

8.0 DISASTER MANAGEMENT PLAN

8.1 Preamble

The purpose of this Disaster Management Plan (DMP) is to detail organizational responsibilities, actions, reporting requirement and support resources available to ensure effective and timely management of emergencies at or affecting any of **KGSL**'s operations. This will be achieved by;

- Describing procedures to deal with emergencies affecting personnel, equipment, third party contractors, local community and environment;
- Defining the role and responsibility of Incident Response Group (IRG) and others at plant;
- Describing the external resources available to the IRG for use in an emergency and how these resources will be coordinated; and
- This plan should recognize that:
 1. Incident Controller will be authorized to initially control and contain any and all emergency situations;
 2. Site Controller will be authorized to co-ordinate strategic response to all emergencies associated to the operation;
 3. EHS management Review Committee will be authorized to co-ordinate the overall strategic response to any emergency at plant; and
 4. In compliance with legal requirement as described below:

The provisions of the Hazardous Chemicals Rules, Section 41 B(4) of the Factories Act, 1948 (as amended) requires that every occupier is to draw up an on-site emergency plan with detailed disaster control measures and to educate the workers employed. The obligation of an occupier of hazardous chemicals installation to prepare an emergency plan is also stipulated in Rule 13 of the 'Manufacture, Storage and Import of Hazardous Chemicals Rule's, 2000 and amended.

Under the 'Manufacture, Storage and Import of Hazardous Chemicals Rules' preparation of 'Off-site Emergency Plan' is covered in Rule No.14. The duty of preparing and keeping up to date the 'Off-site Emergency Plan' as per this rule is placed on the District Emergency Authority. Also, occupiers are charged with the responsibility of providing the above authority with such information, relating to the industrial activity under their control, as they may require for preparing the off-site emergency plan.

The results of the QRA study are made direct use in preparation of DMP.

☐ Definitions

- **Incident** :Incident may be defined as an emergency situation of any critical deviation in the process control or otherwise that may lead to a major accident /potential emergency and disaster.
- **Accident**: An accident may be defined as “an undesirable and unplanned event with or without or major damage consequence of life and /or property.
- **Major Accident**: It is a sudden, unexpected, unplanned event resulting from uncontrolled developments during an industrial activity, which causes or has the potential to cause, death or hospitalization to a number of people, damage to environment, evacuation of local population or any combination of above effects.
- **Emergency**: Emergency may be defined as any incident of process deviation that if uncontrolled may lead to a major accident /disaster with potential short term and/or long term risk damage consequence to life and property in and /or around the factory and where the situation has arisen that the control of which requires external help and controls.
- **Major Emergency**: Occurring at a work is one that may affect several departments within and/or may cause serious injuries, loss of life, extensive damage to property or serious disruption outside the works. It will require the use of outside resources to handle it effectively.
- **Hazards**: Hazard may be defined as “the potential of an accident”. Hazard exists in man and the system of materials and machines.
- **Chemical Hazards**: It is a hazard due to chemical(s) (including its storage, process, handling etc) and it is realized by fire, explosion, toxicity, corrosively, radiation, etc.
- **Risk**: Risk may be defined as the combination of consequence and probability or likelihood of an accident being caused in a given man-material – machine system.
- **On-Site Emergency plan**: It deals with measures to prevent and control emergencies within the factory and not affecting outside public or environment.
- **Off-Site Emergency plan**: It deals with measures to prevent and control emergencies affecting public and the environment outside the premises.
- **Disaster**: Disaster is a sudden calamitous event, bringing great damage, loss or destruction.
- **Disaster Management**: It is the most comprehensive plan which states who does what, when and how before, during and after a disaster.

8.2 Emergency Response Strategies

The purpose of this DMP is to detail organizational structure and responsibilities, actions, reporting requirements and available support resources to ensure effective and timely management of emergencies without affecting any operation at plant. It will be achieved by;

- Defining the role and responsibilities of Incident Emergency Response (IER) Team and others at plant site; and
- Describing and external resources available and offsite emergency plan.

The actions necessary in an emergency depend upon the circumstances. It is imperative that required actions should be initiated and directed by a nominated team having specified responsibilities. This avoids confusions arising out of panic situation. The details of proposed IER team are as per given hereunder:

1. Site Controller
2. Incident Controller
3. Fire & Security Coordinator
4. Information Officer
5. First aid coordinator
6. Medical Officer
7. Primary Controller

The role and responsibilities of individual are as per given below:

8.2.1 Roles & Responsibilities of Incident Emergency Response Team

❑ Site Controller

He will be responsible:

- To assess the situation and analyze the possible impacts on account of the emergency;
- To declare emergency in the plant and specified danger zones;
- To inform Govt. agencies like District Collector, Police, Fire Brigade, Inspector of Factories, Pollution Control Board etc.;
- To be in touch with mutual aid partners and call for assistance if necessary;
- To assess the magnitude, monitor/ review events in consultation with other controllers and take decision like as to whether and when people need to be evacuated from the danger zone; and
- To ensure that all events/ decisions taken/ directives given by outside agencies are recorded for future analysis.

❑ Incident Controller

- On hearing the alarm, he will rush to the spot and take overall charge and report to site controller;
- Direct all operation within the affected area with priorities for safety of human life, minimum damage to the plant, properties and environment;
- Coordinate with Information Officer for outside help if required and report/review the situation with site controller;
- To evacuate non-essential staff to assembly points for utilization, if necessary by other co-coordinators; and
- To take all possible measures to protect evidences of further investigation.

