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Analysis of Water Conservancy Engineering Construction Technology and Quality Control

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Abstract: At the present stage, the development of social economy and science and technology has promoted the prosperity of Chinese water conservancy construction undertakings, some of which water conservancy engineering construction projects have obtained a high level of international attention and attention. To continue to promote the rapid development of water conservancy construction in our country, it is necessary to optimize and perfect construction technology, and strengthen the implementation of quality control measures, to improve the integrity of water conservancy project construction quality. Therefore, this paper briefly analyzes the construction technology and construction quality control of water conservancy projects for reference.

Keywords: Water conservancy engineering; Construction technology; Quality control

1. Characteristics of water conservancy project construction

1.1 Particularity

Its requirements for technology will be higher, which is determined by the particularity of the water conservancy project itself. The function of a water conservancy project is mainly reflected in its allocation of water resources. When the amount of water is sufficient, the water conservancy project can regulate the flood by storing water, and if there is a regional drought, the stored water can be made full use of. At the same time, the water conservancy project also has the role of retaining water and discharging flood. The regulation and storage of water resources require that water conservancy projects have special requirements such as anti-slip and anti-tilt, anti-seepage, and anti-leakage, which are special requirements that other projects do not have.

1.2 Complicity

In recent years, the number of preparation and construction of the scale of water conservancy projects has been increasing, and various new requirements have been put forward for the construction of water conservancy projects, which also determines the complexity of water conservancy projects. Because the construction of water conservancy projects is basically along the river, along the coast, along the mountain and other characteristics, so in the design and planning, generally in the natural environment is more complex areas. This means that in the process of water conservancy project construction, it must be affected by various natural factors and geographical factors, and the technical requirements for water conservancy project construction will be very strict, otherwise, it will easily cause hidden dangers of quality.

1.3 Seasonal water conservancy project construction

The water conservancy project is a very seasonal construction project. Most water conservancy projects need to build cofferdams first and drain the water in the foundation pit before the construction of the main project, so the construction of water conservancy projects generally starts in the season of low water and little rain. The dry season is the golden period of water conservancy construction, not only to prepare for the dry season, arrange the construction machinery, reasonably arrangement of labor, and do a scientific construction plan, but also during this period, seize the period, speed up the progress of the project, to ensure the quality of the project, to avoid missing the best season of engineering construction, resulting in huge losses. In the construction of water conservancy projects, the construction technology control is not only reasonable but also to master the appropriate construction season.

2. Analysis of the water conservancy engineering construction technology

2.1 Earthmoving construction technology

In the construction process of water conservancy projects, as the basic elements of the project, earthmoving works can be divided into

water filling, dry filling rolling, and directional blasting according to the different types of construction technology. In terms of application degree, the most widely used construction technology in the current water conservancy project is dry filling and rolling. Under normal circumstances, the construction quality of earthworks is higher, the strength and compactness of the construction parts need to be in line with the national standards, the settlement of the dam needs to be controlled within the allowable range, and the stability and seepage resistance requirements are higher. The main processes in earthmoving engineering include paving soil leveling, sprinkling water compaction, detail treatment and inspection, etc. Only by improving the overall performance of construction materials and mechanical equipment can the quality of engineering processes be improved. For the dam construction, the process of the project is relatively complicated, the work surface is relatively narrow, and the process is numerous, so it is necessary to carry out strict and effective control and management of each process and link in the project.

2.2 Technology of the soft soil foundation construction treatment technology

In the process of hydraulic engineering construction, the actual geological conditions are usually different from the design content, and the water content of some sections of the construction site is large, resulting in the soft elastic problem of the foundation. The design of some foundations in terms of bearing capacity is different from the original design, so it is necessary to strengthen the treatment of soft soil foundations. For the treatment of soft soil foundation, the current construction methods mainly used in our country include drainage consolidation method, composite foundation method, vacuum precompression method, and so on. Under normal circumstances, these construction methods after some time play a substantial role, if the construction process encounters unexpected situations, the need to use a new treatment method for construction, the first residual pressure treatment and then compacted soil cushion treatment has been paid attention to and concern.

