Latest version of the technical specification for mine pumped water storage

How does a mine drainage pump work?
1. Introduction

How to calculate the volume of underground water storage space of abandoned mine?
Therefore,the volume of underground water storage space of abandoned mine can be expressed by Eq. (11): (11) V s w = V v w +V r w +V c w +V f wWhere Vsw is the total volume of water storage space,Vvw,Vrw,Vcw and Vfw are the water storage volume of virgin rock,roadway,caved zone and fractured zone,respectively.

How are water pumps used in underground mines?
These solutions can be provided in containerized units for ease of installation and transportation. There are several applications in underground mines where pumps are utilized. Pumps are used to remove water from mine faces and stopes. Water is transported in stages to collection stations where larger pumps are located along the drift and ramp.

How does a mine drainage pump work?
Normally smaller drainage pumps are used at the mine faces, medium-sized pumps for pumping between stages, and larger pumps to move the water between different levels. Mine water from all parts of the mine is collected in the shaft bottom sump and then transported to the main drainage pump station.

How to establish the abandoned mine heat storage model?
The key to establish the abandoned mine heat storage model is how to accurately evaluate the underground water storage space. The underground water storage space of abandoned mine can be divided into primary space and secondary space.

What types of pumps are used at mine sites?
A combination of submersible pumps,horizontal process pumps and vertical pumpsare commonly used in the feed to the process. Other common applications for pumps at mine sites are tire washing plants,washdown of plant and machinery,and dust suppression.

What's new in the simulated mine water system?
A glimpse into the simulated mine water system. This updated version includes a re-organization of model elementsto provide a clearer and more intuitive visualization of the water balance pathways throughout the simulated mine site.

All water meters, including vacant meter positions and check meter positions, shall be arranged in groups and

housed in meter rooms or meter boxes. The meter rooms/boxes shall be used solely for ...

Abstract The utilization of Underground Pumped Storage Power Systems (UPSP) addresses the growing need for energy storage in the face of increasing intermittent energy sources. ...

Considering the gradual maturity of storage and energy storage technology of abandoned mine reservoirs, the combination of storage and energy storage technology of abandoned ...

Innovative technologies for sustainable post-mining solutions include the geothermal use of mine water and the pumped energy storage using the mine infrastructure, taking advantage of the ...

Then, by combining the abandoned mine data, eight different sets of parameters of pumped storage are selected for the optimal configuration study, and the factors influencing the pumped storage ...

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The aim of the study was to propose a framework for practical and fundamental model functional designs for the modernization of mine water pumping stations in light of the energy ...

Abstract: Utilizing the abandoned mine to construct pumped storage plant is not only a new form of exploration, but also a bidirectional product on account of the demand of power market and ...

This study provides a detailed review of China"s latest developments in PSPPs, including the current status of conventional PSPP projects, models, and the application potential of ...

Finally, this paper discusses the challenges of developing underground pumped storage, and proposes suggestions to prioritize the development of underground pumped storage with artificial excavation of ...

Underground pumped storage reservoir using abandoned coal mine could achieve not only high efficiency underground space utilization, but also realize a large scale renewable energy storage, ...

Notably, the realization of open-cast coal mines as a pumped storage system for grid-connected PV systems is purely novel. As open-cast coal mines are enormous craters, which are left ...

Water is critical for every mine site - without water the mine could not operate. Pumps are, there-fore, one of the most used machines in mines today. In this article we will review the concepts of mine ...

Objective. In this paper we discuss the technical features and economic viability of an Underground Pumped

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Hydroelectric Energy Storage (UPHES) system in the Far West Rand (FWR) ...

Abstract Abstract: Utilizing the abandoned mine to construct pumped storage plant is not only a new form of exploration, but also a bidirectional product on account of the demand of power market and ...

The construction of a reservoir inevitably changes the water temperature situation of the original river channel. The expansion of pumping and storage units on a pre-existing reservoir, ...

Pumped hydro storage (PHS) is the most common storage technology due to its high maturity, reliability, and effective contribution to the integration of renewables into power systems. ...

JIP33 Specification for Procurement Documents Supplementary Technical Specification This specification is to be applied in conjunction with the supporting data sheet, quality requirements ...

plants, pumped storage plants are net consumers of energy due to the electric and hydraulic incurred water to the upper reservoir. The cycle, or round-trip, efficiency of a pumped storage plant between ...