CHAPTER – 7

ADDITIONAL STUDIES

7.1 PUBLIC HEARING

"Public Consultation" or "Public Hearing" refers to the process by which the concerns of local affected persons and others who have plausible stake in the environmental impacts of the project or activity are ascertained with a view to taking into account all the material concerns in the project or activity design as appropriate.

In view of the above and as compliance to TOR issued by SEIAA, Bihar vide letter Ref. No. 570 dated 16.03.2017, Public hearing for the proposed expansion project has been conducted on 29.07.2017 near project site at PWD Inspection Bunglow of Govt. of Bihar at Bihta, Dist. Patna. Detail Proceedings of the Public Hearing is enclosed as Annexure – VI.

7.1.1 PUBLIC HEARING NOTICE IN LOCAL NEWSPAPERS BY BSPCB, PATNA ;

पटना, 29 जून 2017 दैनिक जागरण

लोक-सुनवाई की सूचना

पर्यावरण, वन एवं जलवायु परिवर्त्तन, मंत्रालय, भारत सरकार के ई.आई.ए. अधिसूचना संख्या एस.ओ. 570, दिनांक 16.03.2007 एवं यथा संशोधित अधिसूचनाएँ के आलोक में राज्य पर्यावरण समाघात निर्धारण प्राधिकरण के समक्ष पटना जिला के बिहटा प्रखंड स्थित मे0 जे.एम.डी. एलॉयज लि0 के क्षमता विस्तार के लिए पर्यावरणीय स्वीकृति हेतु प्रस्ताव विचाराधीन है।

इस परियोजना के कार्यन्वयन के पूर्व पर्यावरणीय स्वीकृति हेतु लोक सुनवाई की जानी है।

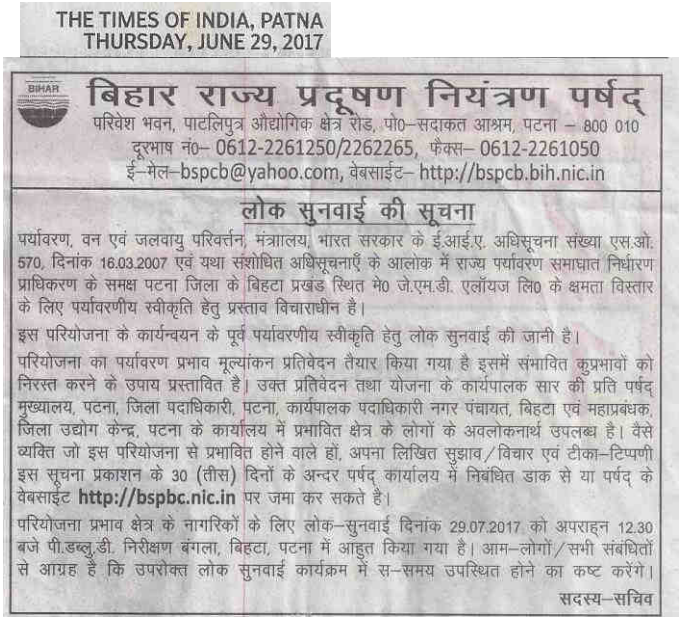
परियोजना का पर्यावरण प्रभाव मूल्यांकन प्रतिवेदन तैयार किया गया है इसमें संभावित कुप्रभावों को निरस्त करने के उपाय प्रस्तावित है। उक्त प्रतिवेदन तथा योजना के कार्यपालक सार की प्रति पर्षद् मुख्यालय, पटना, जिला पदाधिकारी, पटना, कार्यपालक पदाधिकारी नगर पंचायत, बिहटा एवं महाप्रबंधक, जिला उद्योग केन्द्र, पटना के कार्यालय में प्रभावित क्षेत्र के लोगों के अवलोकनार्थ उपलब्ध है। वैसे व्यक्ति जो इस परियोजना से प्रभावित होने वाले हों, अपना लिखित सुझाव/विचार एवं टीका-टिप्पणी इस सूचना प्रकाशन के 30 (तीस) दिनों के अन्दर पर्षद् कार्यालय में निबंधित डाक से या पर्षद् के वेबसाईट http://bspbc.nic.in पर जमा कर सकते है।

