STUDY OF ACCIDENT CONDITIONS IN NUCLEAR POWER PLANTS AND PREPAREDNESS AND REACTION TO EMERGENCY SITUATION

Abdolmohammad AFROGH1, Syed Bagher MIRABBASSI2*, Abumohammad ASGARKHANI3, Maryam MORADI4

1Department of Public International law student, Qeshm International Branch, Islamic Azad University, Qeshm, Iran
2Department of Public law, Political Science, University of Tehran, Tehran, Iran
3Department of International Relation, Political Science Faculty, University of Tehran, Tehran, Iran
4Department of Public International law student, Qeshm International Branch, Member of Islamic Azad University, Qeshm, Iran

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Abstract. Analysis and consequences incidence of probable event at nuclear power plants according to instructions of plant environmental preparing reports is done. In this paper evaluation of important and fundamental probable incidents at nuclear power plant is. The main objective of the presentation and evaluation of the different classes in the event of power plants, to prevent the occurrence of accidents due to factors such as: Weakness in design, systems failure and others. However, many security systems used to monitor reactor is considered however, to evaluate the consequences of a probable accident analysis of accident conditions a plant has been made. preparedness to deal with emergency situations in the event, Including all necessary measures for the rapid detection and timely events is that will probably lead to emergency situations, also includes measures to under control accidents and end the emergency situations, so that the least possible damage be entered. The aim of preparedness to deal with emergency situations outside the facility is reducing the effects of nuclear radiation on humans and the environment. Must be appropriate and help emergency relief agencies in the country, special programs for nuclear and radiological emergency situations is done and, if necessary, by imposing regulations with specific purpose (Deal with emergency situations) These programs can be completed. Research results, required by the state to deal with emergency situations, due to general duty of government to protect its citizens and residents to the login loss are. Require the license holder to organize special programs to prepare for and cope with emergency situations, a part of the primary responsibility for nuclear safety providing and protection against nuclear radiation.

Keywords: Nuclear accidents, nuclear power plant, emergency situation, consequences, Safety

THE ISSUE OF RESEARCH

Nuclear and radiological accidents and emergency situations, not only on installations that occur, but also the devastating effects they have on their surrounding environment. In certain circumstances, radioactivity may be through water or air, to areas away from the site of the incident be transferred of nuclear installations and even remote areas of possible contamination, including contamination of the territory of other states. This scenario is risky, especially for nuclear power plants occurrence of similar risks in them likelihood is, is true, however, that this scenario is about the transportation of nuclear materials, for example on caused by accidents traffic and release of radioactive materials through the water or air, used. Radiation sources may also be causing the accident. Injury-causing radiation sources may lead to loss of mainstream control be lead to place to people and the environment in source of radiation exposure. The consequences of nuclear radiation may be minor such as the incident in 1987 Guyana or severe and may require emergency response. Thus, should be a system have in disasters place to reduce the risks of caused by emergency situations and to reduce the consequences is designed. Such a system should the necessary tools to investigation into the effects of an emergency event, on-site

*Corresponding author. Email: Mirabbassi@parsilo.com

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and off-site of the incident, provide. Organizing emergency response at the international level requires cooperation with the competent institutions of other countries. Therefore, it is necessary to have special legal and organizational framework, to establish and implement emergency plans and facilitate possible. You also need trained personnel, technical equipment and financial resources necessary to provide the relevant institutions exist. Preparedness and emergency planning for all human activities is required. Therefore, all countries should have the organizational structures necessary to deal with emergency situations. Organs that are responsible for implementing activities of potential risk should be required to create and organize legal obligations in the implementation of activities related to emergency preparedness. Government agencies such as fire extinguisher, if the organization plans to deal with emergency situations is not successful, will step in. Therefore, it should be appropriate and with help emergency relief agencies in the country, special planning for nuclear and radiological emergency situations is performed and, if necessary by imposing regulatory specific purpose (Deal with emergency situations) these plans can be completed. Obligation of the Government to deal with an emergency situation, due to general duty of government to protect its citizens and residents to login loss is. Require the license holder to organize special programs in order to prepare and cope with emergency situations, a part of the primary responsibility for nuclear safety providing and protection against nuclear radiation.

