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RULES OF CONDUCT IN NATURAL EMERGENCIES

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The training manual outlines the basic concepts and definitions related to extreme situations of natural origine, provides a classification of emergency situations of natural origine, consequences of emergency situations of natural origine, rules of conduct for various emergency situations of natural origine.

The training manual is intended for students studying in the discipline "Life safety".

The training manual can be used for laboratory and practical training.

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Education-methodical manual

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CONTENT

INTRODUCTION

Modern man throughout his life is in various environments: social, industrial, local (urban, rural), domestic, natural, etc.

A person and his environment form a system consisting of many interacting elements, having an order within certain boundaries and having specific properties. Such interaction is determined by many factors and affects both the person himself and the corresponding environment of his habitat. This influence can be, on the one hand, positive, on the other – simultaneously negative (negative).

NATURAL DISASTER – a destructive natural or natural-anthropogenic phenomenon, or a process of a significant scale, as a result of which a threat to life or health of people may arise or arise, destruction or destruction of material values and components of the natural environment may occur.

They arise under the influence of: **ATMOSPHERIC PHENOMENA** (hurricanes, heavy snowfalls, tornadoes, heavy rains);

- **FIRE** (forest and peat fires);
- **CHANGES IN WATER LEVEL IN WATER BODIES** (floods);
- **CHANGES IN SOIL AND EARTH'S CRUST** (volcanic eruptions, earthquakes, landslides, mudflows, avalanches, tsunamis)

Natural disasters can occur independently from each other, and sometimes one natural disaster entails something else, for example:

Natural disasters that may occur due to severe heat that lasts for a long time.

Pic.1 Natural disasters

Not every natural disaster leads to the emergence of a natural emergency, but only one in which there is a real threat to man and his environment.

Pic.1 Natural emergency

Natural emergency – this is an unfavorable situation in a certain territory, which has developed as a result of a dangerous natural phenomenon, a natural disaster that may or have caused human casualties, damage to human health, the environment, material losses and disruption of people's livelihoods.

1. CLASSIFICATION OF EXTREME SITUATIONS OF NATURAL ORIGINE

GEOPHYSICAL – earthquakes and volcanic eruptions – originate and develop internally Earth development processes

Pic.1.1 Geophysical

GEOLOGICAL – landslides, mudflows, landslides, avalanches – originate and develop Earth's surface

Pic.1.2 Geological

METEOROLOGICAL – hurricanes, storms, tornadoes, severe frosts, droughts, rains, snowfalls – associated with atmospheric processes

Pic.1.3 Meteorological

HYDROLOGICAL – tsunami, floods – related to underwater earthquakes, eruptions volcanoes or with level changes water and flooding of the area

Pic.1.4 Hydrological

WILDFIRES – forest, peat, steppe – associated with prolonged periods of drought and careless handling of fire

Pic.1.5 Wildfires

2. CONSEQUENCES OF EXTREME SITUATIONS OF NATURAL ORIGINE

Natural emergencies have a negative impact on:

Pic.2.1 Negative impact on

Natural emergencies damage:

SOCIAL – injury and death of people, loss of personal property, material and cultural values, worsening living conditions of the population.

ECONOMICAL – damage and destruction of buildings, structures and production facilities, violation communication systems and roads, material costs for the treatment of people and restoration of the destroyed.

ECOLOGICAL – environmental pollution, transfer of harmful substances, landscape change, death of animals and destruction of vegetation.

EARTHQUAKES

Earthquake - fluctuations and displacements of the Earth's surface, tremors and shocks resulting from natural processes or human activity.

