

RISK ASSESSMENT & DASASTER MANAGEMENT PLAN

1.1 Introduction

Common Effluent Treatment Plant rank moderate on the industrial occupations where on the job injuries may occur. The wastewater treatment plant operators are exposed to a variety of hazardous chemical agents, contained within the effluents and the reagents used in the water processing, or generated during the wastewater treatment. These chemical agents may cause poisoning, chemical accidents (e.g., skin burns, injury to the eyes, etc.) damage to the respiratory system, allergies, dermatitis, chronic diseases, etc. Wastewater treatment plant operators may also be injured by slips, trips and falls on wet floors; by falls into treatment ponds, pits, clarifiers or vats and by splashes of hazardous liquids; they may suffer cuts and pricks from sharp tools, contusions, etc.

They are exposed to hazards related to work in confined spaces. Other common hazards include electric shock, explosion, entanglement in moving machinery, etc. However, accidents do occur and these can cause serious injury to employees or the public, and damage to property. The public concern at such events invariably leads to call for additional control at national and international levels. It is against this background that the various Section and Rules under the Environment Protection Act, 1986, the Factories Act, 1948 and other Acts specify the requirements for a safe and reliable working of an industry. These require carrying out various studies and analysis to assess and mitigate hazard prevalent in line with the above goal of safe and reliable working. These are more commonly known as "Risk Assessment Studies". This chapter explains the basis of Risk Assessment and its objectives.

1.2 Risk Assessment

Major hazard installations have to be operated to a high degree of safety; this is the duty of the management. In addition, management holds a key role in the organization and implementation of a major hazard control system. In particular, the management has the responsibility to:

- Provide the information required to identify major hazard installations.
- Carry out hazard assessment;
- Report to the authorities on the results of the hazard assessment;
- Set up an Disaster Management plan;
- Take measures to improve plant safety.

In order to fulfill the above responsibility, the Management must be aware of the nature of the hazard, of the events that cause accidents and of the potential consequences of such accidents.

1.3 Objective of the Study

Identification analysis and assessment of hazard and risk are very useful in providing information to risk management. It provides basis for what should be type and capacity of its on-site and offsite emergency plan also what types of safety measures are required. The main objectives of the Risk Assessment Studies are as given below:

- To define and assess emergencies, including risk impact assessment.
- To control and contain incidents.
- To safeguard employees and people in vicinity.
- To minimize damage to property and environment.
- To inform the employees, the general public and the authority about the hazards /risk assessed, safeguards provided, residual risk if any and the role to be played in them in the event of emergency.
- To be ready for mutual aid if need arise to help neighboring unit. Normal jurisdiction of an OEP (On-site Emergency Plan) in the own premises only but looking to the time factor in arriving the external

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help or off - site emergency plan agency, the jurisdiction must be extended outside the extent possible in case of emergency occurring outside.

- To inform authorities and mutual aid centers to come for help.
- To affect rescue and treatment of casualties. To count injured.
- To identify and list any death.
- To inform and help relatives.
- To secure the safe rehabilitation of affected areas and to restore normalcy.
- To provide authoritative information to the media.
- To preserve records, equipment's, etc., and to organize investigation into the cause of emergency and preventive measures to stop its recurrences.
- To ensure safety of the workers before personnel re - enter and resume work.
- To work out a plan with all provisions to handle emergencies and to provide for emergency preparedness and the periodical rehearsal of the plan.