**Objectives and elements**

Ready to deal with emergency situations in the event, including all necessary measures for the rapid detection and timely events is that will be probably lead to emergency situations, Also includes measures to under control accidents and ending the emergency situations, so that as much as possible the least damage be entered, it is also. In the case of nuclear reactors, the most important goal of preparedness to deal with emergency situations, prevent cause damage to the central part of the reactor cooling system and restore facilities for the central part of the state is safe. Also, it is possible mitigating measures to prevent severe radiation effects on the location of facilities and its surroundings is essential. These measures to all nuclear facilities and activities related to nuclear radiation, of course, with necessary modifications, apply. The aim of preparedness to deal with emergency situations outside the facilities is reducing the effects of nuclear radiation on humans and the environment. These are key elements of preparedness, such as: information exchange and evaluation of available information. Also especially important that the information on the location of facilities, to the relevant institutions based outside of the location of facilities is transferred and vice versa. At the time of the release of radioactive materials, more information on the publication and characteristics of published materials (radiation source); to decide on dealing with emergency situations is essential. If the release of much of the radioactive material in the environment, special measures are needed to protect the residents, for example, traffic control and restrictions, the demand of the people to stay at home, evacuated residents, and organized the distribution of iodine tablets Care health particular including decontamination. Prepared to deal with emergency situations in place or out of place facilities, should at all stages of licensing, especially in the design and construction of nuclear facilities radiation devices considered to take the necessary measures to deal with these situation, be easier.

**Peaceful use of energy**

It is very important for the energy the use and production of energy at the moment along with the environmental impact on the local, regional and global. Particular importance for the international community to ensure that the use of nuclear energy, safe, and environmentally friendly is a true benefit criteria, is attached. Risks of environmental pollution and the effects of greenhouse gases and carbon dioxide at elevated global warming due to fossil fuel use, many countries have prompted is that construction of nuclear power plants to consider energy supply. Nuclear technology in parallel its own advantages and benefits, risks and losses for the human societies and the environment was concerned. Nuclear power plants can be called the most important
application of nuclear technology to the generate electricity without producing polluting gases pay but the potential of contamination through operation of nuclear power plants, is growing and their waste disposal is a dilemma and a problem for the future. As well as other important concerns, vandalism or accidents that occur in nuclear facilities. Stressing the need to continue the development of a high level of nuclear safety in the world, with emphasis on the responsibility for nuclear safety of nuclear facilities in the country that is competent; With a tendency to develop an effective nuclear safety culture; Aware of the potential cross-border effects of accidents in nuclear facilities, taking into account relevant international conventions, In order to ensure that industrial development and power plant flows do not harm to the environment in the region and living resources and human health was not at risk, Each of the governments must in all planned activities that involve launching projects within its territory, particularly in coastal areas that may be risk of developing contamination of the at sea area. Assess the potential effects of these activities on the environment to be.

Environmental incidents peaceful uses of nuclear energy

Human faced many disasters in recent decades that human error or technical fault operating had been equipment and devices. These disasters in some cases severe and irreversible effects such as injury or death in humans have been associated, in many cases with accidental spills material and incidence contaminated, not looking little immediate impact.