Pic.2.2 Earthquake

3. RULES OF CONDUCT IN VARIOUS EXTREME SITUATIONS OF NATURAL ORIGINE

- Feeling the vibrations of the building, seeing the swinging of lamps, falling objects, hearing the growing hum and the sound of breaking glass, do not panic (from the moment you felt the first shocks to vibrations dangerous for the building, you have 15 - 20 seconds). Quickly exit the building, taking documents, money and essentials.
- When leaving the premises, go down the stairs, not the elevator. Once on the street - stay there, but do not stand near buildings, but move to an open space. Stay calm and try to calm others down!
- If you were forced to stay indoors, then stand in a safe place: against an inner wall, in a corner, in an inner wall opening, or at a load-bearing support. If possible, hide under a table - it will protect you from falling objects and debris. Stay away from windows and heavy furniture.
- If you have children with you, cover them with yourself. Do not use candles, matches, lighters - if gas leaks, a fire may occur. Stay away from overhanging balconies, cornices, parapets, beware of broken wires. If you are in a vehicle, stay out in the open but do not leave the vehicle until the jolt has stopped. Be ready to help in saving others.

During an earthquake, you can not:

Pic.3.1 Rules of conduct in various extreme situations of natural origine

Rules of conduct during a earthquake:

- Provide first aid to those in need. Free those caught in easily removable blockages. Be careful! Ensure the safety of children, the sick, the elderly. Calm them down. Turn on the radio.
- Check for damage to electrical wiring. Fix the problem or turn off the electricity in the apartment.
- Remember that in case of a strong earthquake, the electricity in the city is turned off automatically. Check for damage to the gas and water lines. Troubleshoot or disconnect networks. Do not use open fire.
- Going down the stairs, be careful, make sure it is strong. Do not approach obviously damaged buildings, do not enter them. Be prepared for strong aftershocks, as the first 2-3 hours after an earthquake are the most dangerous. Do not enter buildings unless absolutely necessary. Do not make up or pass on any rumors about possible aftershocks. Use official information.
- If you find yourself in a blockage, calmly assess the situation, if possible, provide yourself with medical assistance. Try to establish contact with people outside the blockage (voice, knock). Remember that you can not light a fire, you can not drink water from the toilet bowl, and pipes and batteries can be used to signal. Save your strength.

Tsunami

Tsunami – strong wave oscillations of the water surface - special waves of great length and height.

Pic.3.2 Tsunami

Floods

Floods – flooding of a large area with water as a result of a rise in the water level in a reservoir, caused by an abundant influx of water.

Pic.3.3 Floods

Flood rules:

- At the warning signal of the threat of flooding and evacuation, immediately, in accordance with the established procedure, leave (leave) the danger zone of possible catastrophic flooding to the designated safe area or to elevated areas of the area, taking with you documents, valuables, necessary things and a two-day supply. Register at the final evacuation point.
- Before leaving the house, turn off the electricity and gas, put out the fire in the heating stoves, secure all floating objects that are outside the buildings, or place them in utility rooms. If time permits, move valuable household items to the upper floors or to the attic of a residential building. Close the windows and doors, if necessary and have time, board the windows and doors of the first floors from the outside with boards (shields). In the absence of an organized evacuation, stay on the upper floors and roofs of buildings, on trees or other towering objects until help arrives or the water subsides. At the same time, constantly give a distress signal: during the day - by hanging or waving a clearly visible panel lined with a pole, and in

the dark - by a light signal and periodically by voice. When the rescuers approach, calmly, without panic and fuss, in compliance with the precautionary measures, go to the swimming facility. At the same time, strictly follow the requirements of the rescuers, do not overload the boats. During the movement, do not leave the assigned places, do not board the sides, strictly follow the requirements of the crew. It is recommended to get out of the flooded area on your own only if there are such serious reasons as the need to provide medical assistance to the victims, the continuing rise in the water level with the threat of flooding of the upper floors (attic). In this case, it is necessary to have a reliable swimming facility and know the direction of movement. During self-advance, do not stop giving a distress signal.

- Help people who are swimming in the water and drowning.

Collapse

Collapse – rapid separation (separation) and fall of masses of rocks (earth, sand, stones, clay) down from the slopes of mountains under the influence of gravity.

Pic.3.4 Collapse

The reason for the formation of collapses is the imbalance between the shearing force of gravity

Landslide

Landslide – sliding displacement (sliding) of masses of soils and rocks down the slopes of mountains and ravines, steep coasts of seas, lakes and rivers under the influence of gravity.