1.4Hazard Identification

As proposed project is common effluent treatment facility which does not involve major hazardous chemicals both quality and quantity wise during operation phase. The hazards identified are:

- Health hazardous due to leakage of untreated effluent.
- Health hazard due to use of treatment chemical i.e. lime, alum etc.
- Toxic and corrosive hazard due to hydrochloric acid handling.
- Fire hazard due to ignition of flammable chemical i.e. HSD.
- Electrical hazards due to the electrical major equipment/ machinery, operations, welding, motors, and heavy lift devices, cabling, human intervention (short circuit possibility), maintenance work (due to machinery breakdown etc.), plant lighting related electrical hazards.
- Possibility of human injury due to working with mechanical machines, manual handling etc.
- Possibility of injury during chemicals handled, during operations and due to intoxication.
- Major dropped objects hazard due to large number of physical handling steps / operations involved with crane/ overhead lifting/ hoisting equipment.
- Fires in any part of the plant working areas - there is a possibility of rapid escalation if it is not brought under control quickly.
- Possibilities of fire hazards at transformers, switchgear and other electrical equipment etc.

Safety Precautions

Following precautions is/shall be taken while storage of chemicals:

- The tanks shall be located and marked in the designated area for the hazardous chemical storage.
- Tanks of proper material of construction will be selected.
- The tanks shall be filled up to 85-90% of its capacity
- All tanks shall be uniformly tagged.
- Level indicators in tanks shall be provided.
- Dyke wall shall be provided.
- Industrial type electrical fittings shall be provided.
- Electrical installation shall be as per hazardous area clarification.
- Safe working place shall be provided in between all tanks/equipment's.
- Adequate fire-fighting equipment's shall be provided.

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- Anti-corrosive painting to be done.
- No smoking board shall be displayed.
- Safety instruction board shall be displayed.
- Standard Operating Procedure for the storage will be prepared.
- Proper earthing/bonding shall be provided.
- Lightning arrestor should be provided.

While hazards of other type along with safety measures, flood control measures and earthquake control measures are given in Table-1-1, Table-1-2 and Table-1-3 respectively.

Table 1-1: Hazards and Its Control

SR. NO	NAME OF POSSIBLE HAZARD & EMERGENCY	IT'S SOURCE & REASONS	IT'S EFFECT ON PERSONS PROPERTY & ENVIRONMENT	PLACE OF EFFECT	CONTROL MEASURES TO BE PROVIDED
1	Fire	Transformer Transfer oil short circuit, DG fuel etc.	Health effects, Damage of storage facilities and air & soil contamination	Transformer near Power control Centre, fuel storage area	*Fire Fighting Equipment's *Graved bed for oil spillage or soaking isolated fenced area *Lightening arrestor nearby *DG set for emergency power supply *Lightening arrestor at
2	Spillage of untreated effluent	Natural Disaster, Earthquakes, Manmade war etc.	Health effect to human and land and water contamination.	Plant area & population nearby	*First aid available *Security at all the time guarding important locations *extra spare parts will be provided * immediate maintenance will be done

Table 1-2: Flood Control Measures

SR. NO.	HAZARD	SAFETY PRECAUTIONS	EMERGENCY CONTROL
1	Electric shock	*All electric line cut off / switch off from main supply. *Give artificial respiration if needed. *Shock proof hand gloves should be used if needed	*Stop electric power *Inform site main controller for outside help
2	Slippery Surface	* Clean the working place *Keep away all persons at safe assembly points	*Start the emergency water tapping

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Table 1-3: Earthquake Control Measures

SR.NO	HAZARD	SAFETY PRECAUTIONS	EMERGENCY CONTROL
1.	Toxic gas release / Fire	Minimum stock of chemicals Earthquake proof building	* Stop the leakage. * Inform site main controller for outside help
2.	Mixing of incompatible chemicals	Safe distance between chemicals Dyke wall at all storage tank of chemicals	*Stop the leakage * Inform site main controller for outside help

Fire Fighting System

CETP management shall take into consideration fire prevention measures at the project planning and during plant commissioning stage to avoid any outbreak of fire.

