ANNOTATION

Dissertation work of Ismailov Bakhytzhan Abdukhalikovich on the topic:
«Improvement of life-saving technology and organizational production of polycomponent mineral fertilizers" ZHAMB-70"» submitted for the degree of Doctor of Philosophy (PhD) in the specialty 6D073100-«Life Safety and Environmental Protection»

Relevance of the topic. Currently, there are changes in priorities that ensure the stability and continuity of the security of key business processes in modern organizations and production facilities to protect people's lives and property.

Many advanced security management systems focus on solving a global problem based on many interacting nodes. At the same time, it is necessarily divided into a global conceptual model of processes that ensure the safety of an object, a global success criterion, resources and knowledge, management and responsibility. Coordination remains the main direction of the coordinated interaction of open architecture-distributed security management systems. Coordination will affect lower level systems and force them to act in concert.

In general, coordination is carried out to achieve a common goal in the performance of work and is carried out by a higher system. Success in solving this problem is measured by the overall and global goals of the system, since the overall systems work to achieve their individual goals.

Modern security systems are complex complexes consisting of hundreds and thousands of components from various manufacturers located on large territories. Combining all equipment into a single system has so far only partially solved – only as separate specialized subsystems: Security, Fire, access control or video surveillance systems. At the same time, there has long been a need not only to organize effective interaction of components officially owned by any of these specialized subsystems, but also to organize flexible and operational access of various services to information of interest to them at the workplace.

The need to evaluate the effectiveness of the management of integrated security systems arises due to the widespread use of integrated systems of Technical Safety and life support in commercial and state structures.

It should be noted that the most important task of coordination in the most common security systems is its management, where the primary link of Management in the regional system is considered to be an object, and among them there is a class of potentially dangerous industries, where the environmental component of the safety of life of the technological process becomes an important urgent task.

The relevance of developing the principles of safety management of industrial enterprises is due to the emergence of technologies and new additives

for the disposal (processing) of technological waste to ensure the safety of life of employees and objects related to the environment as service providers.

Fruit growing is facing new challenges due to climate change and the need to reduce the environmental impact caused by the use of agricultural products. The only way to believe in innovation is through more accurate planning of your activities with the support and advice of specialized agronomists.

Fertilizers are classified according to various criteria. The main feature is their origin. They are also classified according to their physical state and mode of action, as well as the way they are applied to the soil.

The most popular are mineral fertilizers. They are used in many different plants. Minerals are necessary to feed the soil with nutrients, which can be phosphorus, potassium, nitrogen and others. These substances can be used for other fertilizers, they will never be superfluous, and most importantly, do not overdo it. Only then will you get the desired result from your soil. Most often, complex fertilizers are used, as they are considered much more useful than others.

Object and subject of research. The object of the study is the production of 500 kg of complex mixed mineral fertilizer "ZHAMB-70" per day in laboratory 118b of the M. Auezov South Kazakhstan University.

The subject of the study was the order of optimal technological parameters for the production of long - acting polycomponent mineral fertilizer "ZHAMB-70" in the course of conducting experimental tests for the production of polycomponent mineral fertilizer.

Scientific novelty of research. Scientifically-based technical and technological solutions for managing the safety of production and use of long-acting tukosp "ZHAMB-70" based on man-made phosphate raw materials of the enterprise for the production of phosphorus and coal mining with the introduction of natural Glauconite as an adsorbent have been developed.

Models of safety systems have been developed for the production of a carbon-containing tukospa "ZHAMB-70" in a composite mixture of peeled Alumo-silicate compounds.

Updated models of emergency situations in the production of tuk mixture "ZHAMB-70" based on GIS technologies, which are transferred to operational actions to prevent and eliminate emergencies at the facility in the production of environmentally friendly products with a reduced content of heavy metals in the roots of various agricultural crops, have been proposed.

A software package and algorithm for managing the safety of the production of propellant have been developed.

Practical significance of the study. During the practical tests, the main technological parameters and heat-technological regime for obtaining long-acting polycomponent mineral fertilizer "ZHAMB-70" for environmental and technological life safety were determined.

Recommendations were made to protect the population in the sanitary protection zone by applying protective measures using the information and management system of integrated safety of an industrial enterprise.

Purpose of the work - Ensuring the transition to operational action to prevent or eliminate emergencies at potentially dangerous facilities using new scientifically based solutions for the safety management of the production facility for the production of polycomponent mineral fertilizers" ZHAMB-70".