Pic.3.5 Landslide

Rules of conduct during a collapse and landslide

- When receiving signals about the threat of a collapse, landslide, turn off electrical appliances, gas appliances and water supply, prepare for immediate evacuation according to pre-developed plans.
- Depending on the landslide displacement speed detected by the landslide station, act according to the threat.

- With a low displacement rate (meters per month), act according to your capabilities (move buildings to a predetermined place, take out furniture, things, etc.).
- If the landslide displacement speed is more than 0.5-1.0 m per day, evacuate in accordance with a previously worked out plan.
- When evacuating, take documents, valuables with you, and, depending on the situation and instructions from the administration, warm clothes and food.
- Urgently evacuate to a safe place and, if necessary, help the rescuers in digging, extracting victims from the collapse and rendering assistance to them.

Mudflows

Mudflow - a rapid turbulent flow of a mixture of water and a large number of rock fragments from clay particles to large stones and boulders, suddenly arising in the channels of mountain rivers and hollows.

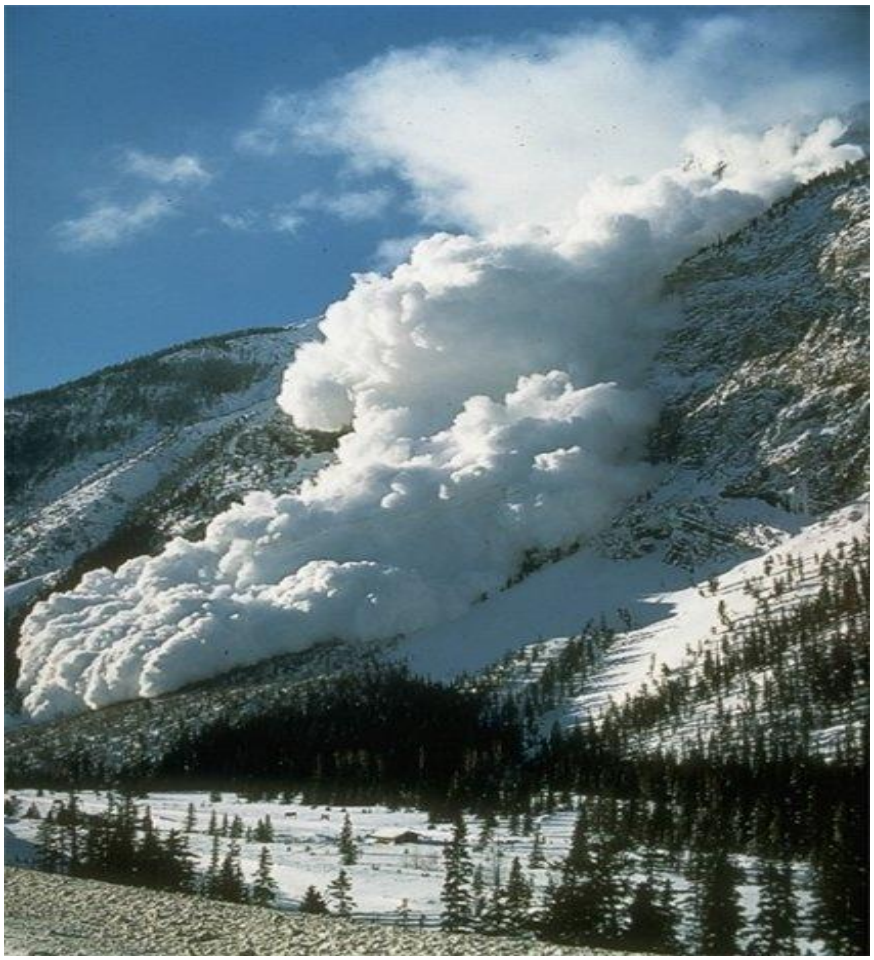
Pic.3.6 Mudflow

Rules of conduct during a mudflow:

- Provide assistance to the victims and assistance to the formations and bodies that disassemble blockages and drifts along the path of the mudflow and in places where the main mass of the mudflow is removed.
- If you are injured, try to get yourself first aid. The affected areas of your body, if possible, should be kept in an elevated position, put on them ice (wet matter), a pressure bandage. Contact your doctor.

