NEW TYPE PERSONNEL POSITIONS ON SUBDIVISIONS OF OPERATING HYDRAULIC STRUCTURES AT ELECTRIC POWER PLANTS

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New type personnel in the hydraulic-engineering shop (a section of the hydraulic structures) at an electric power plant and a group of observers (specialists-inspectors) for hydraulic structures making up electric power plants are confirmed by the Main Engineering Administration of the Ministry of Power and Electrification of the USSR [1, 2]. Both positions were drawn up by the State Trust for Organization and Efficiency of District Power Plants and networks on the basis of a generalization of operational experience gained with hydraulic-engineering shops and sections, and also a group of observers for operating electric power plants. The preparation and publication of these positions is the next step in continuing work involving improvement in the operational organization of hydraulic structures at electric power plants, and the increase in their reliability and safety.

The type position in the hydraulic-engineering shop of a hydroelectric plant qualifies the shop as a production-engineering subdivision of the hydraulic plant or network of plants. Where there is a consolidation of shops or a structure without shops, a section of the hydraulic structures fulfills the function of the hydraulic-engineering shop. The hydraulic-engineering shop is subordinate to the director and chief engineer of the hydroelectric plant; the section of the hydraulic structures is subordinate to the chief of the unified shop and to one of the supervisors of the hydroelectric plant as a function of the administrative structure established for a given hydroelectric plant. In the absence of a hydraulic-engineering office that monitors the operation of the hydraulic shops at the power plant and provides them with necessary orderly data and instructions relative to the operation and repair of the hydraulic structures, the hydraulic-engineering office of the power administration, or appropriate specialists of other offices, supervise the activity of these subdivisions in an orderly manner. The basic assignments and functions of the subdivisions are defined in the type position. The basic assignments of the hydraulic shop (section) of the hydroelectric plant is to ensure the safe condition and reliable operation of the hydraulic structures.

For this purpose, the hydraulic shop carries out the following functions: organizes and conducts preventive maintenance on the hydraulic structures; continuously monitors their condition and operation according to a schedule sufficient to detect the exposure of flaws, damage, and emergency sites and situations; takes measures to eliminate flaws and damage sustained by the hydraulic structures; maintains monitoring-measuring apparatus in serviceable condition and installs auxiliary apparatus, etc. The hydraulic shop also provides technical supervision and inspection for the organizations responsible for hydraulic structures being repaired and rebuilt, participates in the development of measures for the multi-purpose use of water and for protection of the surrounding environment, and participates in the investigation of emergencies and breakdown of the service structures.

The organizational structure and number of personnel in the hydraulic-engineering shop is determined by the director of the hydroelectric plant or a network. The hydraulic shop in a hydroelectric plant may be composed of a repair-operational section with operating and repair-construction crews, a group of observers, auxiliary sections and subdivisions (a nonindustrial section, workshops, warehouses, etc.). The scope of basic duties assumed by each of these subdivisions is set forth in the type position. The duties of the group of observers responsible for the hydraulic structures are stated in accordance with the type position concerning this subdivision (see below). The rights and duties of the chief of the hydraulic-engineering shop, the chief foreman, and the foreman of the hydraulic-structure section are determined by the type position. Among other things, the chief of the hydraulic shop has the right to participate in the development of measures concerning the rebuilding of hydraulic structures and mechanical equipment, the complex mechanization of operational...
and repair work, the automation of measurements, and the scientific organization of labor, which contribute to an improvement in the technicoeconomic indicators of the operation of the hydroelectric plant and an increase in the labor productivity of operations personnel.

The type position regulates the interrelation between the hydraulic-engineering shop and other shops and subdivisions at the hydroelectric plant. All subdivisions of the plant are obligated to coordinate activities relative to the rebuilding and repair of equipment with the hydraulic shop, if the activity is related to a change in the operating conditions of the structures (a load increase on the roof and columns, the installation of additional openings and apertures, etc.). Personnel in the hydraulic shop are obligated to coordinate repair-work charts with other shops and to inform them of emergency areas and situations in the structures and of hydrological and meteorological complications. Personnel in the electrical-engineering laboratory of the hydroelectric plant should operate and repair devices and the facilities of automatic equipment with resources available at the hydraulic-engineering shop and check measuring and recording devices used by the hydraulic shop. The duties of providing the hydraulic shop with technical documentation, organizing the execution of planned operations associated with the rebuilding of hydraulic structures and their equipment, the development of specifications for expendable materials, spare parts, etc., and coordinating them with the hydraulic shop are bestowed on the production-engineering division.

The type position in the group of observers (specialists-inspectors) responsible for hydraulic structures is expanded to include operating hydroelectric plants, and thermal and nuclear power plants. The position calls for the organization of a group of observers to cover water-retaining, water-intake, and other hydraulic structures at electric power plants (dams, dikes, canals, tunnels, pipelines, separators, intakes, ash-dump dikes, etc.). The group is organized from a specified number of personnel; the post of specialist-inspector of hydraulic structures may be established at the discretion of the director of the electric plant as a function of the volume of work involving the observation of hydraulic structures and the quantity of monitoring-measuring apparatus. The duties of inspector may be conferred on a foreman of the hydraulic-engineering section, provided he can complete the work assigned to him, and the combination does not subtract from the supervision called for by the regulations governing the technical operation of electric plants and networks and by other instructional documents. The organization of a centralized group of observers is assumed for networks of hydroelectric plants or for power administrations; this group of observers is responsible for the hydraulic structures of several electric plants.

In problems concerning administrative-economic and production-engineering activity, the group of observers (inspectors) is subordinate to the chief of the hydraulic-engineering shop or the chief engineer (director) of the electric plant. The group of observers is supervised in an orderly manner by the hydraulic-engineering office of the power administration, or, in the absence of such an office, by appropriate specialists of other offices; among their duties are the monitoring of the group of observers and inspectors for the observance of rules and instructions regulating their activity; and providing the group and inspectors with necessary methodical data and instructions (with the summoning of scientific-research, repair, and other organizations in required cases).

The group of observers is charged with the basic task of monitoring the reliability and safety of hydraulic structures by systematically inspecting their condition and operation. The inspections should reveal damages and unfavorable processes in the performance of the hydraulic structures, possibly at an earlier stage, and provide engineering data on which to base repair measures and on which safe operating conditions are designated. The observers make regular inspections of structures, obtain measurements from monitoring-measuring apparatus and process the data, evaluate the reliability and safety of the structures on the basis of local instructions, draw up proposals for priority repair and rebuilding work, etc. The activity of the group of observers should ensure the timely disclosure of damage or an emergency situation in the hydraulic structures; in this case, plant management should turn over the initiative taken by the group of observers to design, scientific-research, and repair organizations for consultations on complex problems involving the evaluation of the condition of structures. Also among the duties of the observers is the compilation of annual reports with an analysis and generalization of the results of observations made on the hydraulic structures, and data on repairs, rebuilding, and other measures.