In some cases, such as dealing nuclear submarine with each other or fall bomber aircraft carrying nuclear weapons, not created pollution and only the risk of radioactivity and the risk of adverse events is of concern to the international community. Due to the secrecy of probable governments or industry, it is difficult to determine the accidents, or even sometimes found that such incidents occurred. So far, no cases of accidental explosions of nuclear weapons are on the left. The first nuclear accident to the explosion chamber uranium hexafluoride registered in National Laboratory (Oak Ridge) America on September 2, 1944, when it was associated with the death of two people and injured three others. The first nuclear disaster on 12 December 1952 in the NRX reactor (Chalk River) Canada occurred. The destructive effects of nuclear reactor, radioactive products into the atmosphere thousands of blindness and 3,800 cubic meters of contaminated water into the shallow channels of the Ottawa River not far arrived. The worst accident in the history of nuclear power, on 26 April 1986 at the Chernobyl nuclear facility near Kiev Ukraine occurred. As a result of the merger of a number of factors, one flow uncontrollable and suddenly in power plant in Chernobyl power plant unit number four occurred Which led to the destruction of the reactor of the plant and fire in sectors belong to it became. This issue caused the long radius of the radioactive materials in the environment to be published. This release of radioactive materials due to the high air temperature in the days after the incident became much more. A cloud of radioactive material, a large part of Europe, from West of the Soviet Union to East European and Scandinavian covered. Radioactive pollution had contaminated the land surrounding the area of the Russian Federation consists of 19 to 30 million people in the area lived, was. The area of this region is about 56 thousand square kilometres, and 3 million people were directly exposed to this contaminated area. It is difficult to determine the exact number of casualties. Official figures, the mortality rate up to 300 thousand people announced, but many believe that this number is around 400 thousand people. Russia, Belarus and Ukraine suffered heavy costs for decontamination and health care become. Long-term effects of the disaster are not yet entirely clear. Over three thousand acres of lands that had attracted the largest amount of radioactive material, 25 to 40 percent of the pine trees forests destroyed, and 90 to 95 percent of trees were damaged. The release of hazardous substances from this power plant directly into

1 No power generation systems are not without environmental impacts. Environmental impact in all stages of the production chain, including energy resources, construction, equipment, transportation, electricity and waste disposal occurs.

2 While the nuclear industry a huge positive impact on social and economic development, but as a fact like any other industry, there is the possibility of accidents. During the half-century history of the nuclear industry and in particular the operation of research reactors and power plants, three major event has occurred, TMI United States of America in 1979, Chernobyl in the Soviet Union in 1986 and the last in Fukushima Japan.
rivers, lakes and seas also took place. Domestic and wild animals in this infected area were destroyed and vanished. For reactors navigation, ships and nuclear-powered submarines as well as similar incidents occurred that affected the crew and the environment, and some have been killed. In one of these incidents, followed by cooling corrupted of reactor and spill of radioactive material in a Soviet submarine in 1960 three members of crew to suffering from radiation injuries were. In many cases, lack of awareness and individual negligence has caused accidents and sometimes disasters. For example, in 1983, a citizen of Mexico, a radiotherapy device used in did papers, without being aware of its dangers. Thus, at the time of transfer, the amount of radioactive material (cobalt - 60) on the floor of the truck and the road leading to the sale of papers parts poured. 60 employees and most of the iron in securities available for sale were infected. He parked his truck inside the city for two months and caused analogy 200 others individuals was. Transition of ironware contaminated with a steel mill, cause contamination 5 thousand tons of steel was produced, which was used in the manufacture of kitchen equipment and buildings. Some of these devices are exported to the America and Canada. He parked his truck inside the city for two months and caused analogy 200 others individuals was. Transition of ironware contaminated with a steel mill, cause contamination 5 thousand tons of steel was produced, which was used in the manufacture of kitchen equipment and buildings. Some of these devices are exported to the America and Canada. Contamination of mentioned accidentally and during the delivery of construction equipment to a facility equipped to measure beam radiation was discovered In the America. Of course testing of nuclear weapons by America and the Soviet Union during the Cold War should not be forgotten that in addition to the negative environmental impacts, in some cases, with irradiation poisoning and death in humans is associated who were nearby. (Such tragic death of Japanese fishermen Followed by radioactive rainfall caused from America bomb explosion test in the Pacific in 1954) The only case use of nuclear weapons In the war, the nuclear bombing of the Japanese cities of Hiroshima and Nagasaki by America during World War II (6 and 9 August 1945), was which resulted in the destruction of the two cities and the death of 100 thousand residents in the blast and many the other after it was. As well as Fukushima nuclear disaster the last case of the accidents in Japan can be secured. New estimates official officials show the amount of radioactive iodine in the water near the Fukushima nuclear power plant, including the Atlantic Ocean more than 4,000 times the permissible limit is reached. Radioactive material caused the damaged reactor Fukushima plant in Japan has gradually crossed the border in the Earth's atmosphere have been published. In the meantime, nuclear experts after finding levels of radioactive iodine. In different parts of the world, the Japanese nuclear power plant emission resulting from damage to other countries, including America, Britain, China, Turkey, Macedonia, the Philippines have confirmed. It is also possible to divide the Fukushima reactor 20 cm in the concrete protection and water contaminated with radioactive substances Spill noted into the Pacific Ocean. In the wake of increased levels of radioactive materials in a village 40 km from the Fukushima power plant after the outbreak of an earthquake and tsunami that damaged then, observers affiliated to the United Nations, urged Japan to the wider area around this power plant to evacuate. Earlier reports of contamination of soil and water around the Fukushima power plant to radioactive element caesium were released. As well as radioactive radiation beef and bodies left over from the recent earthquake in Japan have been infected. On how to collect the Japanese dead bodies and burning them, Japanese officials and police sources warned that if, as is customary in Japan to burn and ash, it would be more radioactivity into the environment. In the meantime, the leakage rate of radioactive contaminated materials is not limited only to surface waters and seas, but some reports indicate that the contamination of underground water sources. Tens of thousands of people who are living in the surrounding area of the Fukushima power plant left there, due to announced high levels of radioactive materials in the water near one of the reactors this power plant, which will not be soon, allow them to return. Also include the possibility that the sea waves, radioactive substances dispersed in the water and this can be a serious threat to sea creatures life.
**Plans to deal with probable accidents**