Table 1-4: Fire Fighting System

SR.NO.	LOCATION OF FIRE EXTINGUISHER	TYPE OF FIRE EXTINGUISHER
1	LDO/HFO/Oil storage area	DCP/ABC
2	Electrical DB	DCP/ABC
3	Electrical panel	Dry CO2
4	Office and administration	DCP/ABC
5	DG room	DCP/ABC
6	Hazardous waste storage area	DCP/ABC
7	Vehicle parking area	DCP/ABC
8	Security cabin	DCP/ABC

1.5 Major Hazards and Damage Criteria

Hazard is the associated term with material, which is a measure or the likely hood of the damage to human working with or studying the material in question. All the probable potential hazardous is classified under different heads.

- 1) Fire hazards
- 2) Toxic gas release hazards
- 3) Explosion hazards
- 4) Corrosion hazards
- 5) Biological hazards

Fire Hazards

Since the Stone Age term 'fire' is associated with fear. It is very dangerous if occurs in uncontrolled manner. It should be clearly understood that when a liquid is used having flash point below the normal ambient temperature, it could, in suitable circumstances, liberate a sufficient quantity of vapor to give rise to flammable mixtures with air. CETP shall use inflammable chemicals like diesel as a fuel for Standby DG set which may lead to fire hazard. Diesel will be stored in Drum/tank in separate storage area. Rule of no smoking will be observed strictly in the storage area.

Sufficient water storage tank will be designated for emergency situation.

Toxic Hazards

Toxic substances affect in three ways by ingestion, absorption & inhalation. Proposed CETP Project may be using lime etc in minor quantity which may be lead to toxic hazard. Adequate provision of safety along

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with personal protective equipment will be made; breathing apparatus and emergency kit shall be provided.

Explosion Hazards

Release of energy in a rapid and uncontrolled manner gives rise to explosion. Proposed project shall not be using any explosive material.

Corrosion Hazards

Corrosion is a chemical reaction-taking place at the surface of metal. Proposed CETP shall be using the polyelectrolyte, Alum and lime which is corrosive in nature. These chemicals have their typical hazard when it comes in contact with human tissues. This has adverse effects on weakening the strength of material in contact. CETP will take due care to overcome the hazard i.e. scrubbing system will be provided as per requirement. All the metal units and pipe line will be painted with special type of anticorrosive paint. Good quality materials shall be used for transferring corrosives. Regular thickness testing of equipment, pipelines etc. will be carried out to have the exact picture of effect of corrosion.

Biological Hazards

Proposed project is waste water treatment facility which involves the biological activities for treatment of effluent so biological hazards can't be eliminated. The most common way of biological hazards is by hand to mouth contact during eating, drinking and smoking or by wiping the face with contaminated hands or gloves or by licking splashes from skin or by breathing them in, as dust, aerosol or mist. The major source of biological hazard on proposed site is biological sludge drying bed, filter press, biological storage sump etc. Practically, complete elimination of biological hazards cannot be possible. It will be reduce by adopting the safe practice guards.

Occupational Hazards And It Control Measure

The detail of hazard involved with common effluent treatment plant facility and its preventive measure required to be taken for the health and safety of the workers/operators are given in table:1-5

Table 1-5: Occupation Hazards And Its Control Measure

HAZARDS	ACTIVITIES	CONTROL MEASURES
Accident hazards	1. Slips and falls on floors made slippery by water, aqueous solutions. 2.Falls into ponds, pits, clarifiers or tanks causing injuries or drowning	1. Use safety shoes or boots with non-slip soles. 2. Make area dry as much as possible. 3 Railing shall be provided.
	1. Blows and contusions caused by falling heavy articles, including containers of chemical reagents, or by contact with moving machinery or vehicles	1. Wear personal protective equipment and chemical resistant clothing to avoid exposure of skin or eyes to corrosive and/or polluted solids, liquids, gases or vapors 2.First aid box shall be provided 3.Moving parts of machines will be provided with suitable guards
	1. Hazards related to entry into confined spaces - suffocation due to oxygen deficiency, poisoning (e.g. by hydrogen sulfide), etc.	1. Do not mix chemicals without the supervision of a qualified chemist or safety professional 2. Obey safety-instructions regarding the storage, transport, handling or pouring of chemicals