❑ Fire & Security Coordinator

The Fire & Security officer will be responsible for fire fighting. His role will be:

- On hearing the alarm, advice the Site & Incident Controller about the nature of emergency and the spot;
- Organize manpower and other resources and give instructions to the plant staff to fight emergency; and
- Review the situation periodically and update the Site and Incident Controller and seek for help if necessary from outside agencies like Fire Brigade, Police, Mutual Aid Partners etc.

❑ Information Officer

His role will be:

- On hearing the emergency alarm, in consultation with Site/ Incident Controller, advice outside agencies like police, Fire Services, Hospital about the emergency;
- To control traffics movements into & from the plant and ensures that alternate transport is available as and when need arises; and
- In liaison with Site Controller/Incident Controller/Medical officer call for ambulance/medical help, if necessary.

❑ First-Aid Coordinator

His role will be to:

- Ensure that casualties get adequate attention, arrange for additional help, if required and inform relatives;

- Arrange for relief of personal and organize refreshment/catering facilities, If emergency is prolonged;
- Arrange the stretcher and the First Aid Box at the assembly point and with the available facilities, organize a Make Shift Hospital in the Administrative Block;
- Keep company vehicle ready for any emergency shifting of casualties to hospital; and
- Apprise the Site Controller about the status of injured personnel and the arrangements.

☐ **Medical Officer**

On hearing the emergency siren/alarm or phone message, the medical officer along with first aid team will report to the Incident Controller. His responsibility will be:

- To ensure that ambulance will be made available at the Emergency Control Center (ECC);
- If the ambulance leaves the ECC, it should be informed to Incident Controller;
- If the ambulance leaves with patient, the name and other particulars, hospital, destination etc. should be informed to the Incident Controller;
- To inform the Chief at the hospital about the causality reaching hospital for treatment;
- To keep necessary first aid medicines and artificial respiration equipment ready; and
- To inform doctors at other places to be ready, for attending serious injury and burns cases, if required.

☐ **Primary Controller (First Noticing Person)**

The primary controller is the employee who notices the incident/ accident. He will be responsible:

- To inform the security office (main gate) /Sr. Engineers/ Shift In Charges / HOD of section of the Department/Section from the nearest available telephone about the location and the nature of incident;
- To assist fire brigade in their operation and in clearing any obstruction coming in way of fire extinguishers; and
- To carry out all instructions from Incident Controller.

8.2.2 Emergency Procedures

8.2.2.1 Release of Gas

☐ **Primary Controller (First Noticing Person)**

Immediately after noticing the incident, he should:

- Identify himself and location of incident;
- Inform shift-in charge about the nature of incident;
- Inform the security & time office about the location and nature of incident;
- Hold on until the message is repeated to ensure proper communication;
- Avoid creating any source of ignition;
- Shutdown supply of gas by activating ESD, if possible; and
- If the location of leakage is known and safe to do so, shut any relevant manual valves.

☐ **Shift- In charge/Operator**

On receipt of the message from Primary Controller, he should:

- Switch on the emergency siren for few minutes (If not already switched on by the primary controller);
- Inform over phone to Incident Controller/Security Incharge and Central Control Room (CCR);
- Give the location and brief description of leakage;
- Close down all line of gas supply;
- Keep watch over the leakage;
- Move out the propane/fuel oil tankers/coal placed for unloading by informing stores; and
- Do not allow unauthorized person on scene.

☐ **Incident Controller**

- Obtain full incident briefing and likely requirements from shift-in charge and maintain liaison;
- Instruct CCR to shut in all gas processing and unloading activities, if required;
- Ensure that all personnel are accounted for and consider need to evacuate non-essential personal near the incident site. Evacuate all personnel, if gas concentration reaches danger level i.e. above LEL (Low Explosive Limit); and
- Notify Site Controller and provide full incident briefing and likely requirements.

☐ **Site Controller**

- Obtain full incident briefing and likely requirements from Incident Controller and maintain liaison; and
- Co-ordinate support activities as required.

☐ **Security Personnel**

- Note down the location/details of incident;
- Inform Senior Personnel Officer/Security Officer;
- Stop the visitors/contractors/customers to enter inside the plant;
- Be at telephone for receiving any message; and
- Organize the workers to assemble at the safe assembly point.

❑ **Security Officer**

On hearing the emergency siren/alarm or on receiving the message over phone, he will:

- Proceed to the emergency assembly point along with sufficient security personnel;
- Act as per the instruction of Incident/Site Controller;
- Cordon off the area;
- Not allow the unauthorized person within the plant premises;
- Prevent crowding of the people around the scene of incident;
- Inform
 - Security Incharge;
 - Head (Civil);
 - Incharge-Transport;
 - Head (Material/Store);
 - Head (Electrical);
 - Head (HR);etc
- Keep ambulance ready; and
- Inform nearby fire service as per instruction of Incident/Site Controller.

❑ **Head (Civil)**

On hearing the emergency siren/alarm/message over phone, he should rush to the emergency assembly point and report to the Incident Controller. He should also

- Ensure continuous water supply in anticipation of fire;
- Depute responsible person for maintaining continuous water flow for fire fighting in case fire ; and
- Rush to the ECC for further activities if any as per the instruction of the Incident/Site Controller.