Internal legislation of countries should contain provisions regarding the obligation to create and implement a plan to deal with possible events (emergency plans), for reaction to unauthorized transfers, probable use of nuclear material, acts of sabotage at nuclear facilities or effort is to commit such acts. Domestic law should be the responsibility of the relevant officials and government agencies at different levels, according to the emergency plans, clearly identified and areas for cooperation and coordination between all relevant organizations to provide and institutions given that the primary responsibility for the implementation of various functions are responsible. Also in The law shall, all license owners and relevant institutions are required to have deal with emergency plans.

**Government commitments**

One of the accepted general principles of public international law is potentially risky government license issued in their territory; they should ensure that such activities, a significant detrimental effect on the territories of other countries do not have. Based on this principle, governments have the obligation harmful effects of activities within its territory to the territory of other states reduce and pay compensation for damages. Can be the legal situation concluded that governments have the obligation In the event of emergency situations, with country has been affected by the harmful effects of the event, by organizing emergency response arrangements, cooperate. Governments have the obligation harmful effects of activities within its territory to the territory of other states reduce and pay compensation for damages. Governments obligations in relation to cross-border emergency plans at the convention on nuclear safety and the joint convention are required. In addition, the convention of cooperation and instant awareness of convention international instruments are that to create a foundation for the international response to emergency situations are planned. In the process of development of the said convention, the experience gained from the Chernobyl accident is considered.

**RESEARCH METHODOLOGY**

As a researcher in the study, based on a framework of regular moves, trying to assess certain facts, focused on the variables, as well as from outside the current study, the appropriate approach, the approach is qualitative. in research methodology is the researcher tries to study the issue and ask questions with the help of operational definitions, precise and clear about precisely defined population under study And collecting data to identify. In methodology, the researcher deals with the planning and implementation of research. This means the selection of appropriate research methodology and its application in the study. Methods In this study was descriptive, according to information and statistics documented from official sources, efforts that will lead to the correct results. So those reliable data that in the final analysis have been determined from a reputable source, as well as books and published research results are available.