परियोजना प्रभाव क्षेत्र के नागरिकों के लिए लोक सुनवाई दिनांक 29.07.2017 को अपराह्न 12.30 बजे पी.डब्लु.डी. निरीक्षण बंगला, बिहटा, पटना में आहुत किया गया है। आम-लोगों/सभी संबंधितों से आग्रह है कि उपरोक्त लोक सुनवाई कार्यक्रम में स-समय उपस्थित होने का कष्ट करेंगे।

सदस्य सचिव

बिहार राज्य प्रदूषण नियंत्रण पर्षद्

परिवेश भवन, पाटलिपुत्र औद्योगिक क्षेत्र रोड,
पो०-सदाकत आश्रम, पटना - 800 010
दूरभाष नं०- 0612-2261250/2262265, फैक्स 0612-2261050
ई-मेल bspcb@yahoo.com, वेबसाईट- http://bspcb.bih.nic.in



THE TIMES OF INDIA, PATNA
THURSDAY, JUNE 29, 2017

बिहार राज्य प्रदूषण नियंत्रण पर्षद्

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दूरभाष नं०– 0612-2261250/2262265, फैक्स– 0612-2261050
ई–मेल–bspcb@yahoo.com, वेबसाईट– http://bspcb.bih.nic.in

लोक सुनवाई की सूचना

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सदस्य–सचिव

7.1.2 PUBLIC HEARING PHOTOGRAPHS ;

7.1.3 MINUTES OF PUBLIC HEARING ;

Public Hearing was held on 29th July.'2017 at PWD Inspection Bunglow at Bihta, Dist. Patna at 12:30 pm under the panel headed by Sri Sanjiv Kumar, Sub-divisional Officer, Danapur, Dist. Patna, duly appointed Representative of District Magistrate, Patna and Sri Nand Kumar, Regional Officer, Bihar State Pollution Control Board, Patna.

Summary of Minutes of Public Hearing is as under ;

1. Sri Krishna Kumar Singh, resident of Amna Wana, Bihta expressed his happiness for this initiative of Public Hearing by Government. He suggested that control of Water, Air and Noise pollution from units is also necessary along with development of Industry. System explained by consultant should be followed. Employment should be provided to local people so that number of people migrating in search of employment reduces.

2. Sri Sanjay Srivastava, resident of Katesar, Biihta told that in view of increasing demand enhancement in production capacity is necessary. Water, Air and Noise pollution will also increase due to operation of unit, for prevention of which control system is necessary, therefore requested present officers for effective compliance of control systems mentioned in project.

3. Sri Gopal Jee Singh, resident of Korhar suggested that Industry has less land for plantation due to which plantation is not done in sufficient quantity. Therefore I suggest that all large industries situated in Bihta should be directed to do sufficient plantation in vacant government lands and road side. He also requested that compliance of suggestions given by them shall be assured.

   Sri Sanjiv Kumar, Sub-divisional Officer explained that plantation by industry is mandatory on 33% of available land within its premises, otherwise environmental clearance will not be awarded by the authorities. Development and plantation activities in available government land are under jurisdiction of concerned panchayat. Therefore Mukhiya of concerned panchayat identifying vacant government land can request these units for plantation on that land.

4. Sri Sanjay Kumar, Mukhiya, Devkuli Panchayat approved the expansion of the unit's capacity. It was suggested by him that along with development of unit, pollution control system must be implemented effectively in order to balance the environmental conditions.

7.1.4 CONCLUSION :-

All administrative officials & local public from nearby areas, who gathered at the venue of Public Hearing welcomed the expansion project and unanimously supported the project for its early commissioning. After that proceedings of public hearing announced to be closed by permission of Chairman.

7.2 RISK ASSESSMENT & DISASTER MANAGEMENT PLAN

Risk assessment and management is activity process about defining sources of uncertainty (risk identification), estimating the consequences of uncertain events/conditions (risk analysis), generating response strategies in the light of expected outcomes and finally, based on the feedback received on actual outcomes and risks emerged, carrying out identification, analysis and response generation steps repetitively throughout the life cycle to ensure that the project objectives are met.

Risk is often referred to as the presence of potential or actual threats or opportunities that influence the objectives of a project during construction, commissioning, or at time of use. Risk is also defined as the exposure to the chance of occurrences of events adversely or favorably affecting project objectives as a consequence of uncertainty.

