

*Materials of Conferences***SYSTEM PLANNING AND MANAGEMENT OF SHUTDOWN MAINTENANCE FOR CHEMICAL FACILITIES**

Egorov S.Ya., Shirokova S.D.,  
Egorov E.S., Betin E.A.

*Tambov State Technical University,  
Tambov, e-mail: egorovsy@yandex.ru*

The aim of the work was to develop operational planning and control system for shutdown maintenance of chemical facilities. The importance of the problem is related to the large monetary losses due to during production due to equipment downtime during shutdown maintenance [1].

The system under consideration includes four subsystems: the collection and processing of initial data; planning and management; supply of spare parts; issuing of documentation.

Subsystem for collecting and processing of initial data provides a baseline data collection and processing of initial data for the initial construction, calculation and optimization of the network model, and for the rapid adjustment of the calendar plan on the stage of operational management.

Subsystem for planning and management is a set of graphical and computational methods, organizational measures and monitoring techniques which provide modeling, analysis and dynamic restructuring of the plan which is needed for complex projects and set of work realization. Realization of the planning and management functions of the set of work is carried out on the basis of construction, analysis, optimization and periodic updating of network models. On the basis of individual work mod-

els the generalized network model of all repairs in general is constructed and calculated. In the capacity of optimization problem criteria of the network model the following is used: capital repair costs, salaries of the repair person-la; the time of repairs; the variance of resource changes; the sum of the squares of the needs in resources.

Subsystem for supply of spare parts quickly recalculates the network model of repair works in dependence on the supply of one or another spare part.

The issuing of documentation includes: a schedule of shutdown and capital maintenance, a schedule of spare parts and components shipment; specification of works; statements of labor costs.

The final product of the system: identification and mobilization of material resources and time reserves which are hidden in irrational organization of the production process; project management with prediction and elimination of possible failures; improvement of the technical performance of the project; efficient management. The economic effect from the use of the system is 8–20 percents, depending on the complexity of the shutdown maintenance.

**References**

1. Egorov S.Ya, Kartashov A.S. Development of the system for calendar planning of shutdown maintenance // Repair, restoration, modernization. – 2006. – № 12. – P. 24–31.

---

The work is submitted to the International Scientific Conference «Production management and natural resources», France (Paris), March, 19–26, 2016, came to the editorial office on 04.03.2016.