**Environmental impact assessment of the nuclear power plant accident**

(Analysis of environmental Impact of Accidents)

In both the likelihood and consequences of different scenarios of power plant accident after the accident it is considered in the evaluation. Due to the structure of a power plant many possible events may occur, some of the events that led to the release of radioactive materials into the environment, especially air, the most important events in a power plant is shown in the table. Each event class with specifications and amount of release of its consequences is known.
Table 1. Nuclear power plant accident classification.

<table>
<thead>
<tr>
<th>Class</th>
<th>Accident Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>Trivial Incidents</td>
</tr>
<tr>
<td>2.0</td>
<td>Small Release Outside Containment</td>
</tr>
<tr>
<td>3.0</td>
<td>Radwaste System Failure</td>
</tr>
<tr>
<td>3.1</td>
<td>Equipment Leakage or Malfunction of GRS Tank</td>
</tr>
<tr>
<td>3.2</td>
<td>Equipment Leakage or Malfunction of LRS Tank</td>
</tr>
<tr>
<td>3.3</td>
<td>Rupture of Gaseous Radwaste Storage Tank</td>
</tr>
<tr>
<td>3.4</td>
<td>Rupture of Liquid Radwaste Storage Tank</td>
</tr>
<tr>
<td>4.0</td>
<td>Fission Products to Primary System (BWR)</td>
</tr>
<tr>
<td>5.0</td>
<td>Fission Products to Primary System (PWR)</td>
</tr>
<tr>
<td>5.1</td>
<td>Fuel Cladding Defects</td>
</tr>
<tr>
<td>5.2</td>
<td>Off-Design Transients that Induce Fuel Failure Above Those Expected and S/G Leak</td>
</tr>
<tr>
<td>5.3</td>
<td>Steam Generator Tube Rupture</td>
</tr>
<tr>
<td>6.0</td>
<td>Refueling Accidents</td>
</tr>
<tr>
<td>6.1</td>
<td>Fuel Assembly Drop</td>
</tr>
<tr>
<td>6.2</td>
<td>Heavy Object Drop onto Fuel in Core</td>
</tr>
<tr>
<td>7.0</td>
<td>Spent Fuel Handling Accidents</td>
</tr>
<tr>
<td>7.1</td>
<td>Fuel Assembly Drop in Fuel Storage Pool</td>
</tr>
<tr>
<td>7.2</td>
<td>Heavy Object Drop onto Fuel Rack</td>
</tr>
<tr>
<td>7.3</td>
<td>Fuel Cask Drop</td>
</tr>
<tr>
<td>8.0</td>
<td>Accident Initiation Events Considered in Design Basis Evaluation in the Safety Analysis Report</td>
</tr>
<tr>
<td>8.1</td>
<td>LOCA Small Pipe Break</td>
</tr>
<tr>
<td>8.2</td>
<td>LOCA Large Pipe Break</td>
</tr>
<tr>
<td>8.3</td>
<td>Rod Ejection Accident</td>
</tr>
<tr>
<td>8.4</td>
<td>Large Steamline Break Outside Containment</td>
</tr>
</tbody>
</table>

Emergency planning

Convention of nuclear safety and joint convention, both require Member States to take appropriate measures to ensure that emergency plans are created. Each of the member states are required to take appropriate measures so that might be affected by a radiological emergency events at a nuclear facilities are based in its territory, adopt and necessary information on planning and emergency response to the people and government competent officials, in areas surrounding nuclear facilities are to provided. Also, the states that do not have nuclear facilities on its territory, if they are likely to be affected by emergency situations Caused by events in the territory of neighbouring countries, they must be provided with emergency plans. Basis response to an event beam, similar to each accident in which the harmful substances are involved. What is radiation accidents distinct from other accidents is that other accidents can be some of own senses such as visual, auditory and olfactory sense, but such a possibility does not exist In radiation accidents; Therefore, it is necessary to provide conditions to possible radiation hazards identified and the public and staff are aware of the necessary actions.

