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OPTIMAL CHOICE OF APPLICATION OF GUARDING-WARNING SYSTEMS IN THE PERIMETER OF THE AIRPORT

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In recent years, unauthorized entry into the security zones of airports by intruders has been observed [1]. Thus, on June 30, 2007, a Jeep car loaded with propane tried to rob the Glasgow airport in England. As soon as it was detected by the video surveillance system at the initial stage, the car entering the airport territory by destroying the guarding fence installed on the perimeter, the backup protection system was activated and the car got stuck between the partitions of the second contour of the perimeter guarding system and burned. Another incident occurred after a person crossed the outer perimeter line at the Los Angeles airport. The suspect, identified by police as 31-year-old Matthew Mayne, attempted to climb under the fence. The most surprising thing is that the airport did not have a warning system [2]. From this point of view, the problem of «perimeter guarding» is considered one of the most urgent issues that requires serious attention in terms of critical situation analysis, the optimal choice of the application of the guarding-warning system, and special research.

When guarding the perimeter of the airport, it is necessary to consider the following [3–5]:

- the free access of outsiders, vehicles and animals to the territories of airports and guarded objects by using guarding engineering and technical means, perimeter and guarding warning, video surveillance system, guarding communication and lighting, night vision devices, watchtowers implementation of the preventive fencing system and maintenance of this system;

- placing warning signs prohibiting the passage of outsiders and vehicles into the controlled zone at the airport and protected facilities;

- the fence between uncontrolled and controlled areas must provide a physical barrier that is clearly visible to the general public and prevents unauthorized access. A minimum fence height of 2.44m is recommended to make climbing difficult. The fence must be installed in such a way that it is not possible to dig its bottom or crawl under it;

- due to security and operational conditions, metal barriers cannot be used in some areas of the perimeter, especially near the runway, as they may interfere with the normal operation of navigational aids;

- an emergency gate or «emergency barrier» should be installed on the security fence of the airport perimeter to ensure the unhindered access and exit of emergency vehicles to the accident site both at the airport and outside the airport;

- the entire area of the fence must be guarded by patrolling, etc.

It is essential to have a flexible guarding-warning system that meets the requirements listed above and can adapt to the changing terrain of the airport. Currently, the importance of improving the perimeter guarding-warning system has led to the emergence of a large number of technical means. Consumers are offered vibration, seismic, infrared, capacitive and other guarding means. Sometimes, the optimal choice of technical means for the integration of perimeter guarding-warning systems creates difficulties [6].

The guarding-warning system should perform regular inspection of the fence line, which is essential to maintain the integrity of the perimeter. The system should also provide

an immediate alarm when necessary and identify an intruder. The system includes lighting system and cameras for remote day and night monitoring, GPRS communication system for remote control, microphone to communicate with intruders, etc. should have [7].

The correct selection of the composition of guarding-warning systems also lays the foundation for protection from excess costs during operation. Improving security systems around the world certainly brings financial and economic benefits. It is quite difficult to objectively evaluate and compare the cost of systems in numbers, because manufacturers and installers usually do not give exact figures. When evaluating the costs, it is necessary to take into account that perimeter guarding-warning systems are mainly designed for long-term operation, and first of all, the total costs of the equipment should be estimated. The price of the systems differs depending on the length of the guarded perimeter, which is an important criterion when choosing one or another type of equipment.

In general, taking into account the condition that the price of the guarding system is from 5 to 20 % of the value of the protected property, the percentage ratio of the price of the guarding system to the percentage of the resources of the guarded object is 5–20 % of the obtained price, which determines the economic efficiency of the implementation of the guarding-warning system [8].

Conclusion. Based on the analysis, it was determined that for the guarding of civil aviation facilities, it is important to pay attention to the implementation of new devices that are integrated into the perimeter guarding-warning system, provide higher accuracy, allow timely detection of the intruder, are effective and economically efficient. For this, it is appropriate to consider the optimal choice according to the requirements listed above during the implementation of the integrated perimeter guarding-warning system in airports of strategic importance.

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