Structure monitoring subsystem in system of complex technological systems

O.M. Zigunov Sumy College of Food Industry National University of Food Technologies V.D. Kishenko

National University of Food Technologies

The efficient managing of complex technological system can be greatly enhanced with the help of control scripts using. These models reflect the processes of changing in time of phase coordinates and object's functions conditions. The system fixes the transitions to a new qualitative state from managing point of view.

In order to notice changes in the objects, there is a need for special reseach changes of technological which are processes influenced by various factors including human activities.

The system of repeated studies of one more elements in the control object in space and time with a specific purpose in according with the program was proposed to name – monitoring.

It should be noted that the system of monitoring changes in facilities management is not a new system which requires networking of new monitoring stations, power lines and telecommunications, data centers and etc. It is a part of managing system of complex technological system [1].

Thus, the system of technological monitoring for providing of system functioning management of complex technological system can indentify changes which are caused by functions of technological process when the information about the different variations and changes in the environment is required.

Monitoring includes the following main activities:

1. Observations on the factors which affect the environment and the state of the process.

2. The assessment of the actual state of the process.

3. Forecast of technological process and assessment of condition.

It is necessary to create and maintain knowledge base for the classification. It takes into consideration the operating experience of similar objects, simulation results, expert opinion, etc [2].

The task is to build a top level – smart analysis, monitoring and management, using the lower level feasibility APCS diffusion separation sugar factory.

On the lower level process control system, namely the level SCADA – system information via API's OPC - collectors arrive at the top level – the level of a single archive Historian, where the current of archiving the database. These laboratory tests come back up into the system through laboratory workstations through mediation File collectors.

The integrated subsystem of the Excel Add in the only interface which allows to get the information in third-party programs on the environment - Archive Historian. This interface allows to playback the information at the tables Excel and the through APIs Excel transmit on the upper level - the smart automated control of

diffusion apparatus.

Subsystem monitoring technology department of diffusion is released by the way of integrating environmental MVTU [3] and developed software in C# environment.

In turn, the processed data is transmitting to the level of production analysis MES level – the level of production management.

Processed information systems through APIs Excel Add is arriving at the level SCADA – system (Fig. 1).



Fig.1. Integration of subsystem process monitoring in the information chain sugar production

References

1. Yo-Ming Hsieh, Yu-Cheng Hung A scalable IT infrastructure for automated monitoring systems based on the distributed computing technique using simple object access protocol Web-services Automation in Construction. - Volume 18, Issue 4, July 2009, Pages 424–433

2. Ladanyuk A.P., Reshetyuk V.M., Kishenko V.D., Smityuh Ya.V. Innovative technologies in the management of complex objects biotech agriculture. Monograph. - K.Publisher: TSUL – 2014, 280 p.

3. Benkovych E.S. Practical Modeling of Dynamic Systems./ Benkovych E.S., Y.B.Kolesov – SPb.: Peterburg, 2002. – 464p.