❑ **In charge – Transport**

On hearing the emergency siren/alarm or on receipt of the message, the Transport In-charge should

- Contact the Emergency Control Center (ECC);
- Depute a representative to ECC; and

- Plan for deployment of vehicles whenever / wherever necessary as per the instruction of Site/Incident Controller.

☐ Head (Material/Store)

On hearing the emergency siren/alarm/message over phone, he will rush to the emergency assembly point and report to the Incident Controller. He will be responsible to:

- Move away the tankers, if any;
- Stop the incoming vehicles; and
- Give the quantity of the oil stored, gas stored etc.

☐ Head (Electrical)

On hearing the emergency siren/alarm/message over phone, he will rush to the emergency assembly point and report to the Incident Controller. He will be responsible to:

- Check the electrical connections in the affected area;
- Ensure the availability of the electrical supply if the main line is to be switched off; and
- Arrange for alternate supply.

☐ Head (HR)

His role will be:

- To be in touch with Site/Incident controller for any assistance;
- To arrange refreshment for all, if emergency is prolonged;
- To work as welfare function and ensure that casualties receive adequate attention;
- To inform kith & kin of employees as per instruction of Site/Incident Controller; and
- To arrange additional help (compensation, etc.), if required and inform the relatives.

8.2.2.2 In Case of Fire/Explosion

☐ Primary Controller (First Noticing Person)

Immediately after noticing the fire, he should:

- Identify himself and location of fire;
- Inform shift-in charge about the nature of fire;
- Inform the security & time office about the location and nature of fire;
- Hold on until the message is repeated to ensure proper communication;
- Switch off the electrical main in the nearby area;
- Stop all the machinery that is running in the storage area, if possible;
- Inject fire extinguisher to extinguish the fire, if possible;

- Be on or near the incident site till the fire service personnel arrive to guide them; and
- In case of fire in electrical equipment or Installations, inform electrical Shift In-charge about the nature and place of fire.

☐ **Shift- In charge/Operator**

- Switch on the emergency siren for few minutes (If not already switched on by the primary controller);
- Inform over phone to Fire /Security Incharge and Central Control Room (CCR);
- Give the location and brief description of fire;
- Close down all line of gas and fuel oil;
- Keep watch over the fire;
- Try to extinguish or prevent the fire from the further spreading with available resources;
- Move out the propane/fuel oil tankers/coal, if any placed for unloading by informing stores; and
- Do not allow unauthorized person on scene.

☐ **Incident Controller**

- Obtain full incident briefing and likely requirements from shift-in charge and maintain liaison;
- Instruct CCR to shut in all gas processing and unloading activities, if required;
- Ensure that all personnel are accounted for and consider need to evacuate non-essential personal near the incident site. Evacuate all personnel, if gas concentration reaches danger level; and
- Notify Site Controller and provide full incident briefing and likely requirement.

☐ **Site Controller**

- Obtain full incident briefing and likely requirements from Incident Controller and maintain liaison; and
- Co-ordinate support activities as required.

☐ **Security Personnel**

- Note down the location/details of incident;
- Inform Senior Personnel Officer/Security Officer;
- Stop the visitors/contractors/customers to enter inside the plant;
- Be at telephone for receiving any message; and
- Organize the workers to assemble at the safe assembly point.

☐ **Security Officer**

On hearing the emergency siren/alarm or on receiving the message over phone, he will:

- Proceed to the emergency assembly point along with sufficient security personnel;
- Act as per the instruction of Incident/Site Controller;
- Cordon off the area;
- Not allow the unauthorized person within the plant premises;
- Prevent crowding of the people around the scene of incident;
- Inform
 - Security Incharge;
 - Head (Civil);
 - Incharge-Transport;
 - Head (Material/Store);
 - Head (Electrical);
 - Head (HR);etc
- Keep ambulance ready; and
- Inform nearby fire service as per instruction of Incident/Site Controller.

☐ **Head (Civil)**

On hearing the emergency siren/alarm/message over phone, he should rush to the emergency assembly point and report to the Incident Controller. He should also

- Ensure continuous water supply for fire fighting;
- Depute responsible person for maintaining continuous water flow for fire fighting; and
- Rush to the ECC for further activities if any as per the instruction of the Incident/Site Controller.

☐ **In charge – Transport**

On hearing the emergency siren/alarm or on receipt of the phone message, the Transport In-charge should

- Contact the Emergency Control Center (ECC);
- Depute a representative to ECC; and
- Plan for deployment of vehicles whenever / wherever necessary as per the instruction of Site/Incident Controller.

☐ **Head (Material/Store)**

On hearing the emergency siren/alarm/message over phone, he will rush to the emergency assembly point and report to the Incident Controller. He will be responsible to:

- Move away the tankers, if any;
- Stop the incoming vehicles; and

- Give the quantity of the oil stored, gas stored etc.

☐ **Head (Electrical)**

On hearing the emergency siren/alarm/message over phone, he will rush to the emergency assembly point and report to the Incident Controller. He will responsible to:

- Check the electrical connections in the affected area;
- Ensure the availability of the electrical supply if the lines are affected; and
- Arrange for alternate supply.

☐ **Head (HR)**

- To be in touch with Site/Incident controller for any assistance;
- To arrange refreshment for all, if emergency is prolonged;
- To work as welfare function and ensure that casualties receive adequate attention;
- To inform kith & kin of employees as per instruction of Site/Incident Controller; and
- To arrange additional help (compensation, etc.), if required and inform the relatives.

