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INNOVATIVE APPROACH TO REMOVING FIRES IN RESERVOIR PARKS OF THE STORAGE OF LIGHT FLAMMABLE AND CONCOMITANT LIQUIDS

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Annotation:
The effective extinguishing events at the fire in reservoirs and reservoir parks for saving the piceous and flammable liquids, pressed hydrocarbon gases was given in this article.

Keywords: reservoir parks, pontoon reservoirs, the safety jacket from heating, spread stream, turbulent stream.

Today we are in a period of comprehensive reforms that are being carried out consistently in all spheres of our country. During the years of independence, the main task has been to develop our country in all respects, to raise the economy, as well as spirituality, to become one of the developed countries of the world.

It should be noted that today, as a result of the implementation of the most modern, world-class projects in our country, the largest projects in the world, Uzbekistan is becoming one of the most developed independent countries in the world.

Today, the effective operation of enterprises for storage, refining and distribution of petroleum products has a positive impact on the rapid growth of the country's economy. Ensuring the industrial and fire safety of such enterprises is essential for their continued and efficient operation. Therefore, the following are the measures to be taken to quickly and efficiently extinguish fires in reservoirs of flammable and combustible liquids.

Reservoirs and reservoir parks for storage of flammable and combustible liquids, compressed hydrocarbon gases are widely used in various sectors of the economy and social facilities as the main facilities.

Stored liquids in reservoirs create additional evaporation surfaces when voids are formed, especially when the reservoir is emptied of stored fluid, the walls are damp, and additional evaporation surfaces are formed when faults occur. The risk of sparks, explosions, and fire is greater between pontoons, immersion tanks, and floating tank reservoirs, and pontoon or floating tank tanks are more hazardous than immovable tank tanks.

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Резервуардаги ёнғиннинг тарқалиши

It should be noted that there is a risk of fire in the reservoir parks of oil storage facilities in the event of strong emissions of flammable liquids into the atmosphere during high gassing.

The most dangerous technological process is the process of filling tanks with flammable liquids after prolonged emptying and filling tanks with hot gaseous liquids. This is because the static electric charges generated during the mixing of the liquid in the tank can rise to the maximum potential level. This can cause sparks. This can result in a high-risk explosion.

As a result of the accident, the earthen barriers built to prevent the spread of liquid spills from the reservoirs will be filled with water and oil products supplied during the fire, causing the piles to overflow into the area, making it difficult to remove.

One of the most dangerous situations is the sudden rupture of the reservoir, which quickly spills oil products, spills oil over barriers and spills oil into the entire reservoir fleet. The spill area depends on the capacity of the tank and can reach several thousand m2, as well as the collection of a large number of fire departments and a large number of firefighting equipment.

Another danger is that oil products spill out of the tank as a result of boiling water at the bottom of the tank. Burning oil can burn all equipment and appliances as it enters the production sewer.

In the first minutes of combustion on the surface of the liquid there is a temperature close to the boiling point. The combustion rate of liquids is up to 30 cm / h for gasoline, up to 24 cm / h for kerosene, 12-15 cm / h for crude oil and up to 10 cm / h for fuel oil. From the above data, it is clear that the difference between the rate of combustion of liquids and the rate of reduction of the surface area of the liquid in the tank is small, because we know that the temperature in the walls of the filled tank is not higher than the temperature of the liquid.

The height of the flammable liquid layer in the tank prevents it from bending. If the tank is not cooled, the wall of the board above the flammable liquid layer will heat up and begin to bend.

Therefore, the first firefighter to arrive at the scene of a fire will immediately arrange for the walls of the tanks to be cooled in accordance with applicable manuals and instructions. As a result of prolonged burning of crude oil and fuel oil, their heating begins to deepen to the bottom. The heating rate ranges from 25 to 35 cm per hour. As a result of this heating, the boiling oil may fall out of the reservoir into the area of the soil barrier. In addition, due to the spillage of burning oil, the fire can occupy large areas, the size and consequences of which can lead to major catastrophes.

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If the empty walls heat up to the point of ignition, the liquid may ignite spontaneously. Therefore, the fire chief arranges for the burning tank to be cooled to reduce the spread of the fire. If oil is being pumped from a burning tank, it must be stopped immediately, as an explosive air-vapor mixture will form under the roof of the tank as fresh air enters. In this case, the fire chief, with the help of the company's technologists and operators, should take measures to fill the tank with fuel or water to reduce the air pressure accumulated in the tank.

If an underground reinforced concrete tank is placed next to the burning tank, its air vents should be covered with felt and moistened with water. The fire chief prepares for a foam attack by burning and cooling adjacent tanks.

To prepare for a foam spray attack, the fire chief brings the required amount and reserve of foaming agents to the scene of the fire, assembles the foam fire extinguishers, installs the required amount of foam, and assigns them to the unit and trustees. announces signs to start and stop foaming to all personnel, and signs of retreat in case of danger of oil or oil products being thrown out of the tank or boiling.

When extinguishing a tank filled with petroleum products, the correct choice of the type of foam and the method of its delivery, depending on the type of flammable liquid, is the most important factor in extinguishing a fire.

In the event of a fire in the reservoir area, the fire chief calculates the required amount of forces and equipment, gathers them at the scene of the fire, organizes a fire brigade, which includes a representative of the administration and engineers and technicians, maintenance of reservoirs and communications. appoints persons responsible for the operation of the plant, activates fire extinguishers installed for cooling, and, if necessary, provides water protection to prevent the flow of flammable liquids into the combustion zone by the employees of the enterprise.

Organizes the separation and evacuation of rolling stock in the event of a fire on the loading and unloading platforms, cools the burning and adjacent tanks by means of carriages and QD-70 (hand handle 70), the amount calculated for shutting down and cooling the tanks (taking into account the reserve) Once the foam and dust have accumulated, the foam or powder begins to scatter, instantly inserting the foam handles as flammable and combustible liquids ignite inside the stack. If several tanks are on fire and the forces and means are not sufficient to extinguish the fire, start extinguishing the tank that does not endanger the non-burning tanks and process equipment, and when the fire is completely extinguished, start extinguishing the other tank.

Organizes fire extinguishers using windmills, truck lifts and foam lifts, and mechanically sprays the air with air. organizes the removal of collected water.

Controls the use of heat-shrinkable clothing to protect personnel working with the handles, and does not stop spraying foam until the surface of the tank is completely covered with foam once the fire in the tank has been extinguished.

In order to maintain the amount of flammable and combustible liquids in case of insufficient power and means, the fire chief simultaneously cools the walls of the tank and drains the fuel from the tank (in some cases). organizes the use of handles, cooling of burning and adjacent tanks.

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Particular attention should be paid to the protection of taps and incoming pipes, to reduce the pressure in the tank as much as possible, to release flammable gas from adjacent tanks to the torch, and to fill the tank with inert gases as much as possible when empty.

In case of burning of oil and oil products in tanks and reservoir parks, keep personal belongings, cars, equipment, safe boiling distance from flammable tanks, taking into account the possible boiling, explosion, possible leakage of flammable liquids and the situation in the smoke area, do not install equipment on the windward side. It is necessary to set single alarms for early warning of danger and to inform all personnel working in case of fire (accident), to determine ways of evacuation to a safe place. The evacuation signal for personnel must be radically different from all other fire alarms.

In the event of a spill of oil or petroleum products, it is forbidden to place hand supports in the area of the barrier wall around the burning tanks, which is not covered with a layer of foam, and in the absence of working foam generators or foam handles. Personnel of the units must work in heat-repellent and heat-protective suits and under the protection of spray water streams.

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