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IMPROVEMENT OF AUTOMATION SYSTEMS IN THE OIL AND GAS INDUSTRY BY IMPLEMENTING THE SPECIALIZED DIGITAL NETWORK SAFETYBUS P

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Abstract. *At oil and gas enterprises, there is a lot of production equipment, interaction with which can be dangerous for the health and life of employees of these enterprises. As a result of studies of existing specialized digital networks, it was established that the elements of the SafetyBUS p network contribute to the protection of equipment and people by directed control of potentially dangerous human movements. In the event of danger for workers, the specialized digital SafetyBUS p network can provide an emergency stop. In connection with the above, at oil and gas enterprises it is expedient to implement automated production control systems based on the specialized SafetyBUS p digital network at production sites where there is a danger to the health and life of employees of these enterprises.*

Key words: *specialized digital network, SafetyBUS p, fieldbus, control system, automated control system.*

Introduction.

Many production facilities in the oil and gas industry pose a threat to people's health and life.

One of the ways to reduce the danger to workers and their health is preventive measures for occupational health and safety through education and clarification of existing dangers and ways to prevent harm to people.

Another way of minimizing the danger to workers and their health is the implementation of appropriate technological solutions in the management systems of technological processes and production.

Main text

Currently, in the world, more than a hundred specialized digital networks are used in the automation systems of technological processes and productions [1-3].

The analysis of existing specialized digital networks showed that the SafetyBUS p network successfully provides increased safety in the technological lines of car manufacturers and in factories where they are used [4-6]:

– metal cutting machines;

– mechanical presses;

– packing machines.

Ensuring the safety of people at the above industries is facilitated by the use of sensor technologies in the SafetyBUS p network [4]:

– PSEN opt safety light barriers;

– safety sensors PSENmag, PSENmech, PSENbolt

– PSENvip intelligent optical system to ensure the safety of presses;

– intelligent SafetyEye system for 3D video surveillance.

The above-mentioned technologies, which are implemented in the specialized SafetyBUS p digital network, make it possible to make the work of people in dangerous industries safer.

The use of the following in this network will also contribute to the improvement of the safety of workers at complex productions, where the production control automation system based on the specialized SafetyBUS p digital network is used:

– functional safety relay;

– electrical safety relay;

– special servo converters;

– movement management systems;

– signaling devices.

Sensor safety sensors of the SafetyBUS p network provide effective protection of people from accidents in logistics processes and production.

SafetyBUS p network elements contribute to the protection of equipment and people by directed control of potentially dangerous human movements. In the event of danger for workers, the specialized digital SafetyBUS p network can provide an emergency stop.

Pilz motion control technology enables the creation of complex, scalable and safe drive technology: from manual drive to the use of highly dynamic drives that take into account all aspects of safety [4].

Systems for maintenance, process visualization and signaling are the link

between machines and people. The built-in diagnostic system is especially important. Informative and fast diagnostics based on the Pilz standard always ensure a reduction in costs and downtime.

Considering the peculiarities of oil and gas enterprises, it should be noted that there is a lot of production equipment, interaction with which can be dangerous for the health and life of employees of these enterprises.

In connection with the above, it is expedient to implement automated production control systems based on the specialized SafetyBUS p digital network at oil and gas enterprises.

Summary and conclusions

At oil and gas enterprises, there is a lot of production equipment, interaction with which can be dangerous for the health and life of employees of these enterprises. As a result of studies of existing specialized digital networks, it was established that the elements of the SafetyBUS p network contribute to the protection of equipment and people by directed control of potentially dangerous human movements. In the event of danger for workers, the specialized digital SafetyBUS p network can provide an emergency stop. In connection with the above, at oil and gas enterprises it is advisable to implement automated production control systems based on the specialized SafetyBUS p digital network at production sites where there is a danger to the health and life of employees of these enterprises.

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