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STUDY OF THE GRAPH ANALYTIC METHOD OF DETERMINING THE WORKING MODE OF A PUMP DEVICE FOR REDUCING THE MINE FROM GROUNDWATER

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ANNOTATION

This in the article n on finding and using reserves to increase the operational efficiency of basic equipment, determine the level of regulation of pump operation modes, as well as reduce energy and material costs for their operation in mining enterprises data given.

Keywords. basin, pump, station, aquifer, mine, pipe, water, flow, device, coefficient of useful work.

INTRODUCTION

In our republic mining industry fast development in the field being used technological equipment and of devices long lifetime continuously respectively performance and the work of ability complete preserved standing such as to factors depend Mine dewatering and necessary technical requirements according to water bodies preparation advanced constructive and technological methods work to issue application make , technological of processes integrity provision , technological of equipment long lifetime work provide and good quality products work release present of the day current from tasks one is considered

Dig up being received raw material product in the composition hydrogen supplied , sumptuous another of compounds and carbon of oxides to be ore transport and again work in processes applied of equipment the work ability sharp effect does Layer waters and his contained salts and another corrosion active additions strong corrosion decay properties have that it was for products inter-mining transport in the process applied technological equipment : pipe transmissions; reservoirs, pumps, closure fittings and another that's it such as devices internal in the part corrosion environment harvest does.

MATERIAL AND METHODS

Mine dehydration works located in the horizons pump stations through done is increased . Directly land under waters from the mine out on the horizon pump stations using land to the surface is issued. During mine development, based on the information in the project, an operational account book is kept for the release of underground water in the mine to the surface . Single or multi-stage reservoirs are selected based on operational experience and technical-economic indicators.

Scientific research is being carried out to increase the operational efficiency of pumping equipment, to determine the level of regulation of pump operation modes, as well as to find and use reserves to reduce energy and material costs for their operation in mining enterprises. In

this regard, special attention is paid to increasing the operational efficiency of pumping equipment based on the development of technical solutions that save energy and resources.
Normal daily water flow is determined by the following expression:

$$Q_н = \frac{A^{ш}_{год} \cdot k_в}{D_к}, \frac{м^3}{сут}, \quad [1]$$

Here at : $k_в$ - water content coefficient ; D_k is the number of calendar days in a year .

The calculated pressure of the pump defined by the following expression:

$$H_р = H_г = H_{вс} + H_ш + H_{сл}, м, \quad [2]$$

Here , $H_р$ is the geodetic height of the pumping device , m; $H_{ВС}$ – suction height of the pump , m; $H_г$ – driving height h , m ($H_г = H_ш$); $H_{сл}$ – lifting height, m.

The main pumping unit must be provided with at least 2 pipe conduits. One of them is in reserve. We choose a popular mine dewatering scheme, in which switching valves are connected in parallel for equal ignition. In this case, the driving pipes 8 and 9 are connected with the mutual protection wall 5. 2 switching valves 10 are installed on each protective wall, and the pump 4 is connected through them (Figure 1).

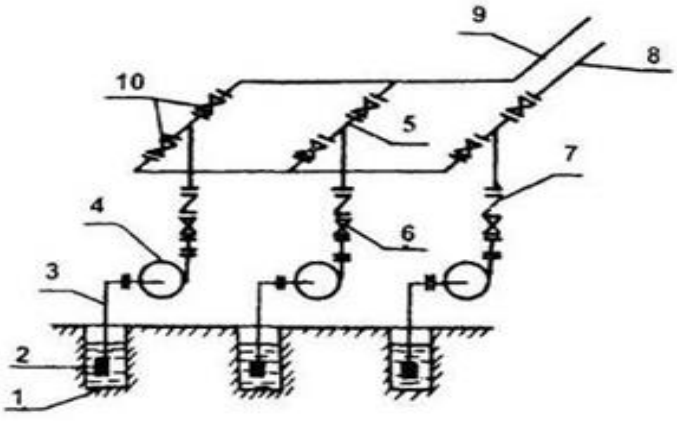

Figure 1. Folk scheme of mine dewatering

External network x a r a cteristics of the pumping device by calculation we calculate based on the furthest water section of the mine .
The inner diameter of the water pipe is determined by the following expression:

$$D_н = \sqrt{\frac{4 \cdot Q_н}{3600 \cdot \pi \cdot V_н}}, м, \quad [3]$$

Here V_H is the speed of movement of water in the pipe , m/s (V_H =2 m/s).
Network characteristics of the external pressure generated by the pumping device we calculate easily by the following formula.

$$H_с = H_г + R_{тр} \cdot Q^2, м \quad [4]$$

RESULTS

Pumping device work mode calculate indicators

Table 1

Q, m ^{3}/hz	0	95	190	285	380	475	570	665
R Q^2, m	0	4.5	18	40.6	72.2	112.8	162.5	221.1
H	485	489.5	503,	525.6	557.2	597.8	647	706.1

Discussion. The pump has 6 and 7 working wheels , daily water supply of the mine flow There will be 8 working wheels for driving . H = 560 m; η = 71%; Q = 390 m^3/hz.

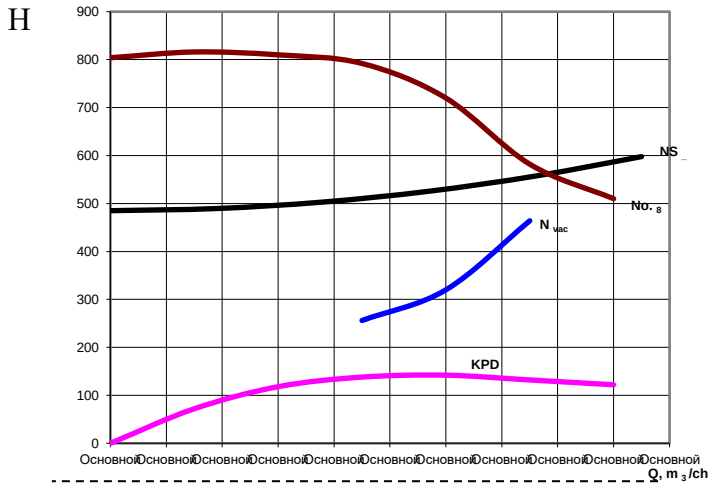

Figure 2. of the pumping device mode of operation to determine graph analytic style

CONCLUSION

Pump aggregate with hydroelectric of the pump together the work mode to determine graph analytic methodology work released As a result blurry cleaning of the device water consumption , pressure , power and useful the work of the coefficient the values of , that's it basically saving electricity of energy the amount determination opportunity is created.

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