7.2.1 Risk Assessment and Damage Control

- Design, manufacture and construction of buildings, plant and machineries will be as per National and International Codes as applicable in specific cases and laid down by statutory authorities.
- Provision of adequate access ways for movement of equipment and personnel will be made.
- Minimum of two numbers of gates for escape during disaster will be provided.
- In the vicinity of main plant entrance, there will be an emergency assembly point where plant personnel will assemble in the event of any disaster.
- Adequate numbers of Fire Fighting equipment and Fire extinguishers will be installed in the work places for emergency purpose and the Supervisors / Workers will be trained to use the equipments.
- An ambulance will be provided in the factory premises.

- A qualified Doctor and a compounder will be employed for attending to any emergency.

Emergencies may occur due to many reasons. It may occur due to natural causes like earthquake, cyclone, flood etc. It may occur due to malfunction of standard working systems or practices. There can be no set criteria for assessing the gravity of a disaster in the abstract since this depends to a large extent on the physical, economic and social environment in which it occurs. What would be consider a major disaster in a developing country, ill equipped to cope with the problems involved, may not mean more than a temporary emergency elsewhere. However, all disasters bring in their wake similar consequences that call for immediate action, whether at the local, national or international level, for the rescue and relief of the victims. This includes the search for the dead and injured, medical and social care, removal of the debris, the provision of temporary shelter for the homeless, food, clothing and medical supplies, and the rapid re-establishment of essential services.

7.2.2 Objectives of Risk & Disaster Management Plan

The Risk & Disaster Management Plan (DMP) is aimed to ensure safety of life, protection of environment, protection of installation, restoration of production and salvage operations in this same order of priorities. For effective implementation of the Risk & Disaster Management Plan, it will be widely circulated and personnel training through rehearsals/drills.

The Risk & Disaster Management Plan would reflect the probable consequential severalties of the undesired event due to deteriorating conditions or through 'Knock on' effects. Further the management will be able to demonstrate that their assessment of the consequences uses good supporting evidence and is based on currently available and reliable information, incident data from internal and external sources and if necessary the reports of outside agencies.

To tackle the consequences of a major emergency inside the factory or immediate vicinity of the factory, a Risk & Disaster Management Plan has been formulated and this planned emergency document is called "Risk & Disaster Management Plan".

The objective of the Industrial Risk & Disaster Management Plan is to make use of the combined resources of the plant and the outside services to achieve the following:

- Effect the rescue and medical treatment of casualties;
- Safeguard other people;
- Minimize damage to property and the environment;

- Initially contain and ultimately bring the incident under control;
- Identify any dead;
- Provide for the needs of relatives;
- Provide authoritative information to the news media;
- Secure the safe rehabilitation of affected area;
- Preserve relevant records and equipment for the subsequent inquiry into the cause and circumstances of the Emergency.

In effect, it is to optimize operational efficiency to rescue, rehabilitation and render medical help and to restore normalcy.

7.2.3 Major Causes of On-site Emergency

Fire consequences can be disastrous, since induction furnace plant will run on electricity only, where fire can be occur due to short circuit or electrical system malfunctioning. Preliminary hazard Analysis has provided a basis for consequence estimation. Estimation can be made by using various fire consequence calculations. During the study of risk assessment, the nature of damages is worked out and probability of occurrence of such hazards is also drawn up. Adequate fire fighting systems as per Tariff Advisory Committee (TAC) and OISD guidelines will be provided and maintained.

7.3 Emergency Action Plan

The emergency action plan consists of:

- First information
- Responsibilities of Work Incident Controller
- Responsibilities of Chief Incident Controller
- Responsibilities for Declaration of Emergency
- Responsibilities for Emergency Communication Officer
- Responsibilities of key personnel
- Responsibilities and action to be taken by essential staff and various teams during emergency and
- Responsibilities for All Clear Signal.

The first person who observes/identifies the emergencies will inform by shouting and by telephone to the Shift Engineer and Fire Station about the hazard. The Shift Engineer will inform to Works Incident Controller, Chief Incident Controller and also telephone operator will communicate it to all key personnel.

7.3.1 Responsibilities of Work Incident Controller

The Work Incident Controller on knowing about an emergency immediately will rush to the incident site and take overall charge and inform the same to Chief Incident Controller

(General Manager / Managing Director). On arrival, he will assess the extent of emergency and decide if major emergency exists and inform the communication officer accordingly. His responsibilities will be to ensure compliance to the duties (1 to 6) listed below.

