Discussion on Construction Technology of Foundation Treatment in Water Conservancy and Hydropower Project

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Abstract:

In water conservancy and hydropower construction projects, basic treatment technology is extremely important. Foundation is the lifeline of water conservancy and hydropower project. Once there is a problem in foundation, it will directly affect the quality of construction projects, resulting in serious economic losses. Therefore, it is necessary to fully understand the role of basic treatment, attach great importance to the problem, and take preventive measures to ensure the quality and stability of buildings, and promote the rapid development of water conservancy and hydropower projects. This paper mainly explores and analyzes the construction technology of water conservancy and hydropower engineering foundation treatment.

Keywords:

Water conservancy and hydropower engineering; basic treatment; construction technique

Introduction:

With the rapid development of water conservancy engineering in our country, it also has higher requirements for basic treatment engineering construction management. Only by taking effective management measures can we improve the overall quality of construction. Therefore, the construction unit should take every construction link seriously. In addition, it is necessary not only to adopt a scientific and reasonable design scheme for the foundation construction of the lock chamber in the silt section, but also to strengthen the formulation of the foundation and foundation treatment scheme for the complex geological section. To ensure the safety and stability of water conservancy and hydropower engineering construction.

1 Importance of strengthening the infrastructure of water conservancy and hydropower projects

Under normal circumstances, water conservancy and hydropower projects are relatively large, belong to the national project, and have a certain public welfare, so there is no construction in the name of individuals [1]. Water conservancy and hydropower engineering is the infrastructure of the society, and it is self-evident that it can play an important role in the development and progress of the society. Water conservancy and hydropower engineering can not only better promote the utilization of resources, but also effectively prevent floods and droughts and other disasters. In order to maximize the quality of water conservancy and hydropower projects, infrastructure construction should be done well to make its quality meet the standard, which is also a solid foundation for subsequent construction. In the concrete construction process, we should proceed from the actual situation and choose the construction plan scientifically. We must not blindly pursue advanced technology, forcing the use of advanced technology may not be able to achieve the desired effect, and the construction technology suitable for this project is appropriate. Only by choosing the right scheme and really putting it in place can the quality of water conservancy and hydropower engineering infrastructure meet the standard requirements.

2 Requirements for construction of water conservancy and hydropower infrastructure projects

(1) Before the construction, the specific situation of the water conservancy project should be effectively investigated and understood. After the relevant personnel understand the specific situation and information, they should classify the information,

and then carefully study the construction drawings to fully understand the design intention of the drawings. The construction unit shall disclose the key construction links and construction techniques before construction. During the investigation of the construction site, it is necessary to carefully investigate the specific conditions of the construction site in order to provide more valuable information for the construction [2].

(2) Water conservancy and hydropower projects may be constructed in mountainous areas, and it is very difficult to construct in mountainous areas. If it is unavoidable that the construction must be carried out in the mountainous area, then before the work is carried out, the construction team should arrange for geologists to go to the place where the construction will be carried out to understand the local geological conditions. Different geology has different construction plans, so as to ensure that the project is constructed in a safe environment, and the construction can be carried out smoothly, so as to avoid disasters affecting the construction during the construction.

(3) Project positioning, positioning is the basic link of engineering construction, and it is also the key to the smooth development of basic engineering. In the construction of water conservancy and hydropower projects, the way of positioning control line, level base point and base trough is usually used to pay off, and the audit should be repeated to ensure that the construction lofting can meet the design requirements, and strict pre-audit experience is applied.

3 Factors affecting the foundation construction of water conservancy and hydropower projects

Factors affecting the construction of water conservancy and hydropower projects are characterized by large scale and complex construction. Although it is a basic project, many factors will have a series of obstacles to the construction in the specific construction process, such as the geology, rock formation, soil quality, etc. of the location of water conservancy and hydropower projects, which are closely related to the construction of water conservancy and hydropower projects, especially in infrastructure construction. In general, the factors that affect the construction of foundation treatment mainly have the following aspects.

3.1 Stability of foundation of water conservancy and hydropower projects

The stability of the foundation of water conservancy and hydropower projects is the primary factor affecting the foundation treatment construction. If the stability of the foundation cannot be guaranteed, the stability coefficient will also operate at a low level, and the stability of the entire structure cannot be talked about [3]. Even if a water conservancy project can complete its tasks within the specified time, its actual role will hardly be able to play a normal role, and the service life of the entire project will be greatly reduced.

