicals as shown below:

Fire Hazardous Chemicals	Handling	Storage Facility	Nature of Hazardous
LSHS/Furnace Oil	Pumping system provided	In the tank	Fire hazard
HSD	Storage Tanks	Drums/Tank segregated	Fire hazard

Likely occurrence of major accidents from:

- a)** Storage – Likely occurrence of major accidents could only be a fire and explosion.
- b)** Process – From Processes also likely occurrence of major accident could be fire. Since processes does not involve any toxic chemicals and hence no chance of leakage of toxic gases.
- c)** Leakage / Splashing of liquid metal.

Physical range of consequences propagating:

- a)** From storage – Entire process plant
- b)** From process – Localize to affected area

ANNEXURE - III

List of Key persons of Off Site Emergency Plan

1.	Collector of District
2.	Asst. Director I & II
3.	Fire Office
4.	Controller of Explosive
5.	District Informatics Officer
6.	Superintendent of Police
7.	District Health Officer
8.	Assistant Labour Commissioner
9.	SDO