8.2.2.3 In Case of Accident

During the time of any accident or emergency condition, the Primary Controller will have to inform the Shift In-Charge immediately which will be followed by:

- Shift In-Charge will inform to responsible Department Head, Time Office and Security Personnel;
- According to the seriousness of the accident, the Department Head will arrange duty doctors, ambulance and inform the personnel department;
- Department head will also report to Incident Controller and Site Controller about the incident and actions taken/required;
- The department head will immediately report to spot and collect the cause of accident;
- The department head will make a final report;
- The cause of accident will be analyzed and rehabilitation measure will be implemented; and
- The workmen will be advised to do the work with more safety measures.

8.3 Declaring the Major Emergency

The declaration of major emergency puts all personnel/agencies on action and the running system may be disturbed which may be very costly at times or the consequences may be serious, therefore such declaration should not be decided on whims or immature

judgment or without proper thought. Because of scale of activity, which will be activated after the declaration of major emergency, it is advisable to restrict the authority to declare it. However it is not necessary, to limit this authority to the Incident Controller and his appointed deputy.

It may be advisable, therefore, to invert the authority to declare a major emergency in a number of nominated people. They should be selected on the basis of their knowledge and experience. Nominated person/persons will advise the Incident Controller or the Site Controller to declare the emergency.

The joint decision to declare major emergency may be taken but it should be as early as possible and without wasting the time.

8.3.1 Emergency Shutdown Procedure

If necessary, full or partial shut down of the plant should be followed under the judgment of the Incident Controller or the Site controller. On hearing the emergency siren/message over phone, the following procedure will be followed to shutdown the plant.

- The operation/maintenance department will stop incoming and outgoing propane/fuel oil/coal supply;
- If the unloading of propane/fuel oil/coal is in progress that will be stopped and vehicle will be sent out of the plant premises;
- Head (operations) will stop all the production/maintenance activity if necessary;
- Loading of products will be stopped and the vehicles will be sent out; and
- The individuals designated for the emergency preparedness will carry out the work as assigned to him as per the checklist.

8.3.2 Communication System

There should be an effective system to communicate emergency (a) inside the plant *i.e.* to the workers including key personnel and essential workers, on duty and inside during normal working hours (b) to the key personnel and essential workers not on duty and outside during normal working hours. (c) to the outside emergency services and to the government authorities (d) to the neighboring firms and the general public in the vicinity.

Any person noticing an emergency should be able to raise or cause to be raised the first Floor Level Emergency Alarm (FLEA). All employees must be trained to operate such

emergency alarms. Siren is provided to indicate the emergency. The siren is differing from regular sirens in use with hauling arrangement and audible through out the plant.

In case of emergency, Siren type alarm system as provided is to be operated for 1 minute continuously for three times within a period of 5 to 10 minutes. The type of siren to be sounded for Major and Minor emergencies are given below. This will make all the personnel who are present in the plant to become aware about the occurrence.

Nature Of Emergency	Siren Code
Major Emergency	High pitched continuous wailing Siren
Minor Emergency	Long siren followed by short Siren
All Clear Signal (When Emergency is controlled)	Continuous Siren for 5 (Five) minutes

☐ Telephone Message

After hearing the emergency alarm and emergency declaration or even while fast receiving the emergency message on phone, telephone operator (or Information Officer) has to play an important role. He should be precise sharp, attentive and quick in receiving and noting the message and then for immediate subsequent action of further communication in consultation with information officer.

☐ Communication to the Outside Emergency Services and Authorities

Once the declaration is made, it is essential that the outside emergency services if they have not already been called in, be informed in the shortest possible time. The emergency must be immediately communicated to the Government Authorities such as local Factory Inspectorate, Collectorate, Police and District Emergency Authority. The statutory information to above authorities must be supplied beforehand so that off-site emergency control (contingent) plan may be implemented, if needed. Under the statutory provisions, information is required to be given to the following:

- The workers;
- The general public and neighboring firms;
- District Emergency Authority;
- Factory Inspectorate; and
- AP Pollution Control Board.

8.3.3 Evacuation Procedure

Not required personnel will usually be evacuated from the incident site and also from adjacent areas. Evacuation should be to predetermined assembly points in a safe part of the plant. Assembly points need to be clearly marked. The plan should designate someone to record all personnel arriving at assembly point so that the information can be passed to the ECC.

On hearing the emergency siren / alarm, the employees of the connected area, where they are working should stop their work and rush to the safe assembly point.

8.3.4 Roll Call

The employees attending duty will be known through the punch cards and the records (on daily basis) of other employees (contractors and others) will be available at the security gate. At the time of emergency, attendance will be verified with the people assembled in the safe assembly and emergency assembly point.

Contractors should maintain a similar list of personnel on site. Record should also be maintained of the arrival and departure of visitors, together with the names of those they have called to see which will prove useful in establishing their whereabouts during emergency. Visitors should wherever practicable, be accompanied on site by a responsible member of the work staff.

In the immediately affected area, the Incident Controller should arrange for a search to be made for any casualty by fire brigade. Nominated work personnel should record the names and other details of casualties taken to respective reception areas and the location, e.g. hospital.

At the ECC, a nominated person should be posted to collate the lists, check them against the nominal role of these believed to be missing. Where missing people could have had cause to be at the affected area, the Incident Controller should be informed and arrangement shall be made for further search.