Emergency planning objectives are:

1. Re-control situation
2. Prevent or reduce the consequences in scene of event
3. Prevent the occurrence of deterministic effects (harmful) on the health of people and professionals (such as death)
4. Provide first aid and treatment of radiation injuries

Deterministic Health Effects
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(5) Prevention of the possible effects of (hazardous) to health\(^4\) (such as cancer)
(6) Prevention of the harmful effects non beam on health
(7) Environmental Protection
(8) Returning to normal social and economic activities

Efforts to achieve the objectives of the first and second power plant are operating responsibilities. Other objectives of the common responsibility of power plant operator and the officials outside the site. The third goal is the implementation of urgent\(^5\) protective measures to keep the dose to an amount lower than some definite harmful effects on health, be achieved. The fourth goal with the presence of rapid accident scene and provide first aid to injured be achieved. This aids in some cases requiring specialized treatment, which requires special equipment and personnel. The fifth goal is the implementation of protective measures to reduce the dose of allowable values specified in international guidelines to be fulfilled. The aim of sixth to topic deals with how emotions may lead to some consequences of the nuclear emergency. Experience shows that the nuclear power plant accident, the consequences of psychological, social and economic is far beyond consequences of radiological. The purpose of seventh with limiting spread of infection and ensure the implementation of recovery actions (such as contamination) with the aim of reducing environmental impacts, is achieved.

Planning regions and districts

Ready to deal with emergency situations should be considered in the nuclear legislation codification. In the disasters, nuclear power plants, emergency response into two separate areas inside and outside the site is divided. The most important tool for ensuring emergency preparedness and response to disasters inside and outside of the location of nuclear facilities is.

Area of inside site\(^6\): to areas inside the power plant that its range with fences or other signs have been separated, area of inside site is called. This area is usually under the control of power plant employees or officials. Area of outside site\(^7\): the areas outside the range of under the control power plant, area of outside site is called.

Area precautions\(^8\): the precautions to certain area around a power plant is said to be where the immediately after the declaration of a state of public emergency, protective measures (pre-planned) is performed. The purpose of creation of this area, reducing deterministic effects (harmful) on human health, with protective measures before the leak is.

Urgent protective action planning area\(^9\): urgent protective action planning Area around a power plant in a certain area is say that ready for immediate conservation action is based on environmental surveillance\(^10\).

Area of safeguard long-term planning\(^11\): safeguard long-term planning area a certain area around a power plant is called that have the greatest distance to the power plant and the urgent protective action planning area also is encompasses. It is necessary to provide facilities in this area to support it in long-term radiation exposure with deposition\(^12\) or Substances Ingestion of radioactive can be reduced.

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\(^4\) Stochastic Health Effects
\(^5\) Urgent Protective Actions
\(^6\) On- Site Area
\(^7\) Off- Site Area
\(^8\) Precautionary Action Zone (PAZ)
\(^9\) Urgent Protective Action Planning Zone (UPZ)
\(^10\) Monitoring
\(^11\) Longer Term Protective Action Planning Zone (LPZ)
\(^12\) Deposition
In areas around power plant are located. The extent of these areas can be identified through the analysis of possible consequences. At the same time, with the use of previous studies carried out by International Atomic Energy Agency in relation to nuclear accidents and beam range of, the basis for the breadth of areas is provided. Boundaries of these areas must by local landmarks, to be identified and defined to be easily identifiable. It should be noted that these areas are not confined to national borders.

**Divided population area**

The two population particularly area for nuclear power plant site is determined. The first population area exclusion area is called that by definition: exclusion area is the range which the power plant structures is located in it. In this area necessary officials for controlling of all activities including preventing and movement of people and property from area there are. Naturally, living in this area is forbidden, and if necessary, the population living in special circumstances are forced to leave the area. The second region is sparsely populated area (Low population zone) is called, by definition, an area that is placed immediately after area exclusion. Living in the area were allowed but the number of population density and settlements in a way that we can manage the crisis caused by the accident at the nuclear power plant expected time to bring implemented.