3.2 Leakage of foundation of water conservancy and hydropower projects

On the basis of the stability of the foundation, it is necessary to minimize the occurrence of leakage. Mainly due to leakage, it will also affect the technical construction of water conservancy and hydropower projects to a certain extent. In other words, if the foundation void is too large during specific construction, it will be prone to leakage of the engineering foundation, which will cause certain damage to the foundation of the water conservancy and hydropower project, and in serious cases, it is likely to cause major safety accidents [4]. Therefore, it is necessary to frequently check whether there is leakage in the foundation treatment construction technology.

3.3 Foundation settlement of water conservancy and hydropower projects

Foundation settlement is also a very important influencing factor. Due to the influence of geological conditions and other factors, it is difficult to avoid the settlement of the actual water conservancy and hydropower construction foundation. If the amplitude of settlement exceeds a certain limit, the engineering structure will be deformed, and the consequences may be based on the entire project, which will not only be destroyed, but also the safety cannot be guaranteed.

4 Foundation treatment construction technology of water conservancy and hydropower engineering

4.1 Application of anchoring technology

The construction site of water conservancy and hydropower projects is easy to appear in areas with complex terrain, which will greatly strengthen the difficulty of construction. The anchorage technology emerges as the times require, and its main foundation construction technology in the mountain area can fully show its superiority, the most obvious advantage is that it can greatly reduce the more complicated engineering amount. In the process of application, it is necessary to comprehensively grasp the geography,

geology and love situation of the mountain area, and then it is necessary to apply the differences of anchoring technology on the basis of water conservancy and hydropower engineering. This is in order to carry out the anchoring and strengthening role of water conservancy and hydropower engineering foundation, and effectively solve the problem of insufficient stability and weak anti-sliding ability.

4.2 Application of prestressed pipe piles

Prestressed pipe piles are mainly composed of pre-tensioned prestressing and post-tensioned prestressing, which play different important roles in the construction of water conservancy and hydropower projects. Especially in recent years, with the endless emergence of various new technologies, the construction of prestressed pipe piles has also been developed to a certain extent. The settlement and other phenomena frequently occurring in the construction of water conservancy and hydropower projects are all treated by vibration method, water jet method, static pressure method, hammer method, etc. These methods have their own characteristics and can be selected according to the actual needs of construction [5]. The following is a detailed analysis of the commonly used static pressure method and hammering method. Static pressing method is mainly through the pile machine to increase the pressure of the prestressed pipe pile, the pipe pile under the ground, to meet the operation requirements. The hammering method is mainly used for the quality requirements of water conservancy and hydropower construction. Under normal circumstances, the construction quality of water conservancy and hydropower projects is relatively high, so this method should be analyzed in detail.

4.3 Application of soil-cement

The application of cement and soil in the foundation construction of water conservancy and hydropower engineering also ensures the construction quality of water conservancy and hydropower engineering foundation to a large extent. Cement soil is the cement and water after mixing evenly, and then the relevant reaction, in order to achieve the required strength. The main function of cement soil is to strengthen the foundation, so that the foundation can be in a stable state for a long time. The grouting depth of cement soil is generally about 50cm, which can greatly improve the stability of the foundation and also meet the bearing capacity of the foundation. The quality and density of soil and the amount of cement are closely related to the quality of soil-cement. Therefore, before mixing cement soil, it is necessary to carefully analyze and study the above three aspects to ensure the quality of cement soil.

5 Conclusion

To sum up, the foundation is an important link in the construction of the whole water conservancy and hydropower project, and the construction quality of the foundation directly determines the overall quality of the water conservancy and hydropower project. In order to give full play to the economic and social functions of water conservancy and hydropower projects, we should attach importance to the foundation construction, so that the foundation construction of water conservancy and hydropower projects can be controlled comprehensively. In the foundation construction of water conservancy and hydropower projects, we should pay attention to the improvement of the technical ability of the construction personnel, and control the core link of the foundation construction, so as to ensure the construction quality of the foundation and achieve the guarantee role for the economic, safety and efficiency of water conservancy and hydropower projects.

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