8.3.5 All Clear Siren / Alarm

If the indication of the emergency is over and on hearing all clear signal, all employees will report back to their jobs excepting personnel who are instructed to stay back for necessary jobs at the scene of incident. The Incident Controller is responsible for giving all clear signal after assessing the entire area conditions.

8.3.6 Restarting

The Incident Controller with his team of operation and Head (Engg), will inspect the area thoroughly and give instruction to start the plant as per restarting procedure in consultation with Site Controller and the Incident Controller.

8.3.7 Emergency Control Center (ECC)

In order to coordinate the emergency procedure during emergency, ECC should be equipped with the following:

- Layout plan of plant and surrounding area;
- At least two telephone lines. Out of two, one should be kept of receiving the calls and second one for making the calls in case of emergency;
- PPE, mask etc;
- Telephone numbers of administrative authorities, fire brigade, District medical officer, Factory inspectorate, Local police station and locally available private hospitals;
- Telephone numbers of all employees and mutual aid partners;
- Telephone directory of the city;
- MSDS of hazardous chemicals stored;etc

8.4 Pre & Post Emergency Activities

Though the scope of the DMP is to prepare for and activate the emergency procedures so that the emergency, arisen as a result of the failure of the pre emergency control measure, can be controlled and contained within the shortest time. Following activities are suggested as they are co-related and provide better plan for emergency preparedness, emergency actions and subsequent actions and follow up.

8.4.1 Pre Emergency Activities

The following are the details of pre-emergency activities:

☐ **Internal Safety Survey**

It is to be conducted to identify various hazards associated with the operations and includes:

- To check protective equipment for workability;
- To check various safety installation / facility available at site for workability;
- To check fire system, fire water pumps, sprinkler from an ejectors, spray system, etc; and

- To suggest extra requirement / modification to make system more reliable.

❑ **Third Party Survey**

The survey is to be conducted by a 'Third Party' i.e experts /consultants from outside and includes:

- To study and identify various hazards;
- To conduct survey on available safety equipment/ appliances;
- To check in built safety system for its adequacy; and
- To suggest modifications/ additions in the system, if necessary.

❑ **Prepare Vessel Testing**

Following testing is recommended and records of the same should be maintained:

- The mandatory testing of the boiler once in a year under the Boiler Act; and
- Testing of various equipment under statutory obligations.

❑ **Non-Destructive Testing (NDT)**

NDT is recommended to draw an action plan for replacements/ repairs as per the past performance and to maintain plan/section –wise record to compare with the past performance.

❑ **Safety/ Relief Valves Testing**

It is necessary:

- To prepare the list of safety/ relief valves in plant;
- To prepare a periodic schedule for their testing and to maintain record;
- To draw action on replacement /repairs and to implement it;

❑ **Fire System Testing**

- To prepare list of fire hydrants, fire applications, fire pumps, water monitors, automatic fire alarms, smoke detectors and other available appliance and maintain the record;
- To draw testing schedules and record the findings;
- To replace /modify defective equipment / accessories;
- To check fire pumps capacities, delivery, pressure and auto – start /stop systems periodically; and
- To draw schedule on running stand by equipment etc. for workability/ appliances under fire fighting services for operability.

❑ **Mutual Aid Scheme**

Mutual aid scheme should be available for

- Fire fighting with fire brigade and industries located in the surrounding areas;
- Medical help with government and private hospitals/nursing homes; and
- External Technical Support for dealing the emergency in case it is prolonged.

❑ **Mock Drill**

Minor mock drills should be conducted for training the persons internally. Major mock drills should be conducted after informing State Authority, Press, and Police for handling the situation effectively. The objective of the mock drill is:

- To conduct periodic drills as to check the performance of man and equipment.
- To know the draw-backs in the system for its corrective action.
- Mock Fire Response drill should be conducted inside the plant once in six months to ensure awareness about “**FIRE MISHAP**” among employees.

❑ **Training**

Security staff should be trained on fire fighting which includes fire fighting refresher course, fire demonstration and drills.

Some of the employees and the security staff should be trained in first aid, in-house First Aid Training Programme. Selective employees should be given intensive training on first aid by reputed organization and will act as first aid team in emergency situation.

❑ **Emergency/Protective Equipment**

Personal protective equipments such as helmets, asbestos apron, leather apron, asbestos suit, asbestos gloves, leather gloves, asbestos shoes, safety shoe, gum boots, safety belts, safety goggles, ear muff, respirator etc. should be made available to workers as per the requirements:

First Aid Kit with medicine, resuscitator, Self breathing apparatus and Torch light should be provided at different locations as per the requirements

❑ **Communication System**

It is necessary:

- To maintain internal / external communication system in good working order;
- To maintain telephone system between fire station and off sites in working conditions;

- To modify the siren sound for emergency; and
- To install wind cocks/wind recorders within the plant areas to know the wind direction and velocity.

□ **Emergency Lights**

These are necessary:

- To check and maintain the emergency lights in control rooms and selected plant areas;
- To keep sufficient number of torches /batteries available in control rooms; and
- To keep mobile diesel operated power generating set standby in case of failure of normal power supply during emergency.