**Planning levels and responsibilities**

Any effective emergency response requires comprehensive and inclusive emergency planning at three levels are:

Operator level of power plant: power plant operating personnel or those who are involved in an accident with radioactive materials, have responsibilities are as follows:

A. To take immediate measures to reduce the risk of accident
B. Protection of inside site.
C. Warning to officials outside of the site and provide necessary recommendations on protection measures to them and to provide assistance

**Outside level of site:** The responsibility of protecting the public The following organizations:

A. Local officials: To those government agencies responsible for emergency support of the workers and protection of people endangered. They called the local officials. Local officials such as fire fighting police, rescue groups and so under emergency management outside of the site to its obligations in different phases of the accident pay.

B. National and regional officials: to government agencies that are responsible for planning and response at national and regional level are called. These organizations are responsible for tasks that require immediate execution there is no. These tasks include the following:

1) Safeguard long-term
2) Support local officials in situations that level of threat is greater than their ability.

International level

Organizations those are responsible for international aid. They include:

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13 Analysis
14 Local Landmarks
15 Local Officials
16 National and Regional Officials
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A. International Atomic Energy\(^{17}\) Agency, responsible for the implementation of the Convention by "announced primary danger in one nuclear accident\(^{18}\)" and "assistance In the event of nuclear disasters or beam\(^{19}\)" is. In warning Convention, countries are obliged to immediately other countries that may be placed affected by an accident, heard them. Countries which require urgent conservation measures should be informed directly. This warning directly or through the International Atomic Energy Agency can be done. In treaty of relief, countries are required to during a disaster immediately provide situation relief.

B. Office of Humanitarian Affairs of the United Nations\(^{20}\) or the World Health\(^{21}\) Organization that can carry out humanitarian or medical technical assistance during a disaster is.

Classification of disasters of emergency situation and immediate measures

Response to emergency situations requires a rapid response and coordinated. Doing this issue by using a precise classification of system, including public emergency situations\(^{22}\), emergency situations in the area of site\(^{23}\) and conditions of warning\(^{24}\) are possible. It is necessary; following the declaration of a state of emergency, any of the actions needed to best way possible be initiated and coordinated by the department both inside and outside of site. In the following immediate actions that should outside site officials for each set of conditions to implement briefly are described.

General emergency situations:

Accidents resulting in leakage or risk of leakage due to the occurrence of serious and need immediate protective measures outside the site are.

Outside of site responsibility in general emergency situations:

- The establishment of an integrated response using the ICS\(^{25}\) under the command of the incident.
- Implementation of immediate protective measures in the area of precautions and urgent protective action planning area on recommendations inside of site.
- establishment of center for monitoring and evaluation of radiological (RAMC) and the monitoring implementation in around and review of protective measures on the basis of operational intervention thresholds.
- Development of radiation protection for emergency workers.
- Ensure the dissemination of information to all line governmental organizations.
- Warning to neighbouring countries and the IAEA.
- Establishment of the necessary conditions for monitoring and decontamination of those evacuated and management of medical response and treatment of exposed individuals.
- Inform the media in center for public relations (PIC\(^{26}\)).

(In radius of nutritional restriction planning):

- Provide necessary training to farmers for protection of products and raising animals to appropriate storage.
- The movement a portion of the monitoring contaminated foods.
- Implementation of monitoring to determine the range that its contamination exceeded the thresholds of intervention operations and implement the necessary protective measures.

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\(^{17}\) International Atomic Energy Agency (IAEA)

\(^{18}\) Convention on Early Notification of a Nuclear Accident

\(^{19}\) Convention on Assistance in the Case of a Nuclear or Radiological Emergency

\(^{20}\) United Nation of Humanitarian Affairs (UNDHA)

\(^{21}\) World Health Organization (WHO)

\(^{22}\) General Emergency

\(^{23}\) Site Area Emergency

\(^{24}\) Alert

\(^{25}\) Incident Command System

\(^{26}\) Public Information Centre
Emergency situations in site area

Accidents, leading to a major reduction in the level of protection for workers inside the site and people are around the power plant.