2.3 Anti-seepage construction technology

In the construction of water conservancy projects, as a special wall, the structure of the anti-seepage wall has unique advantages such as strong durability, good flexibility, small thickness, and easy operation. Compared with other anti-seepage technologies, the engineering cost of the anti-seepage wall is also relatively low in the unit area, and its anti-seepage function is strong, and it has played an irreplaceable role in water conservancy projects. Based on this, the anti-seepage wall with its unique and simple characteristics has been paid attention to and concerned about the field of water conservancy construction, and for clay and silt and other soil, the use of the anti-seepage wall effect is also good, so its application in the field of water conservancy construction is very common.

3. Analysis of water conservancy engineering construction technology quality control measures

3.1 Reasonable construction design

To ensure the quality of construction, it is necessary to carry out reasonable construction design. The construction design is mainly considered from the capital status of the construction unit, the scale of the water conservancy project, and the construction conditions, and then the designer goes to the construction site for field inspection. Designers according to the climatic and geological conditions of the construction site scientific design, to ensure that the construction design matches the actual construction technology, to further ensure the quality of construction, and to promote the smooth construction of water conservancy projects.

3.2 The establishment of a perfect construction technical organization, and feasibility analysis of construction technology

After the completion of the construction design, but also through the corresponding technical organization personnel to analyze and evaluate the construction design. Because designers are limited by their design level, the design of the construction design scheme may not be comprehensive enough, or the design scheme does not meet the actual construction, therefore, it is necessary to evaluate the feasibility of the construction design, and the evaluation of the design scheme needs to be evaluated by professional technical experts, to ensure the scientific and rational design scheme. To ensure good control of the quality of construction technology in the later construction.

3.3 To ensure the quality of construction materials

The quality of construction materials determines the quality of water conservancy projects to a certain extent; therefore, it is necessary to strictly check the construction materials. In many cases, due to various reasons, there are big problems in the procurement of construction materials. Because the procurement personnel want to have greater concessions in the price of materials, and then purchase back unqualified materials, affecting the quality of construction of water conservancy projects. In addition, after the construction materials enter the construction site, there is no professional inspection of the materials, resulting in the application of unqualified materials to the construction. Therefore, in the process of quality control of water conservancy engineering construction technology, it is necessary to focus on the control and manage-

ment of construction materials, resolutely carry out sampling inspection, and return unqualified products to all aspects to ensure the construction quality of water conservancy projects and promote the smooth progress of water conservancy engineering construction.

3.4 Improve the technical level of construction personnel

The construction quality of water conservancy projects and the technical level of construction personnel are inseparable, therefore, in the process of construction, the technical level of construction personnel needs to be managed. In terms of the employment of construction personnel, the construction personnel should be required to have the corresponding qualification certificate, have many years of experience in the construction of water conservancy projects, and strictly control the employment. And should also carry out professional training for construction personnel, through the infusion of professional knowledge, comprehensively improve the professional and technical level of construction personnel, to fundamentally ensure the quality of water conservancy project construction projects.

3.5 Checking

A lot of construction management personnel often ignore the acceptance work, acceptance work is also an aspect of the quality control of water conservancy engineering construction technology, through comprehensive acceptance, the construction quality can be tested, and the formation of the final quality of water conservancy projects has a very great significance. Therefore, it is necessary to do a good job in the acceptance of water conservancy projects, and then find the problems in the construction quality, timely take remedial measures, to be able to do a good job in the last stage of the implementation of water conservancy projects quality control, comprehensively improve the economic benefits of construction enterprises.

4. Conclusion

In short, the construction of water conservancy projects is related to the national economy and the people's livelihood, which affects the national economic construction and the safety of people's lives and property. In the construction process of water conservancy projects, we should constantly improve and improve the construction technology to ensure the quality of construction; At the same time in the process of engineering construction to be able to find the existing quality problems, analyze the causes, to formulate corresponding measures to further ensure the quality of the project.

References

[1] Yusufujiang. Maimaiti. Application of Remote Sensing Technology based on DEM in Hydraulic Engineering [J]. Electronic Technology and Software Engineering, 2014, 20:149.

[2] GENG Jiahai. Discussion on the application of foundation grouting construction technology in hydraulic engineering [J]. Heilongjiang Science and Technology Information, 2014,33:243.

[3] SUN Guohui. Thoughts on Prominent Problems and technical Treatment in hydraulic engineering construction [J]. Heilongjiang Science and Technology Information, 2014,34:262.