To achieve this goal, the author developed and solved the following scientific tasks:

- analysis of the conditions for ensuring the safety of potentially dangerous objects in the production of polycomponent mineral fertilizers;
- modeling the safety of potentially dangerous objects with the assessment of models of emergency situations at production facilities;
- development and research of the structure and functions of a comprehensive environmental monitoring system on the example of a production enterprise object that receives tukosp products;
- development and research of algorithms for creating an integrated security management and information and management system at the enterprise receiving tukosp products;
- creation and analysis of the principles of operation of a comprehensive security system at the production facility where tukosp products are received.

Implementation of the work. Results of the study work was carried out to improve the industrial sanitation of the technological model with a capacity of 500 kg of polycomponeted mineral fertilizer "ZHAMB-70" per hour, located in 118 offices of Building "B" of the M. Auezov South Kazakhstan University. Technological models of dust removal and transportation of fresh air to the environment through a ventilator have been developed in the cyclone TSN 15/24 and water scrubber dust collection unit to the mixers and bunkers of the production unit.

Accuracy of work results. The method of conducting experimental studies on the production of polycomponent mineral fertilizers that ensure environmental safety and is confirmed by determining the properties of improving the sanitation of the production site using modern methods.

Basic provisions submitted for protection:

- natural Glauconite was introduced as an adsorbent for the production of polycomponent mineral fertilizer "ZHAMB-70" on the basis of man-made phosphate raw materials of the enterprise for the production of phosphorus and coal mining;
- At the experimental installation for the production of polycomponent mineral fertilizer" ZHAMB-70", tests were carried out to determine the optimal production parameters;
- developed scientifically based technical and technological solutions for safety management for the production of mineral fertilizers;
- development and research of algorithms for creating an integrated security management and information and management system at the enterprise receiving fertilizer products.

Communication with the research work plan."The work is in accordance with the grant work of the Ministry of Education and Science of the Republic of

Kazakhstan: "" study of changes in the composition of sanitary – epidemiological, toxicological and Radiological compounds in cereals, carrots, corn and soybeans when using complex mixed NPK-fertilizers with long-acting humates to ensure environmental safety "" for 2015-2017 and under the state budget program of research work of M. Auezov South Kazakhstan State University for 2016-2019." on the topic:"development and creation of innovative technologies for thermochemical enrichment, research on the extraction of industrial and environmentally safe mineral fertilizers and salts from natural raw materials and man-made waste of various industries".

Approbation of dissertation results. Results of theoretical and experimental scientific research and its individual stages VESTNIK of KazNRTU;M. Auezov South Kazakhstan State University, Proceeding V, VI International Conference «Industrial Technologies and Engineering» ICITE; III international conference «Industrial technologies and engineering». M. Auezov South Kazakhstan State University and the International scientific-practical conference "Kazakhstan's way: 25 years of peace and creation with the leader of the nation" Dedicated to the 25th anniversary of independence of the Republic of Kazakhstan discussed at international and republican scientific-practical conferences, Materials of the 15th International Scientific and Practical Conference. Actual problem of modern science and Acknowledgment Letter. Journal of Environmental Biology. (An International of Environmental Sciences/Toxicology) Websiteалыс and published in nearby foreign magazines.

Personal contribution of the dissertator:

- analyzing the studied works on glacanite, which is added as an adsorbent, it was found that Glauconite, which is an alumosilicate substance, contains calcium, magnesium, iron, potassium, phosphorus, sulfur, manganese and other trace elements, as well as internally purified rocks;

-according to the stages of technology, the temporary reasons for the appearance of potentially dangerous objects (ICN) in the process of production of polycomponent mineral fertilizer "ZHAMB-70" were identified;

-at the experimental installation for the production of polycomponent mineral fertilizer" ZHAMB-70", tests were carried out to determine the optimal production parameters;

-вased on the results of laboratory studies, the formation of dust, sulfur and fluorine emissions during combustion of 1023 and 1223K levels of Criterion functions and limit values of indicators when optimizing the technological process of charge combustion from phosphate raw materials, vermiculite and internal stripping rocks was studied;

-in the course of practical tests, the main technological parameters and heat-technological modes for obtaining long-acting polycomponent mineral fertilizer "ZHAMB-70" for environmental and technological life safety were determined.

Information about publications. The scientific results obtained from the research work carried out are 18 scientific papers, including: 2 in journals with a non-zero impact factor, 3 in journals submitted by the quality assurance

committee in the field of education and science of the Ministry of Education and Science of the Republic of Kazakhstan, and 11 articles in abstracts of reports at scientific and technical conferences, as well as 1 decision on granting a patent for a utility model.

The volume and structure of the thesis. The dissertation work consists of an introduction, 5 main chapters, 32 Figures, 32 tables, conclusions, a list of 107 used literary and patent sources and 4 appendices. The volume of work is 139 pages, including 117 pages of the main text.