8.4.2 Post Emergency Activities

Post emergency activities comprise of steps taken after the emergency is over so as to establish the reasons of the causation of the emergency and preventive measures. The steps involved are:

- Collection of records;
- Conducting inquiry and concluding preventive measures;
- Making insurance claims;
- Preparation of inquiry reports with recommendations;
- Rehabilitate the affected persons within the plant and outside the plant, if any;
- To restart the plant.

8.5 Off-Site Emergency Response

The Risk Assessment (RA) study for the proposed expanded steel plant has shown that the off-site risk is in acceptable range. Flammable material generally will only have an on-site impact unless people are located immediately adjacent to the fence-line of the site; this is not the case with the proposed facility.

Legal Requirement

Under the Environment (Protection) Act, 1986 the 'Manufacture, Storage and Import of Hazardous Chemicals Rules' were promulgated in November, 1989 & amended in 2000 and 'Rules on Emergency Planning, Preparedness and Response for Chemical Accidents' in 1996.

Under the 'Manufacture, Storage and Import of Hazardous Chemicals Rules' preparation of 'Off-site Emergency Plan' is covered in Rule No.14. The duty of preparing and keeping up to date the 'Off-site Emergency Plan' as per this rule is placed on the District Emergency Authority (DEA). Also, occupiers are charged with the responsibility of providing the information, relating to the industrial activity under their control, as DEA may require for preparing the off-site emergency plan.

8.5.1 Content of Off-Site Emergency Response

In addition to information given in relevant sections on actions to be taken by **KGSL**'s personnel and exposed public during any situation, the District Authority (i.e. District Collector, Factory Inspector etc) in conjunction with **KGSL**, nearby industries under mutual aid scheme and relevant emergency services should have an off-site emergency plan considering the following:

- Incidents at the site including fires and/or explosions would likely cause concern among local population. It would be necessary to advise people to stay away from the area, reassure them that they are in no danger and follow relevant actions as suggested in the Emergency Response Plan (ERP);
- In addition to **KGSL**, the following "local" external agencies may be involved in the formulation of procedures for off-site incidents and may also be involved in response to any incident;
 - Police at Tadpatri and District Headquarter;
 - Traffic Police at at Tadpatri and District Headquarter;
 - Fire services at Tadpatri and District Headquarter;
 - Fire services available with nearby industries;
 - Civil Authority at Tadpatri and District Headquarter;
 - Factory Inspector;
 - AP State Pollution Control Board;
 - Electricity Authority at Tadpatri and District Headquarter;etc
- Rapport liaisioning system with the above mentioned agencies should be developed for better coordination to deal with any emergency.

- The following aspects should be addressed in any detailed response to an off-site incident;
 - *Organization*: includes details of command structure, coordination arrangement, implementation procedures, emergency control centers;
 - *Communication*: includes identification of personnel involved, lists of telephone numbers etc.
 - *Availability of Specialist Emergency Equipment*; includes details of heavy lifting gear bulldozers, specialized firefighting equipments available in the vicinity and status of availability;
 - *Availability of Specialist Technical Knowledge*; includes details of organization or individuals whom it may be necessary to call e.g. for specialized chemical knowledge, impact knowledge etc;
 - *Mutual Aid Scheme*: includes details of contacts and available facilities;
 - *Meteorological Information Sources*; includes arrangements for obtaining details of weather conditions prevailing and weather forecast on regular basis;
 - *Humanitarian Arrangements*; includes details of provisions for transport, evacuation routes and centers, food, treatment of injured etc;
 - *Public Information*; includes arrangements for dealing with the media, informing relatives of employees and local population;
 - *Incident Assessment*; includes arrangements for collecting information on incident causes and reviewing the efficiency and effectiveness of all aspects of the emergency plan;
 - Efficient off-site incident planning also involve interaction on regular basis among various organizations. To ensure that every procedure put in place will run efficiently and effectively, exercise (mock drills) involving all the relevant organizations will be carried out. These will be monitored and assessed with procedures updated to reflect knowledge gained; and
 - Contact details of relevant external organizations and individuals.

8.5.2 Pre-Incident Information

Provision of providing incident/awareness details to the public should also be a part of responsibility of "Government Authorities" and not by **KGSL's** alone. Recommended information to be provided to the public are as follows (it is recognized that some of the information given below may not be divulged due to security reason):

- Name of the site manager and address;

- Details of the person responsible for providing information;
- Common name (s) of all hazardous substance and an indication of their characteristics;
- An assurance that **KGSL** will be taking all reasonably practicable steps to minimize the risk of a major accident (the level of risk has been estimated through RA which shows acceptable offsite risks);
- Details of emergency warning system and the actions to be taken on receipt of warning;
- An assurance that **KGSL** will make appropriate arrangements to deal with any foreseeable incidents;
- Reference to off-site –emergency planning and advice to public to cooperate with emergency services;
- Details of where and from whom further information may be obtained;
- Details of any emergency response exercise to be carried out; and
- The above information can be circulated via posters, talks, leaflets etc which should be in local language. Leaflets containing do's and don'ts may also be circulated in the vicinity. Any printed information to be provided to the local community should be in local language.

