

Importance Analysis of Hydrogeological Problems in Engineering Geological Survey

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Abstract: Hydrogeology is one of the necessary links in construction engineering geological exploration. Some of the important hydrogeologic index parameters have a direct impact on the quality of Engineering construction. Therefore, this paper will analyze the importance of hydrogeological problems in engineering geological survey to explore its significance, and briefly elaborate the specific content of survey operations.

1. Introduction

As the basic content of construction engineering, hydrogeological survey itself has an important impact on the basic design of construction engineering, prevention and control of engineering geological hazards and other aspects. Therefore, in order to carry out engineering construction work efficiently, we must pay attention to some hydrogeological problems in engineering geological survey. By analyzing the main contents of geological survey, we can understand some local geographical conditions, geological environment and the situation of groundwater level, as well as the impact on aquifers and aquifers. Only by guaranteeing the rationality and accuracy of the overall planning and design can the construction be carried out safely.

2. Brief analysis of hydrogeological exploration

2.1 Overview of Hydrogeological Exploration

As mentioned above, the important link of engineering geological survey is hydrogeological survey. Some key projects in hydrogeological survey will have a great impact on the overall construction of the project. We usually say that hydrogeological exploration needs to take basic data as the premise, carry out scientific verification through a certain proportion of sampling, use some advanced exploration technology and high-level equipment to judge and analyze various hydrogeological indicators, so as to explore the real environmental factors affecting hydrogeology. Through the analysis of parameters and variables in hydrogeology, the overall impact of engineering construction is finally confirmed.

2.2 Main Contents of Hydrogeological Exploration

1) Groundwater level exploration. Groundwater level survey is the most critical link in the whole survey work. The content of groundwater level survey includes the rising and falling trend of groundwater level, the characteristics of water level change and the water supplement function in the surrounding rock environment. By confirming the absorptive degree of groundwater in rocks and the highest and lowest water level of groundwater level. Based on the historical characteristics, the historical reasons for the high and low water level are further analyzed. At the same time, it is necessary to pay attention to the determination of water type and the difference of water velocity variation, and to detect the concrete situation of the foundation in rock engineering by dynamic water level analysis.

2) Geological environment exploration. The exploration of geological environment is also one of the important contents of hydrogeological exploration. Its objects of observation are mainly basement structure, neotectonic movement, geological characteristics and Quaternary thickness, etc.

It is necessary to analyze the specific geological environment in the geotechnical engineering area, including the reflection of water action pressure-resisting ability in rock strata. Through testing to determine the corrosion of rock stratum, the durability of construction projects or buildings can be effectively judged.

3) Physical Geographic Exploration. As mentioned above, the important link of engineering geological survey is hydrogeological survey. Some key projects in hydrogeological survey will have a great impact on the overall construction of the project. We usually say that hydrogeological exploration needs to take basic data as the premise, carry out scientific verification through a certain proportion of sampling, use some advanced exploration technology and high-level equipment to judge and analyze various hydrogeological indicators, so as to explore the real environmental factors affecting hydrogeology. Through the analysis of parameters and variables in hydrogeology, the overall impact of engineering construction is finally confirmed.

4) Hydrogeological parameter survey. The main way to measure the hydrogeological parameters is through pumping test. Normally, the degree of rock drying is proportional to the stress of rock, so some special methods are needed to define the reliability and water resistance of rock surface, so as to ensure that the hydrogeological parameters are in good condition. The reliability and scientificity of the data generated in the measurement.

5) Exploration of aquifers and aquifers. Finally, two important projects of aquifer and aquifer need to be investigated. The main contents include the conditions of buried depth and water level. At the same time, we need to pay attention to the types of groundwater and the dynamic situation of groundwater flow velocity and water level, which need to be confirmed concretely and followed up many times.

3. The importance of analysing hydrogeological problems

3.1 Before the building is built, it is necessary to confirm the hydrogeological conditions, which are inseparable.

Usually, the depth of foundation consolidation needs to be analyzed in depth according to the data measured by hydrogeological parameters, so as to make inferences. Through the analysis, the most specific index of deep burial area can be obtained. Combined with the construction site environment, through hydrogeological dynamic data analysis to determine the safe depth of the building size. Generally speaking, the buried depth of buildings should be kept above the groundwater level, but some special projects, because of the high groundwater level, combined with the range of deep buried buildings, may have the situation that the buried depth of buildings is lower than the groundwater level. Once such a special situation occurs, it must be implemented. In order to ensure that the buried depth of the building is not affected, the necessary means are adopted to reduce the water level in the pre-construction period. In practice, some engineering foundations may soften and collapse sometimes and dry crack sometimes because of the influence of groundwater flow. At this time, it is necessary to deeply analyze the burial depth and ensure the scientific burial depth of buildings through survey data.