7.3.2 Responsibilities of Chief Incident Controller

The General Manager / Managing Director, who is also the Chief Incident Controller, will assume overall responsibilities for the factory/storage site and its personnel in case of any emergency. His responsibilities are to:

1. Assess the magnitude of the situation and decide if staff needs to be evacuated from their assembly point to identified safer places. Declare on-site/off-site emergency.
2. Exercise direct operational control over areas other than those affected.
3. Undertake a continuous review of possible developments and assess in consultation with key personnel as to whether shutting down of the plant or any section of the plant and evacuation of personnel are required.
4. Liaison with senior officials of Police, Fire Brigade, Medical and Factories Inspectorate and provide advice on possible effects on areas out side the factory premises.
5. Look after rehabilitation of affected persons on discontinuation of emergency.
6. Issue authorized statements to news media, and ensures that evidence is preserved for inquiries to be conducted by the statutory authorities.

7.3.3 Responsibilities for Declaration of Major Emergency

- Making the emergency known inside the plant

The major emergency will be made known to everyone inside the plant by resounding the alarm. Separate alarms to warn different types of major emergencies such as fire and explosion or toxic gas escape will be provided. Public address system is also available throughout the plant.

Announcement will be made by the concerned official/interpreter in local language. Similarly announcement for termination of the emergency will also be announced.

7.3.4 Responsibilities of Emergency Communication Officer (ECO)

On hearing the emergency alarm he will proceed to Emergency Control Center. He will:

- Report to Chief Incident Controller and Work Incident Controller and maintain contact with them.
- On information received from the WIC of the situation, recommending if necessary, evacuate the staff from the assembly points.

- Identify suitable staff to act as runner or messenger who is listed in the Essential staff, between him and the Works Incident Controller if the telephone and other system of communication fail due to any reason.
- Maintain inventory of items in the emergency control center.
- Contact local meteorological office to receive early notification of changes in weather condition in case of gas leak and prolonged action.
- Maintain a log of incidents.
- Keep in constant touch with happenings at the emergency site and with WIC

7.3.5 Key Personnel

Apart from Works Incident Controller and Chief Incident Controller, other works personnel will have key role to play in providing advice and in implementing the decisions made by the Chief Incident Controller. The key personnel include:

A. Engineer-in-charge responsible for

- Operation
- Electrical Maintenance
- Mechanical maintenance
- C&I
- Chemical

B. Head of Personnel and Officers connected with Labour Welfare
C. Head (Technical Service)

7.3.6 Responsibilities of Key Personnel

- *Department Heads*

The departmental heads will provide assistance as required by the WIC. They will decide which members of their departments are required at the incident site.

- *Chief Personnel Manager*

He will:

A. Report to Work Incident Controller;
B. Ensure that all non-essential workers in the affected areas are evacuated to assembly points in consultation with the Chief Incident Controller;
C. Receive reports from nominated persons from assembly points, and pass on the absence information services;

D. Keep liaison with other coordinators to meet the requirements of services such as materials, security management, transportation, medical, canteen facilities etc. as required during emergency;
E. Be in constant touch with the Chief Incident Controller and feed him correct information of the situation;
F. Give information to press, public and authorities concerned on instructions from the CIC/WIC;
G. Ensure that casualties receive adequate attention at medical center and arrange required additional help and inform relatives of the injured;
H. Arrange to inform public on Radio and TV about evacuation etc.; and
I. Arrange TV coverage on handling emergency.

- In-Charge

  On knowing about an emergency, he will report to CIC and assist him in all activities. He will also liaison with all teams.

- Medical Officer

  Medical Officer will render medical treatment to the injured and if necessary will shift the injured to nearby Hospitals. He will mobilize extra medical help from outside if necessary.

- Safety Officer

  On hearing the Emergency alarm he will proceed to main entrance/main gate. He will:

  a) Make sure that all safety equipment are made available to the emergency teams;
  b) Arrange to control the traffic at the gate and the incident area;
  c) Direct the security staff to the incident site to take part in emergency operations under his guidance and supervision;
  d) Evacuate the persons in the plant or in the nearby areas as advised by WIC after arranging the transport through the Transport in-charge;
  e) Allow only those people who are associated with handling emergency;
  f) Maintain law and order in the area, if necessary seek the help of police and
  g) Maintain communication with CIC/WIC and ECO.