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HAZARDS	ACTIVITIES	CONTROL MEASURES
	1. Electric shock caused by contact with faulty electrical equipment, cables, etc.	1. Check electrical equipment for safety before Use Verify that all electric cables will properly Insulated. 2. Repair and test all faulty or suspect electrical equipment before reused 3.All electric line cut off / switch off from main Supply. 4. Hand siren use to declare emergency Shock proof hand gloves should be used if needed
	1. Cuts and pricks by sharp tools sharp edges of articles to be plated sharp deposits on jigs etc. 2. Injuries (especially of eyes) caused by flying particles.	1. Wear safety goggles in all cases where the eyes may be exposed to dust, flying particles, or splashes of harmful liquids. 2. Leather hand gloves during handling of sharp edges articles.
	1. Vigorous chemical reactions caused by uncontrolled mixing of chemicals (e.g., if water is mixed with lime, Alum, during the preparation of reagents for wastewater treatment.	1. Wear respirator, or gas mask, when exposed to harmful aerosols, dusts, vapors or gases Obey safety-instructions regarding the storage, transport, handling or pouring of chemicals 2. Take extreme care when handling highly corrosive and toxic agents such as concentrated acids or alkalis, or when toxic gases may be emitted from the reagents etc.
	1. Acute poisoning caused by various chemicals present in the wastes, used as reagents or released during the treatment; a particular hazard is caused by the possible release of a number of poisonous gases e.g., hydrogen-sulfide etc.	1. Take extreme care when handling highly corrosive agents such as liquid and concentrated acids or alkalis, or when toxic gases may be emitted from the reagents, etc. 2. Obey safety instructions concerning entry into confined spaces.
Physical hazards	1. Exposure to excessive noise levels from mechanical equipment. 2. Exposure to adverse weather (low Or high temperature, rain, snow, storms, etc.)	1. Preventive maintenance of equipment. 2. Ear plug and ear muff shall be provided. 3. Vibration pads shall be installed for high vibrating equipment's.
Chemical hazards	1. Chronic poisoning by inhalation or ingestion of many of the chemicals used in waste- water treatment 2. Dermatitis caused by exposure of the skin to waste waters, cleaning formulations, acid and alkaline s solutions, etc. 3. Irritation of mucous membranes (in particular of the respiratory tract) by acid or alkaline vapors or aerosols, by hydrogen sulfide, and other substances	1. Wear respirator, or gas mask, when exposed to harmful aerosols, dusts, vapors or gases. 2. Only qualified/experience personnel shall be allowed to work for critical/hazards operation. 3. First aid box shall be provided.
Biological hazards	1. Diseases caused by infectious agents (bacteria, viruses, protozoa,	1. All workers should undergo periodic examinations by occupational physician to

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HAZARDS	ACTIVITIES	CONTROL MEASURES
	helminthes and fungi) present in the raw wastewater (mainly from human origin)	reveal early symptoms of possible chronic effects or allergies.
	2. Diseases caused by contact with the toxins released by the infectious agents	2. Safe manual handling procedure shall be followed.
	3. Diseases caused by insects or rodents proliferating in the sludge drying beds	
Ergonomic, psychosocial and Organizational factors A	Musculoskeletal injuries caused by overexertion while handling heavy loads, such as containers of chemicals, or by awkward working postures (including frequent bending), etc. Discomfort and psychological problems related to prolonged wear of protective clothing (including heavy boots, aprons and other impermeable pieces), to the bad smells of the wastes, to the feeling of working with "soiled" liquids in a "dirty" and not too "respectable" occupation, and to the apprehensions caused by awareness of the dangers of the workplace	Learn and use safe lifting and moving techniques for heavy or awkward loads such as containers of chemicals; use mechanical aids to assist in lifting

1.6 Occupational Health And Safety Program

Health hazards associated with the occupation are called occupational hazards. CETP shall carry out the following checks to curb the problem:

- a. Periodical medical checkup shall be done for all employees as per requirement.
- b. First aid training shall be given to the employees.