3.2 The influence of hydrogeology on building engineering.

There are many factors affecting the groundwater level. When the water level is not stable, special attention should be paid to them, because both high and low water levels are the limiting factors for the development of construction projects. Different soils have different acid-alkali balance. Under the premise of acid-alkali balance, the hardness and stability of the soil can be ensured. Once the water level rises, the acid-alkali balance will be broken. Thus, the bearing capacity of the building foundation must be limited. When the water level rises, it is easy to form water accumulation. Under this circumstance, cracks in building materials often occur. These small problems affect some materials, while the large ones affect the overall construction safety, which must be paid attention to.

3.3 Because the circulation of groundwater is a virtuous cycle, under the action of natural conditions, the water cycle has been in equilibrium.

Once there is construction, it is easy to break the balance, resulting in imbalance, which has a great positive impact on the safety of construction projects. However, due to the population explosion, the more in-depth land development, it is often necessary to increase the floor for efficient land use, but the higher the floor, the deeper the foundation will be. At this time, water pumping or water level lowering will often be used, which will greatly destroy the balance of groundwater and cause geology. The qualitative change of the environment will eventually lead to the quality and safety of the later construction of the project, and even affect the service life of the building.

4. Measures to deal with hydrogeological problems in engineering geological investigation

4.1 Standardization of engineering geological survey operation.

The premise and guarantee of efficient geological and hydrological work is to build a sound management system. First of all, the relevant engineering survey units must set up special and professional hydrogeological survey institutions, and designate personnel to be responsible for the relevant management of hydrogeology, and implement the corresponding work content and survey matters. Secondly, when we have a complete exploration system, we should also pay attention to the propaganda of safety and the importance of geological exploration. Only by making every construction worker clear about hydrogeological problems and their impact on the overall exploration work, can every worker truly abide by the operational norms from the bottom of his heart and know the survey well. In order to truly exert the binding force of the system, and further strengthen the management of Engineering construction, truly avoid accidents. Finally, as an engineering survey unit, it is necessary to pay attention to personnel training, improve the level of survey personnel through training, improve their ideas and concepts, and, on the premise and basis of clear understanding of relevant laws and regulations, be familiar with the content and process of work, improve the overall quality level of survey personnel from various perspectives, so as to protect workers. Cheng construction, overall stability and safety, further reduce the adverse impact of hydrogeological problems.

4.2 Strengthen on-site monitoring.

Strengthen the supervision and control of the site, in fact, from the perspective of the third party to assess. Considering the importance of hydrogeological problems for geological exploration, the investigation units should really pay attention to the monitoring and investigation of hydrological conditions. Through the establishment of clear monitoring objectives in the monitoring process to set standards, through standard comparison to carry out surveys at the same time, surveyors should also be very clear about the purpose of the investigation, in accordance with the rules and regulations, formulate a reasonable construction project plan.

4.3 Strengthen the application of technology.

With the development of social economy, science and technology are also progressing, and some information resources are constantly emerging in geological prospecting work. Advanced technology is an important weapon in geological survey. In hydrogeological survey, technical input is increased. Some information service platforms related to astronomy and geography are established. By introducing high precision and advanced testing instruments, the overall standardized data management is established. Due to different types of environment and different depths of hydrogeology survey methods used are different, so standardization of hydrogeology survey technology, as well as the use of advanced equipment, can avoid random sampling of geological samples to bring about errors, thus truly improve the efficiency of geological survey and water. Ping.

4.4 Do a good job in hydrogeological environment survey.

In order to observe the hydrogeological environment well, it is necessary to control the natural geographical conditions. Systematic analysis and judgment are made on the geological conditions and hydrological conditions of the construction site so as to put forward a more convenient way for reference. After considering the hydrological characteristics and the climate and environment information of the local area, combined with the precipitation and other contents, the final result is obtained. To the most effective operation program.

5. Conclusion

In a word, after a simple analysis of hydrogeological survey, this paper also puts forward the importance of hydrogeological problems in engineering geological survey, and briefly expounds the specific implementation content, thus some optimization strategies are obtained for reference. Only through continuous exploration and discovery, continuous practice and research, can we deeply understand the harm of hydrogeological problems to engineering buildings, prevent and solve these problems, and make hydrogeological survey of our country further, and lay a solid foundation for people's happy and secure living.

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