- Fire Office

  On hearing the emergency, he will reach the fire station and arrange to sound the alarm as per the type of emergency in consultation with WIC, He will:

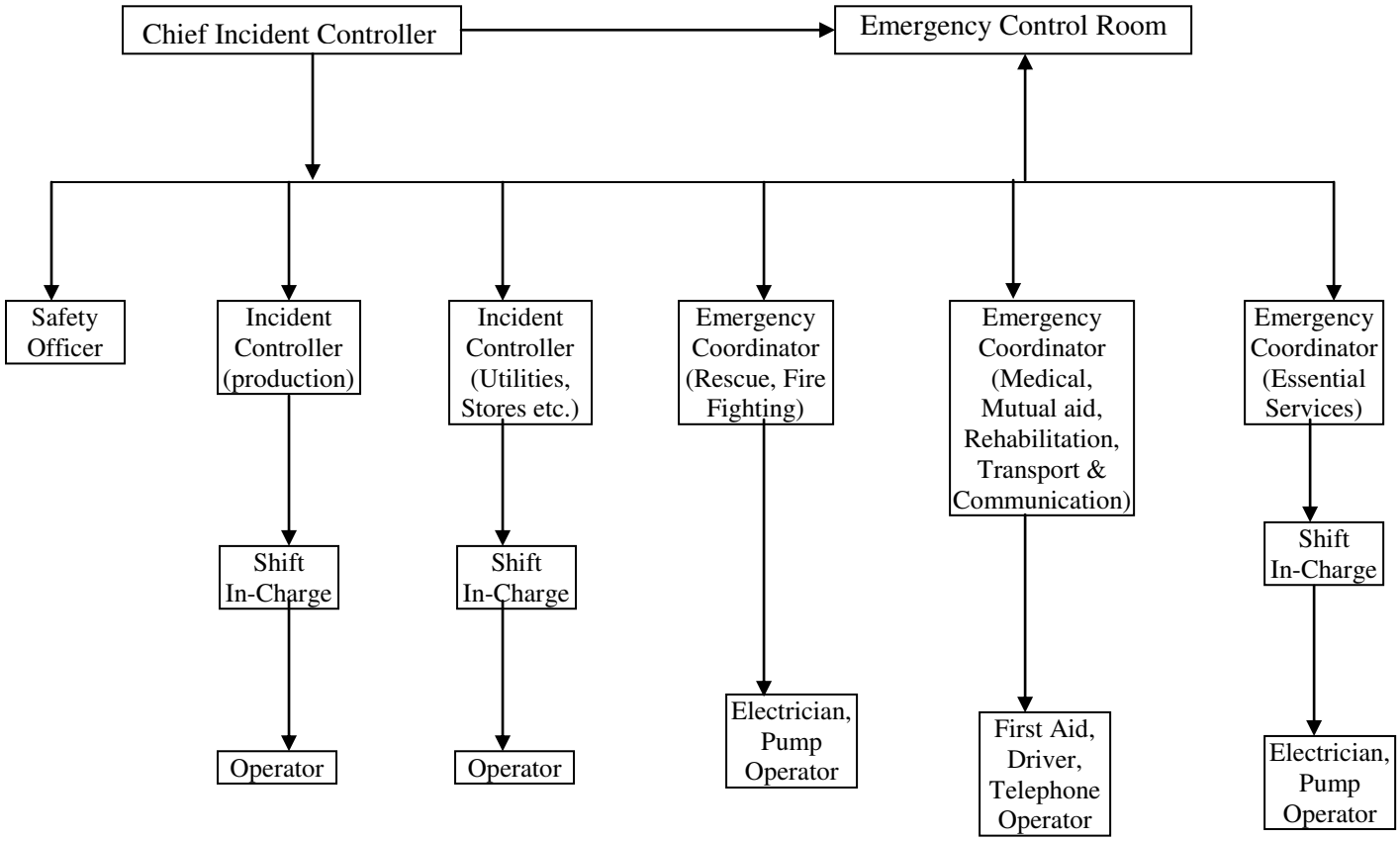
a) Guide the fire fighting crew i.e. firemen and trained plant personnel and shift the fire fighting facilities to the emergency site. Adequate facilities will be made available;
b) Take guidance of the WIC for fire fighting as well as assessing the requirement of outside help;
c) Maintain communication with WIC, CIC and ECO.