All precautions shall be taken to avoid foreseeable accidents like spillage, fire and explosion hazards and to minimize the effect of any such accident and to combat any emergency at site level. Preventive safety measures shall be taken to minimize the risk of accident with respect to Technical Safety, Organizational Safety and Personal Safety are listed below:

- The operator/in charge shall take all reasonably practicable measures to minimize the risk of such accident in compliance with the legal obligation under the relevant safety.
- All building plans and installations shall be as per relevant acts and duly approved by competent government authorities.
- Process and Equipment shall be designed by qualified and experienced professionals and fabricated to applicable national / international codes with stage wise inspection.
- Hazardous processes shall be operated by trained workers and shall be looked after by qualified & experienced supervisors.
- Safety features such as fire extinguishers and suitable Personal Protective Equipment (PPE) shall be provided. Regular operations and testing of fire hydrant system and fire extinguishers shall be carried out.

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- Use of flameproof electrical equipment, flame arresters and breather valves shall be done.
- Provision of Earthing and lighting arrestor to prevent electrical fires and explosions in flammable chemical storage area areas shall be done.
- Drums storing hazardous liquid chemicals shall be place separately to confine any spillage and facilitate easy collection. Necessary separation distance shall be maintained.
- Training of workers and Staff shall be given for firefighting, work permit system, first aid, safe handling of hazardous chemicals and integrating safety, in all activities.
- Good housekeeping in plant premises shall be ensured.
- Accident / Incident reporting system and information of employees about the same shall be done for better awareness.
- Suitable notices / boards shall be displayed at several locations indicating appropriate hazards warning as well as DOs and DON'Ts for ensuring operational and personal Safety for information of workers / staff and visitors.
- Personal Protective Equipment (PPE) shall be provided to employees as per the job requirements.
- Strong communication system shall be provided.

1.7 Safety Features and Emergency Capabilities

Objectives Of Emergency Procedures

The objective of the procedure is to define role of key personnel of different services during major emergency to be effectively utilized to:

- a. Safeguard lives
- b. Contains of incident and bring it under control
- c. Minimize damage to property & neighboring environment
- d. Rescue & treatment of casualties & evacuation of persons to safe areas
- e. Identification of affected persons, information to relatives and extending necessary assistance.
- f. Preservation of information, records etc. which will help in investigation
- g. Welfare assistance to casualties
- h. Providing relevant information to police, district authorities and news media
- i. Passing of information to relevant persons/agencies and warning the persons who are likely to be affected.
- j. Mobilizing inside resources.
- k. Initiating and organizing evacuation of affected persons.
- l. Collecting latest status, other information and requirement.

Basis of plan and handling of emergency

- a. It is not possible to envisage and detail every action, which should be taken during an emergency. The basic philosophy is to get key personnel of necessary discipline who have the knowledge and background to assess the situation and give directions as per the objectives as quickly as possible.
- b. The plan identifies the services/departments required to combat emergencies and identifies the key persons to discharge the duties.
- c. Key personnel have been identified for emergencies and are responsible for providing necessary assistance.
- d. Any outside assistance, which RFTP shall get, shall be co-ordinate by the Main Site Controller on duty.

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- e. Messages via telephones are restricted to key personnel only. This is required to keep the telephones free for key personnel to contact for necessary feed-back.
- f. Senior person who arrives on scene is automatically in-charge for the service group. He should not leave the site without entrusting the charge to his deputy. All the key personnel should be available at the main control room. All key personnel of other services will report to main site controller, who will co- ordinate between various departments and outside agencies.

Information about emergency and subsequent actions

- a. Any person noticing fire/explosion should shout FIRE, FIRE or HELP, HELP and will activate the emergency bell.
- b. Inform respective control rooms.
- c. The Dept. Head will immediately rush to the incidence site to assess and take immediate action required to control the source of incidence. They will also inform Security and administration to come to the place of disaster/emergency and assist them.