Avalanches

Avalanche - a landslide consisting of snow and ice, a mass of snow falling or moving at a speed of 20 - 30 m / s.



Pic.3.7 Avalanche

Rules of conduct during an avalanche

- Follow the basic rules of conduct in avalanche areas: do not go to the mountains in snowfall and bad weather; being in the mountains, watch the weather change; when going out into the mountains, know the places of possible avalanches in the area of your path or walk.
- Avoid areas where avalanches may occur. They most often descend from slopes with a steepness of more than 30 ', if the slope is without bushes and trees - with a steepness of more than 20 '. With a steepness of more than 45 ', avalanches come down almost every snowfall.
- Remember that during the avalanche period, rescue teams are created in the mountains.

If you are caught in an avalanche

- Cover your nose and mouth with a mitten, scarf, collar; moving in an avalanche, try to keep on the surface of the avalanche with swimming movements of the hands, moving to the edge, where the speed is lower.
- When the avalanche has stopped, try to create space around your face and chest to help you breathe.
- If possible, move towards the top (the top can be determined with the help of saliva, letting it flow out of the mouth).
- Once in an avalanche, do not scream - the snow completely absorbs sounds, and screams and senseless movements only deprive you of strength, oxygen and heat.
- Do not lose your temper, do not let yourself fall asleep, remember that you are being searched for (there are cases when people were rescued from an avalanche on the fifth and even thirteenth day).

Storms

Storm - a long, very strong wind with a speed of 62 to 105 km / h, usually observed during the passage of a cyclone and is accompanied by strong waves at sea and destruction on land.

Pic.3.8 Storm

Hurricanes

Hurricane – is a large atmospheric vortex with a wind speed of more than 115 km/h, and in the surface layer - up to 200 km/h.

Pic.3.9 Hurricane

Tornadoes

Tornado – is an atmospheric vortex that arises in a thundercloud and propagates downward, often to the very surface of the Earth in the form of a dark cloud sleeve or trunk with a diameter of tens and hundreds of meters.

Pic.3.10 Tornado

Rules of conduct during a storm, hurricane, tornado

• If a hurricane (storm, tornado) caught you in a building, move away from the windows and take a safe place near the walls of the interior, in the corridor, near built-in wardrobes, in bathrooms, toilets, pantries, in strong cabinets, under tables. Put out the fire in the stoves, turn off the electricity, close the taps on the gas networks.

• At night, use lanterns, lamps, candles; turn on the radio to receive information from the Civil Defense and Emergency Department and the Commission for Emergency Situations; if possible, stay in a recessed shelter, in shelters, cellars, etc. If a hurricane, storm or tornado caught you on the streets of a settlement, stay as far as possible from light structures, buildings, bridges, overpasses, power lines, masts, trees, rivers, lakes and industrial

facilities. To protect against flying debris and glass fragments, use plywood sheets, cardboard and plastic boxes, boards and other

improvised means. Try to quickly take cover in basements, cellars and anti-radiation shelters available in settlements. Do not enter damaged buildings, as they can collapse with new gusts of wind.

• During a snowstorm, take cover in buildings. If you find yourself in a field or on a country road, go out onto the main roads, which are periodically cleared and where there is a high probability of helping you.

• During a dust storm, cover your face with a gauze bandage, a scarf, a piece of cloth, and your eyes with glasses. When a signal is received that a tornado is approaching, it is necessary to immediately go down to the shelter, the basement of the house or cellar, or take cover under the bed and other durable furniture. If a tornado catches you in an open area, take cover at the bottom of a road ditch, in pits, ditches, narrow ravines, tightly pressing against the ground, covering your head with clothes or tree branches. Do not stay in the vehicle, get out and take cover as above.