8.5.3 Actions Recommended for Public

KGSL's personnel, in liaison with the emergency services, will provide relevant information to the public during any incident via the use of loud hailers etc. but as a precautionary measures, the actions to be taken by the general public in the event of a major accident are as follows:

- Move away from the site to safer areas and follow any instruction from **KGSL's** personnel;
- Take appropriate shelter and close doors, windows, curtains and blinds, if available;
- Do not smoke or light matches, until given the all clear;
- Put out fires, until given the all clear;
- Follow the instructions from **KGSL's** emergency services;
- Listen public announcement carefully;

- Do not contact the emergency services unless you have a separate or are in need of urgent assistance; and
- Remain indoors until you are told that it is safe to go outside. If evacuation is necessary, you will be notified by **KGSL's** emergency services;
- It is **KGSL's** responsibility, in liaison with relevant local authorities to update the local community at appropriate intervals.

8.5.4 List of Details to be Notified

List of telephone numbers of outside agencies as per given below should be readily available:

- District Collector;
- Police;
- Fire Brigade;
- Ambulance;
- Hospital;
- Factory Inspectorate;
- Regional and Head office, AP State Pollution Control Board;
- Southern Railway Authority;etc

8.5.5 Emergency Organization Chart

An emergency Organization should be in place in line with the **Figure 8.1**.

8.6 Facilities Available with Existing Plant

☐ Fire Fighting

- Fire extinguishers at different places;
- Fire buckets at different places;
- One Fire Tender with 8.8 Kg/cm² pressure of water;
- 1100 m³ Overhead water tank;
- 45 Nos. Hydrants installed are connected to main fire hydrant pump which are installed in RWTP pump House. (3 minutes required to develop pressure.);
- Fire fighting personal protective equipments (PPE);
- First-Aid room assisted by male nurses;
- First-Aid boxes kept at different places;
- First-Aid-trained people;
- Fire fighting-trained people;
- Tie-up with out side hospitals, Fire Brigade;

- Emergency control room;
- Safety assembly area;
- Evacuation paths; and
- All required PPEs including SCBA (Self-contained Breathing Apparatus);

❑ **Mutual Aid**

KGSL has mutual aid arrangement with the following industries

- a) Ultra Tech, Bogasamudram, Tadipatri, Tel : 288849 / 288850
- b) Penna Cements, Talaricheruvu, Tadpatri, Tel : 224681

❑ **Emergency Control Room and Facilities**

The administrative room which is located in the main building and far away from Maximum Credible Accident Scenario is identified as main Emergency Control Room. This control room will be activated in case of Emergency to direct and co-ordinate all the resources to handle the emergency. The Control Room is equipped with the following facilities:

- Landline Telephone;
- Mobile Telephone;
- Important Phone Nos. of nearby Hospitals, police Stations, First aid box;
- List of Telephone of all Govt. authorities;
- Plant layout;
- Fire fighting system layout;
- Emergency torches;
- List of various emergency teams;
- Copy of on-site emergency plan; etc

❑ **Medical Treatment Facilities**

Affected personnel from the Emergency caused are required to be removed immediately and to be taken to safer places for necessary first-aid treatment.

As soon as siren starts, the Rescue / first aid team will rush to the emergency spot with the protective equipment. As per the instructions received from the rescue team leaders the crew persons will wear the protective equipments and enter into the emergency spot to search for the victims. After the locating the victims, they will be taken to safer place and will be given First- Aid by the trained personnel. If the situation needs for immediate medical attention necessary action will be taken to shift the injured persons to the nearby

hospitals for effective and immediate treatment. This will be carried out in coordination with the incident controller. The list of identified hospitals is as per given below:

Sn	Hospital	Contact Details
1	Kanchani Hospital, Main Road, Tadipatri.	Dr.K.V. Chandra Mouli Reddy Tel: 08558--26066 Cell No. 9440566269 (For Co Gas cases)
2	V.C.R. Nursing Home, Main Road, Tadipatri.	Dr. Vijaya Bhaskar Reddy Tel: 08558 -- 221690 (For Burn cases)
3	Arvind Surgical Nursing Home, Tadipatri.	Dr. M.S. Prasad Tel: 08558 – 220610 Cell No. 9849124935
4	Anantha Ortho – Care centre Aravind Nagar	Dr. B. Achutha Prasad M.S (Ortho) Tel:08554-222022
5	Aasha Jyothi Nursing home Court road, Anantapur	Tel:08554-237818, 274194.
6	E.N.T. Specialists, Anantpur	Dr. Siva Reddy M.S, M.D. Tel: 08554-221629 Dr. A.S. Aruna kumari M.S Tel:08554-240654 Dr. J. Sreenath M.S Tel: 08554-232190
7	Pavani Hospitals, Anantpur	Tel: 08554-246060, 240024
8	G.G . Hospitals, Budhavar peta, Kurnool	Tel:08518-255689.
9	Govt Hospital, Tadipatri	08558 – 222655
10	Govt Hospital, Anantpur	08554 – 275023/24/25
11	Govt Hospital, Kadri	08494 - 224144
12	Govt Hospital, Dharmavaram	08559 - 222584

□ Occupational Health Centre & Equipments

An occupational Health centre / Plant medical unit is provided and maintained within the plant with the following services and facilities.

- One fulltime Factory Medical Officer;
- Three male staff nurses / commoners working throughout the working period;
- One Ambulance is provided and maintained in good condition and manned by fulltime driver and escorted by a male nurse for the purpose of transportation of serious accidents or sickness cases. The ambulance is not used for any other purpose other

than Medical Services and will normally be stationed at near the Blast Furnace area. The ambulance Van is equipped with a First Aid Box containing all medicines and also one medical Oxygen cylinders with all attachments.