Instructions to employees (Do's & Don't)

The plan assumes certain discipline at site during emergency as given below;

- a. Do not get panicky
- b. Do not approach the scene of disaster as a spectator
- c. Do not engage phones/ P.A. system unnecessarily
- d. Non-essential personnel to gather at security gate after receiving instructions
- e. Do not move here & there unnecessarily
- f. Do not approach unnecessarily to get information or more inquiry
- g. Remain at your working place unless called and be attentive to instructions
- h. Ensure that all contract laborers working in the premises are immediately sent to main security gate. They will receive further instructions from main site controller
- i. All non - essential staff members should gather at safe assembly point and wait for further instructions which will be communicated through PA system or by other available means.

Instructions to Contractors

The plan assumes certain discipline at site during emergencies as given below;

- a. Do not get panicky
- b. Do not approach the scene of disaster as a spectator
- c. Do not engage phones/ P.A. system unnecessarily
- d. Non-essential personnel to gather at security gate after receiving instructions
- e. Do not move here & there unnecessarily.
- f. Do not approach unnecessarily for information or more inquiry.
- g. Remain at your working place unless called and be attentive to instructions
- h. Ensure that all contract laborers working in the premises are immediately sent to main security gate. They will receive further instructions from main controller and wait for further instructions which will be communicated through PA system or by other available means.
- i. All fabricator contractors should ensure that all welding machines are switched off and all cylinders are closed before leaving the working area.
- j. All civil contractors should be gathered at assembly points after declared emergency.

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1.7.1 Mitigation of consequences during major accident

No major hazard installation can ever be absolutely safe. Even if a hazard assessment has been carried out, if the hazards have been detected and appropriate measures have been taken, the possibility of an accident cannot be completely ruled out.

So safety systems provide, which can mitigate the consequences of accident or emergency situation.

Other measures for mitigating the consequences of an accident deal mainly with the response to a release of a hazardous substance. In order to be able to initiate counter measures in the event of an accident, CETP shall install various safety systems to mitigate the consequences during Major Accident are as under:

- a. First aid handling team available round the clock.
- b. Alarm System
- c. Training to all employees regarding emergency preparedness

1.7.2 Emergency control centre with list of equipment and accessories

Administration office will act as Emergency Control Center. It is equipped with all necessary accessories as mentioned below:

A. Documents

- Site Plan
- List of essential telephone numbers
- List Firefighting equipment with their location

B. Personal Protective Equipment

- Hand gloves
- Gum boots
- Goggles
- Helmets
- Safety belts
- Aprons
- Fire
- Proximity suit

C. Equipment List

- Internal / External Telephone
- Portable alarm
- Torches
- Emergency Cupboard with necessary PPE Racer watches (STOP WATCH)

1.8 Disaster Management Plan

Defining the nature of emergency

Level of emergency can be classified in three categories:

LEVEL - 1:

The leakage or emergency, which is confinable within the plant, premises. It may be due to -

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- a) Small fire in the plant
- b) Low toxic gas release for short duration.
- c) Collapsing of equipment that do not affect outside premises.

LEVEL - 2:

The emergency, which is confinable within the plant premises. It may arise due to -

- a) Major fire inside the plant premises.
- b) Medium scale explosion confined to the plant premises.
- c) Toxic / flammable gas leakage for short duration.

LEVEL - 3:

The emergency, which is not confinable within the premises and general public in the vicinity likely to be affected. It may arise due to Explosion of high magnitude affecting the adjacent area Heavy / Profuse leakage of toxic / flammable gases for a long duration.