- Transport -in-Charge

On hearing the emergency alarm he will immediately report to Work Incident Controller. He will:

a) Ensure availability of auto base vehicles for evacuation or other duties, when asked for ; and
b) Make all arrangements regarding transportation.

The onsite emergency plan structure is presented in Figure below ;



7.4 Off-Site Emergency Preparedness Plan

The task of preparing the Off-Site Emergency Plan lies with the district collector, however the off-site plan will be prepared with the help of the local district authorities. However, it

can be observed from the risk modeling that the damage contours will be within the plant boundary and therefore on-site emergency plan has more significance. The off-site emergency preparedness plan should be based on the following guidelines.

Off-site emergency plan follows the on-site emergency plan. When the consequences of an emergency situation go beyond the plant boundaries, it becomes an off-site emergency. Off-site emergency is essentially the responsibility of the public administration. However, the factory management will provide the public administration with the technical information relating to the nature, quantum and probable consequences on the neighboring population.

The off-site plan in detail will be based on those events, which are most likely to occur, but other less likely events, which have severe consequence, will also be considered. Incidents which have very severe consequences yet have a small probability of occurrence should also be considered during the preparation of the plan. However, the key feature of a good off-site emergency plan is flexibility in its application to emergencies other than those specifically included in the formation of the plan.

The roles of the various parties who will be involved in the implementation of an off-site plan are described below. Depending on local arrangements, the responsibility for the off-site plan should be either rest with the works management or, with the local authority. Either way, the plan should identify an emergency co-ordinating officer, who would take the overall command of the off-site activities. As with the on-site plan, an emergency control center should be setup within which the emergency co-ordinating officer can operate.

An early decision will be required in many cases on the advice to be given to people living "within range" of the accident - in particular whether they should be evacuated or told to go indoors. In the latter case, the decision can regularly be reviewed in the event of an escalation of the incident. Consideration of evacuation may include the following factors:

a) In the case of a major fire but without explosion risk only houses close to the fire are likely to need evacuation, although a severe smoke hazard may require this to be reviewed periodically

b) If a fire is escalating, it might be necessary to evacuate people nearby, but only if there is time; if insufficient time exists, people will be advised to stay indoors and shield themselves from the fire

c) For release or potential release of toxic materials, limited evacuation may be appropriate down wind if there is time. The decision would depend partly on the type of housing "at risk". Conventional housing of solid construction with windows closed offers substantial protection from the effects of a toxic cloud, while shanty house, which can exist close to factories, offer little or no protection.

The major difference between releases of toxic and flammable materials is that toxic clouds are generally hazardous down to much lower concentrations and therefore hazardous over greater distances. Also, a toxic cloud drifting at, say 300 m per minute covers a large area of land very quickly. Any consideration of evacuation should take this into account. Although the plan will have sufficient flexibility built in to cover the consequences of the range of accidents identified for the on-site plan, it will cover in some detail the handling of the emergency to a particular distance from each major hazard works.

7.4.1 Aspects proposed to be considered in the Off-Site Emergency Plan

The main aspects, which will be included in the emergency plan, are:

- *Organization*

  Details of command structure, warning systems, implementation procedures, emergency control centers. Names and appointments of incident controller, site main controller, their deputies and other key personnel.

- *Communications*

  Identification of personnel involved, communication center, call signs, network, and lists of telephone numbers.

- *Specialized knowledge*

  Details of specialist bodies, firms and people upon whom it may be necessary to call e.g. those with specialized chemical knowledge, laboratories.

- *Voluntary organizations*

  Details of organizers, telephone numbers, resources etc.

- *Chemical information*
  Details of the any hazardous substances stored or procedure on each site and a summary of the risk associated with them.

- *Meteorological information*

  Arrangements for obtaining details of whether conditions prevailing at the time and whether forecasts.

- *Humanitarian arrangements*

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

- *Public information*

Arrangements for (a) dealing with the media press office; (b) informing relatives, etc.

- *Assessment of Emergency Plan*

  Arrangements for: (a) collecting information on the causes of the emergency; (b) reviewing the efficiency and effectiveness of all aspects of the emergency plan.

