Geological work of water storage power station

What is the lithology of underground powerhouse?
The main conclusions are as follows The lithology of the underground powerhouse is mainly composed of sandstone,conglomerate,and Siltstone. The rock masses have geological conditions for cave formation,and the overall stability of the surrounding rock mass is good.

What is the geological structure of the underground powerhouse?
The geological structure of the main underground powerhouse is simpleand there are no regional faults and large-scale faults passing through the study area. According to the statistics of exploring caves in the underground powerhouse area,the main structural planes are rock layers and joint cracks.

How mudstone layers control the stability of a large powerhouse?
The results showed that the stability of the large powerhouse may be controlled by the soft rock (mudstone) layers. The rock mass was classified in terms of the Q classification system, basic quality (BQ) method, and hydropower classification (HC) method, and then the supported system was put forward.

Does support affect excavation deformation in Panlong pumped-storage power station?
Numerical results for the main powerhouse of Panlong pumped-storage power station. Under the supported case,the overall displacement of each monitoring point is basically reduced compared to the under-supported case. the support has distinct restraint effectson the excavation deformation of the iii layer to the vii layer.

What is the elastic wave velocity in underground powerhouse area?
The elastic wave CT in the underground powerhouse area shows that the wave velocity of the rock mass is mainly distributed between 3750-4500 m/s; the rock mass integrity is good.

Why do we need a support system for underground powerhouses?
The support system can effectively reduce the deformation and plastic zoneduring the excavation of the underground powerhouse. In addition,the supporting setup has obvious effects on limiting the slippage of the soft rock layers.

The 3D finite element gird grid for whole pumped storage power station project area is set up. The seepage analysis shows the potential distribution for seepage field is clear ...

Due to high water pressure in the concrete reinforced hydraulic tunnels, surrounding rocks are confronted with nonlinear seepage problem in the pumped storage power station. In this study, ...

We propose a hybrid renewable energy system--a geothermal energy storage system (GeoTES) with solar to provide low-cost dispatchable power at various timescales from -- daily, to ...

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7.2.2 and work, geological In it the is necessary pre-feasibility surveying to meet and Study the mapping. stage, following the When engineering requirements: selecting geological the ...

This paper introduces the current development status of the pumped storage power (PSP) station in some different countries based on their own economic demands and ...

Ensuring the stability of the surrounding rock mass is vital in the construction of underground powerhouses in hydropower stations. Complex geological conditions and high in situ stress ...

The enclosed karst depression is one of the important alternative sites for pumped storage power station reservoir and tailing reservoir [57]. Especially in the construction of pumped storage ...

The green basic design and design of the pumped storage power station needs systematic research. Based on the collaborative analysis method of production and ecological ...

The geological condition of the upper reservoir for Liyang Pumped Storage Power Station is complex. Because the thickness of filled landfill at the bottom of the reservoir varies rapidly and ...

The pumped-storage power station in Jiangyou presents highly complex karst development features and karst system. In this study, we investigate the karst hydrogeological features of ...

The Geothermal Energy Storage concept has been put forward as a possibility to store renewable energy on a large scale. The paper discusses the potential of UTES in large ...

However, the geological conditions required for pumped storage power stations are harsh, the upper and lower water reservoirs with a significant difference in altitude are essential for the ...

The integration of geological and mining data in the Prosper-Haniel subsurface provided a comprehensive assessment of the potential geological conditions of abandoned ...

During the operation of the pumped storage power station, the frequent filling and discharge of the underground reservoir with water may affect the local stress field, ...

Pumped storage power generation is classified into the "pure pumped storage type" and "pumped and natural flow storage type" as shown in Figure 3-3 and below.

The article discusses one of the dangerous geological processes that can cause serious damage to hydraulic engineering construction objects. Using the example of Zagorsk ...

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