Structure of The Emergency Management

Table 1-6: Structure of the Emergency Management

EMERGENCY MANAGEMENT	PLANT PERSONNEL
Incident Controller	Plant Operational Head
Accident Site Controller	Shift In Charge/Operations I/C
Liaison Officer	Head Personnel & Administration
Engineering Team	Eng; Manager, Maintenance MANAGER
Safety Team	Manager Safety, Safety Officers, Firemen.
Medical Team	Doctor, Nurse, Ambulance Driver

1.9 Roles and Responsibilities

Table 1-7: - Roles and responsibilities

S.No	Team Leader	Role & Responsibility
1.	Incident Controller	<ul style="list-style-type: none"> • Overall in- charge of the control of incidents • On being informed rushes to emergency control centre • Co-ordinates with accident site controller • Co-ordinates with liaison officer • Responsible for decision making. • Informs the owners as he feels fit • Orders the start of emergency siren • Orders the start of all clear airen • Decides and informs liaison officer the external requirements, communication to be done. • Interacts with the accident site controller in his operations. • Calls a review meeting to discuss the actions taken during emergency.
2.	Accident Site	<ul style="list-style-type: none"> • Controls the accident site.

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S.No	Team Leader	Role & Responsibility
	Controller	<ul style="list-style-type: none"> Decides the actions to stop plant & machinery with engg. Team Decides the actions required to mitigate the accident with safety team. Discusses with liaison officer on the treatment requirements of injured persons. Obtains the list of missing persons from liaison officer and informs rescue team for search and rehabilitation. Advises incident controller to start emergency siren Advises the incident controller to blow all clear siren Cleans the area of emergency to restart operations.
3.	Liaison Officer	<ul style="list-style-type: none"> In charge of gate traffic regulation at main gate. In charge of all external communications and facility requirements from outside. In charge of medical treatment to injured personnel. In charge of head count operations to find out missing persons. In charge for regulating the personnel inside the organization.
4.	Engineering Team	<ul style="list-style-type: none"> Will assist accident site controller in protecting the plant & machinery Will assist in emergency shut down operations. Will assist movement of materials reduce the severity of accident.
5.	Safety Team	<ul style="list-style-type: none"> Will assist accident site controller in mitigating the accident causes-fire, toxicity, major spillages,
6.	Medical Team	<ul style="list-style-type: none"> Will render medical assistance inside and outside the plant premises. Will report to accident site controller.
7.	Rescue Team	<ul style="list-style-type: none"> Will render rescue & rehabilitation operations as per the instructions of accident site controller.

Emergency organization for night shifts, holidays and Sundays

- **Incident Controller:** The senior person in the service dept. will become the incident controller till the designated person joins.
- **Accident Site Controller:** The senior person in the Operations side will become the Accident Site Controller till the designated person joins.
- **Liaison Officer:** The senior person of the HR/security will become the liaison officer till the designated person joins.

List of key emergency personnel and communication about emergency

List of key emergency personnel will be informed about the emergency through a group 'SMS'. Their reply will be recorded.

Information of emergency siren location and FAQs

(1) What is an Emergency Siren?

This system relates to the routine Siren system which is in use for shift and recess. This siren creates the voice after a fix interval for Emergency.

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(2) When this system should be used?

Always use this system only when a major emergency occurred at the facility.

(3) Who is authorized to operate this system?

When major incident occurs, the Security -In -Charge will operate the siren on the instructions of incident controller.

(4) How emergency siren will be operated?

> The siren will be operated on a wailing mode (Ambulance Siren)

10 seconds on – 5 seconds off – 10 seconds on - 5 seconds off...for 3 minutes

(5) How all clear siren will be operated?

> The siren will be operated on a continuous mode (Ambulance Siren)

10 seconds on – 5 seconds off – 10 seconds on - 5 seconds off...for 5 minutes

Information of assembly points

At the time of emergency, non - essential workers, casual workers, visitors and others are to be assembled to Assembly Points and separate in-charge is nominated.

In case of an emergency, the visitors, contract persons and employees will gather at nearby assembly point. Pre-designated persons will take their roll call. If needed, they can be evacuated easily through any gate in a short period as per instruction of site main controller List of Assembly Point along with accommodation capacity. Two locations are identifying viz. main gate and parking area.