Forest fires

Forest fires – uncontrolled burning of vegetation, spontaneously spreading through the forest area

Pic.3.11 Forest fires

Rules of conduct in a forest fire

- If you find fires, immediately notify the fire department by calling 01 (mobile phone number 112)!
- If the fire is ground and local, you can try to put out the flame yourself: you can try to bring it down by overflowing with branches of hardwood, flooding it with water, throwing it with wet soil, trampling it with your feet. Peat fires are extinguished by digging up burning peat with watering.
- When extinguishing a fire, act prudently, do not go far from roads and clearings, do not lose sight of other participants, maintain visual and audio communication with them.
- When extinguishing a peat fire, keep in mind that deep funnels can form in the burning zone, so you should move carefully, after checking the depth of the burnt layer.
- If you do not have the opportunity to cope with the localization and extinguishing of the fire on your own:
  - ✓ immediately warn everyone nearby about the need to leave the danger zone;
  - ✓ organize the exit of people to the road or clearing, a wide clearing, to the bank of a river or reservoir, in a field;
  - ✓ leave the danger zone quickly, perpendicular to the direction of fire;
  - ✓ if it is impossible to escape from a fire, enter a body of water or cover yourself with wet clothes;
  - ✓ once in an open space or clearing, breathe, bending down to the ground - there the air is less smoky;
  - ✓ cover your mouth and nose with a cotton-gauze bandage or cloth;
  - ✓ after leaving the fire zone, report its location, size and nature to the fire service, the administration of the settlement, the forestry.
- In the event of a fire approaching directly to the buildings and the threat of a massive fire in the settlement, the population is urgently evacuated, primarily children, the elderly, and the disabled.

- If there is a possibility of a fire approaching your community, prepare for a possible evacuation:
  - ✓ place documents, valuables in a safe, accessible place;
  - ✓ prepare vehicles for a possible emergency departure;
  - ✓ put on cotton or woolen clothes, have with you: gloves, a handkerchief with which you can cover your face, goggles or other means of sewing up your eyes;
  - ✓ prepare a supply of food and drinking water;
  - ✓ carefully follow informational messages on television and radio, means of warning, keep in touch with your acquaintances in other areas of your area;
  - ✓ avoid panic.

Volcano

Volcano – a geological formation that occurs above channels and cracks in the earth's crust, through which molten rocks (lava), ash, hot gases, water vapor and rock fragments erupt onto the earth's surface.

Pic.3.12 Volcano

Your actions at the volcano

HOW TO PREPARE FOR A VOLCANO ERUPTION

- Watch for a warning of a possible volcanic eruption. You will save your life if you leave the dangerous territory in a timely manner.
- Close all windows, doors and smoke dampers when receiving an ash warning. Put cars in garages. Keep animals indoors. Stock up on self-powered sources of lighting and heat, water, food for 3-5 days.

HOW TO ACT DURING A VOLCANO ERUPTION

- Protect your body and head from stones and ashes.
- Volcanic eruption can be accompanied by flash floods, mudflows, floods, so avoid the banks of rivers and valleys near volcanoes, try to stay on high places so as not to get into the flood zone or mudflow.

HOW TO ACT AFTER A VOLCANO ERUPTION

- Cover your mouth and nose with gauze to prevent ash from breathing. Wear protective goggles and clothing to prevent burns.
- Do not try to drive the car after the ash has fallen - this will lead to its failure. Clean the roof of the house from the ashes to prevent its overload and destruction.

Knowledge of the causes and nature of natural disasters allows, with the early adoption of protective measures, with reasonable behavior of the population, to significantly reduce all types of losses.

The ability to distinguish between natural hazards, to understand how they will spread and affect, means not only to understand what consequences may arise, but also to make the right decisions quickly.

QUESTIONS FOR SELF-CONTROL

1. Give a definition of a natural emergency?
2. Tell us the classification of natural emergencies.
3. Which of the scientists created the wind measurement scale?
4. At what time of the year do hurricane winds occur most often?
5. What kind of natural emergency does an avalanche relate to?
6. What is the main cause of mudslides?
7. What characterizes natural disasters?
8. What do natural disasters lead to?
9. What are the names of a natural phenomenon that manifests itself as a monstrous destructive force?
10. The area of low pressure in the atmosphere?

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