7.4.2 Role of the Emergency Co-ordinating Officer

The various emergency services should be co-ordinated by an emergency co-ordinating officer (ECO), who will be designated by the district collector. The ECO should liase closely with the site main controller. Again depending on local arrangements, for very severe incidents with major or prolonged off-site consequences, the external control should be passed to a senior local authority administrator or even an administrator appointed by the central or state government.

7.4.3 Role of the Local Authority

The duty to prepare the off-site plan lies with the local authorities. The emergency planning officer (EPO) appointed should carry out his duty in preparing for a whole range of different emergencies within the local authority area. The EPO should liase with the works, to obtain the information to provide the basis for the plan. This liaison should ensure that the plan is continually kept up to date. It will be the responsibility of the EPO to ensure that all those organizations which will be involved off site in handling the emergency, know of their role and are able to accept it by having for example, sufficient staff and appropriate equipment to cover their particular responsibilities. Rehearsals for off-site plans should be organized by the EPO.

7.4.4 Role of Police

Formal duties of the police during an emergency include protecting life and property and controlling traffic movements. Their functions should include controlling bystanders evacuating the public, identifying the dead and dealing with casualties and informing relatives of death or injury.

7.4.5 Role of Fire Authorities

The control of a fire should be normally the responsibility of the senior fire brigade officer who would take over the handling of the fire from the site incident controller on arrival at the site. The senior fire brigade officer should also have a similar responsibility for other events, such as explosions and toxic release. Fire authorities in the region should be

appraised about the location of all stores of flammable materials, water and foam supply points and fire-fighting equipment. They should be involved in on-site emergency rehearsals both as participants and, on occasion, as observers of exercises involving only site personnel.

7.4.6 Role of Health Authorities

Health authorities, including doctors, surgeons, hospitals, ambulances and so on, will have a vital part to play following a major accident and they will form an integral part of the emergency plan. For major fires, injuries should be the result of the effects of thermal radiation to a varying degree and the knowledge and experience to handle this in all but extreme cases may be generally available in most hospitals. For major toxic releases, the effects vary according to the chemical in question, and the health authorities should be apprised about the likely toxic releases from the plant which will unable then in dealing with the aftermath of a toxic release with treatment appropriate to such casualties.

Major off-site incidents are likely to require medical equipment and facilities additional to those available locally and a medical " mutual aid " scheme should exist to enable the assistance of neighboring authorities to be obtained in the event of an emergency.

7.4.7 Role of Government Safety Authority

This will be the factory Inspectorate available in the region. Inspectors are likely to want to satisfy themselves that the organization responsible for producing the off-site plan has made adequate arrangements for handling emergencies of all types including major emergencies.

They may wish to see well documented procedures and evidence of exercise undertaken to test the plan.

In the event of an accident, local arrangements regarding the role of the factory inspector will apply. These may vary from keeping a eye on brief to a close involvement in advising on operations in case involvement in advising on operations. In cases where toxic gases may have been released, the factory inspectorate may be the only external agency with equipment and resources to carry out tests.

7.5 Occupational Health & Safety

The proposed plant where multifarious activities are involved during construction, erection, testing, commissioning, operation and maintenance, the men, materials and machines are the basic inputs. Along with the boons, the industrialization generally brings several problems like occupational health and safety.

The industrial planner, therefore, has to properly plan and take the steps to minimize the impacts of industrialization and to ensure appropriate occupational health, safety including fire plans. All these activities again may be classified under construction and erection and operation and maintenance. The proposed safety plan is given below:

7.5.1 Occupational Health

Occupational health needs attention both during construction and erection and operation and maintenance phases. However, the problem varies both in magnitude and variety in the above phases.

- ***Construction and Erection***

The occupational health problems envisaged at this stage can mainly be due to constructional accident and noise. To overcome these hazards, in addition to arrangements to reduce it within TLV's, personal protective equipment's will also be supplied to workers.

- ***Operation and Maintenance***

The problem of occupational health, in the operation and maintenance phase is due to noise hearing losses. Suitable personnel protective equipment will be given to employees. The working personnel will be given the following appropriate personnel protective equipment:

- Industrial Safety Helmet
- Crash Helmets
- Face shield with replacement acrylic vision
- Zero power plain goggles with cut type filters on both ends
- Zero power goggles with cut type filters on both sides and blue color glasses
- Welders equipment for eye and face protection
- Cylindrical type earplug
- Ear muffs
- Canister Gas mask
- Self contained breathing apparatus
- Leather apron
- Aluminized fiber glass fix proximity suit with hood and gloves
- Safety belt/line man's safety belt
- Leather hand gloves
- Asbestos hand gloves
- Acid/Alkali proof rubberized hand gloves
- Canvas cum leather hand gloves with leather palm

- Lead hand glove
- Electrically tested electrical resistance hand gloves
- Industrial safety shoes with steel toe and
- Electrical safety shoes without steel toe and gumboots.