Responsibility of outside the site in site area emergency situations:
- Preparation for implementation of emergency protective measures outside the site and measures to protect food sources
- The warning to the people and provide necessary suggestions
- Fully enable and coordinated response system under one command
- Development of radiation protection for emergency workers
- Activation of fire fighting, police and medical support at the request of inside of the site.
- Establishment of center for monitoring and evaluation of radiological (RMAC) and implementation monitoring in and around and review of protective measures on the basis of operational intervention thresholds.
- Ensure the dissemination of information to all of line governmental organizations.
- Warning to neighbouring countries and the IAEA.
- Establishment of the conditions necessary for the management of medical response and treatment of exposed individuals.
- Inform the media in center for public relations (PIC).

Warning conditions

Reduce the level of safety or disaster uncertainty that increases preparedness or assessments will be followed.

Responsibility for outside of the site in warning conditions:
- Ensure the dissemination of information to all relevant governmental organizations - Create an alert condition
- Create an incident command
- Establishment of the conditions necessary for the management of medical response and treatment of exposed individuals.
- Inform the media in center for public relations (PIC).

Protective measures

In the event of an accident of some protective measures to reduce the harmful effects it is done. Among these measures are as follows:

- Use the shelter: There must be suitable positions to pass through the normal radioactive materials from the environment and from a reliable source where people stay. Ways output from each building must be blocked be prevented from entering contaminated materials to the building. Doors and windows closed and the air conditioner when not equipped with a filter should not work. Undergrounds, inside rooms the building are safer than anywhere else.
- Evacuation of areas: The effects of actinogenous substances can be transmitted by one place with more risks to place where the risk is less reduced or eliminated.
- Clearance of persons: People must from own do decontamination. For this reason, must be bring own clothes and shoes. The major part of this pollutants the remove external clothes disappear the clothes must be in a protective container is kept in a controlled area until after the decontamination to be used or completely destroyed. The following must be to remove the more contaminants are washed with water and detergents.
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- Medical care: In order to prevent or treat some of the side effects of radiation the medical care is necessary.
- Food supplies Non-infected areas and by using of food stored: Food and liquids that are closed and do not have any kind of pollution can be used for using.
- Foods that do not have covered and are suspected to contamination should not be used. Plants grown in the contaminated soil as long as in terms of safety radiological analyses have not been should be considered suspicious.
- Clearance of contaminated areas: A major part of the exposure risks in areas of paved or asphalt can be destroyed by water flow at high speeds. Decontamination of non-paved areas can be by moving the top layer of soil by covering the area with uncontaminated soil or return the contaminated surface and buried under them do. Clean the areas with some specific tools and machines are considered.

Rescue personnel are protected during relief should be considered. All the people in a contaminated environment to enter the emergency operations should changes in their clothing to prevent the entry of dust or special clothing to wear. Also need to use clothes that easily become decontamination and gamma radiation protection are also to some extent. Also, existence of a cape helmet for the head of people is mandatory. Bottom of pants and sleeves must be closed to prevent the entry of radioactive materials. The use of masks is necessary. Eating should be avoided. Rescue people when exiting the area of activity must clean themselves; exiting the detectors for recording the amount of radiation dose in the area of activity is necessary.

CONCLUSION

Requiring governments to deal with an emergency situation, due to general duty of government to protect its citizens and residents to the login losses is. Require the license holder to organize special programs to prepare and respond to emergency situations, a part of his principal responsibility for nuclear safety and protection for nuclear radiation. Working closely of government to create an effective regime it is necessary to deal with the consequences of nuclear accidents. This is one of the general principles of public international law is accepted that government that the license potentially hazardous activities in its territory to be issued, should be ensure that such activities have not significant detrimental effects on the territory of other countries.

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