☐ **Training & Mock Drill**

Emergency Planning and preparedness procedure defines specific roles and responsibilities of various personnel employed in the factory. These personnel are required to be made known about their role and responsibilities by conducting periodical training programmes. Management has schemed training programmes emphasizing:

1. The roles and responsibilities of the team leaders and their crew during emergency; and
2. Proper handling of fire fighting equipment & Personal Protective Equipment.

In addition to the above, management has planned to conduct Mock-drill once in six months and the strength & weaknesses noticed will be addressed during the subsequent mock-drills so as to make the Plan a meaningful and an effective one.

Refresher training programs to the workers / security staff regularly on the following topics are also in practice at the site.

- Fire fighting training;
- Operations of Hydrant systems and uses of hoses;
- Periodic training on safe habits;
- First Aid;
- Product knowledge;
- Evacuation procedure; etc
- Emergency alarm sirens.

In addition to this, Audio Visual programs on Extinguishing of different types of fires, use of Personal Protective Equipments etc., are also being shown to all workers periodically. Protective Training to Contract workers and persons employed on non core activities is conducted for them.

☐ **Contact Details of Authorities**

- District Collector, Anantpur,, Tel:08554-275806, 08554-248000
- Director of Factories, Hyderabad, Tel:040-23261305
- Dy. Chief Inspector of Factories, Kurnool, Tel:08518-220259.
- Inspector of Factories, Anantapur, Tel: 08554-220382
- Superintendent of police, Anantapur, Tel:08554-274802
- Dy. Superintendent of Police, Tadipatri, Tel: 08558-224633
- Sub Inspector, Rural Police Station, Tadpatri, Tel: 08558-222433
- Divisional Fire Officer, Tadipatri, Tel: 08558-222299
- Electrical Inspectorate, Kurnool, Tel: 08518-229806.



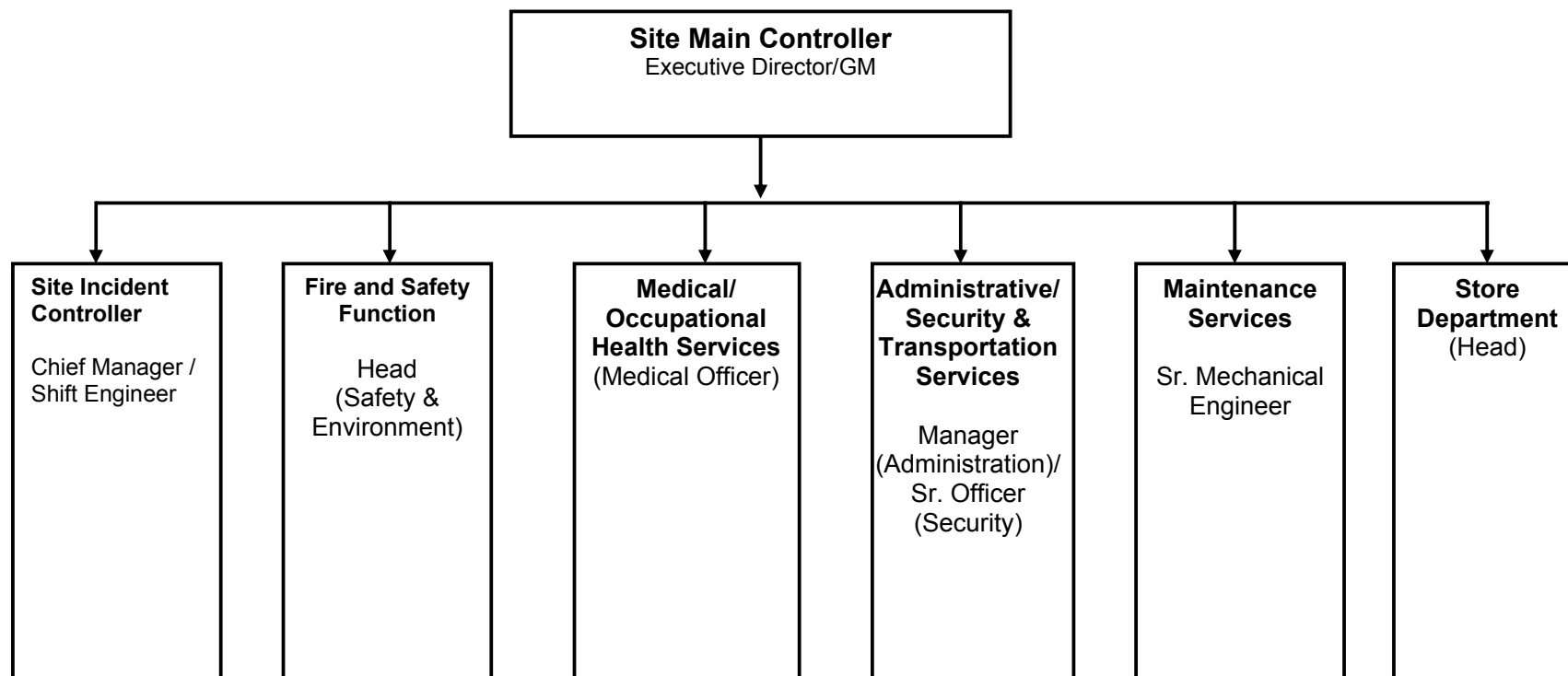


Fig. 8.1: Emergency Response Team