Full fledge hospital facilities will be made available round the clock for attending emergency arising out of accidents, if any. All working personnel will be medically examined at least once in every year and at the end of his term of employment. This is in addition to the pre-employment medical examination.

7.6 Safety Plan

Safety of both men and materials during construction and operation phases is of concern. The preparedness of an industry for the occurrence of possible disasters is known as emergency plan.

Keeping in view the safety requirement during construction, operation and maintenance phases at the Plant, the project proponent would formulate safety policy with the following regulations:

- To allocate sufficient resources to maintain safe and healthy conditions of work
- To take steps to ensure that all known safety factors are taken into account in the design, construction, operation and maintenance of plants, machinery and equipment
- To ensure that adequate safety instructions are given to all employees
- To provide wherever necessary protective equipment, safety appliances and clothing and to ensure their proper use
- To inform employees about materials, equipment or processes used in their work which are known to be potentially hazardous to health or safety
- To keep all operations and methods of work under regular review for making necessary changes from the point of view of safety in the light of experience and up to date knowledge
- To provide appropriate facilities for first aid and prompt treatment of injuries and illness at work
- To provide appropriate instruction, training, retraining and supervision to employees in health and safety, first aid and to ensure that adequate publicity is given to these matters
- To ensure proper implementation of fire prevention methods and an appropriate fire fighting service together with training facilities for personnel involved in this service;
- To organize collection, analysis and presentation of data on accident, sickness and incident involving personal injury or injury to health with a view to taking corrective, remedial and preventive action

- To promote through the established machinery, joint consultation in health and safety matters to ensure effective participation by all employees
- To publish/notify regulations, instructions and notices in the common language of employees
- To prepare separate safety rules for each types of occupation/processes involved in the project and
- To ensure regular safety inspection by a competent person at suitable intervals of all buildings, equipment's, work places and operations.

7.7 Safety Organization

– Construction and Erection Phase

A qualified and experienced safety officer will be appointed. The responsibilities of the safety officer includes identification of the hazardous conditions and unsafe acts of workers and advise on corrective actions, conduct safety audit, organize training programs and provide professional expert advice on various issues related to occupational safety and health. He is also responsible to ensure compliance of Safety Rules/ Statutory Provisions. In addition to employment of safety officer by Plant, every contractor, who employs more than 250 workers, will also employ one safety officer to ensure safety of the worker, in accordance with the conditions of contract.

– Operation and Maintenance Phase

When the construction is completed the posting of safety officers would be in accordance with the requirement of Factories Act and their duties and responsibilities would be as defined there of.

7.8 Safety and Quality Circle

In order to fully develop the capabilities of the employees in identification of hazardous processes and improving safety and health, safety and quality circles would be constituted in each area of work. The circle would consist of 5-6 employees from that area. The circle normally will meet for about an hour every week.

7.9 Safety Training

Safety training would be provided by the Safety Officers with the assistance of faculty members called from Professional Safety Institutions and Universities. In addition to regular employees, limited contractor labors would also be provided safety training. To create

safety awareness safety films would be shown to workers and leaflets would be distributed. Some precautions and remedial measures proposed to be adopted to prevent fires are:

- Compartmentation of cable galleries, use of proper sealing techniques of cable passages and crevices in all directions would help in localizing and identifying the area of occurrence of fire as well as ensure effective automatic and manual fire fighting operations
- Spread of fire in horizontal direction would be checked by providing fire stops for cable shafts
- Reliable and dependable type of fire detection system with proper zoning and interlocks for alarms are effective protection methods for conveyor galleries
- House keeping of high standard helps in eliminating the causes of fire and regular fire watching system strengthens fire prevention and fire fighting and
- Proper fire watching by all concerned would be ensured.

7.10 Health and Safety Monitoring Plan

All the potential occupational hazardous work places would be monitored regularly. The health of employees working in these areas would be monitored once in a year for early detection of any ailment due to exposure of plant operation.

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