Application of lining concrete technology in hydraulic engineering construction

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Abstract: the construction of hydraulic engineering has always been an item of great importance to the country, with the advent of the new century countries have invested a lot of manpower and resources to carry out hydraulic workers Construction, to make water conservancy projects in flood control, play a positive role in drinking water irrigation, etc. The construction of Water Conservancy project needs to start from many aspects. And it runs through the construction cycle of the Whole Water Conservancy project to ensure the construction quality of Water Conservancy project. Lining concrete technology is a kind of application in the construction of Water Conservancy channel. Technical, through the application of lining concrete technology, it can enhance water conveyance capacity of water conservancy channel and greatly enhance the service life of hydraulic engineering.

Keywords: Water Conservancy; Channel; Lined Concrete technology

Introduction

Rapid economic development and advances in science and technology make the construction of water conservancy projects into into a new situation. A large number of new technology applications make water conservancy projects set more convenient, Quick and better quality. Lining concrete technology is a kind of construction technology with a "" used in Water Conservancy channel Project, on water channel construction In the course of the process, the concrete blocks are used to make the lining by using the concrete masonry technique. To effectively avoid deformation of cofferdam, problems such as collapsing.

1. The construction Technology of lining concrete

Lining Concrete construction technology has made good progress in recent years, deeply built by our country Corporate and architectural researchers’ attention. The lining concrete construction technology has a strong stability, to ensure that the building has a long service life, not prone to quality question. The main principle of lining concrete construction technology is to make use of concrete to form The main framework of the building of, Convenient for subsequent works. composition ratio of concrete materials and ingredient quality is an important factor affecting the stability of concrete. so, lining concrete Construction Technology must strictly control the content and quality of each component of the concrete material. - lined Construction technology to be based on the specific requirements of the construction object, To determine in concrete ratio of components to, then buy raw materials for reliable manufacturers, ensure project construction quality level. for Water Conservancy and hydroelectric projects, Effectiveness Shadow of lining construction technology Rings The construction quality of the entire project, to ensure that water and electricity works properly so that the with, provide enough energy for our country's economic development and People's Daily life, promotes Jinan development level and improvement of people's living

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standard, Construction of lining concrete must be strengthened application of technology in water conservancy and hydropower construction.

2. Application of concrete technology in Water Conservancy project

The lining concrete technology is simply in the construction process of the water channel use pre-fabricated high prestressed concrete lining as the entire channel of the inside lined, to make the construction quality and construction speed of the water channel project greatly increased A technique. lining Concrete technology in the construction of water channels need to be closed Note Two aspects: base of water channel and fabrication of concrete precast block of lining. Foundation is The foundation of the whole water Channel project and also the important ring of the quality of water channel construction section, It is necessary to pay enough attention to the application process of lining concrete technology. with certainty Construction Quality of foundation for Water Conservation Channel Project, Avoid foundation construction quality problems Shadow Ring to the application of concrete lining technology and construction quality of Water Conservancy channel Project. make a good The foundation construction of Water Conservancy channel project need lining concrete technology in water Conservancy channel Project before application in construction, Engineering and technical personnel need to carry out the construction of the Whole Water Conservancy project the geological conditions along the line of are detailed for the first-hand geological data., and on this basis together with the Water Conservancy project designers to do a good job for Water Conservancy Design of foundation for Channel Engineering, addition, Construction process of foundation in Water Conservancy channel Project Engineering technicians also need to use scientific means to carry out water channel engineering. Base construction lofting to ensure the size of the foundation, Construction of foundation in water channel Project The layout process must be based on engineering implementation purposes and requirements for reference and ensure water Benefit Channel Engineering Foundation excavation reliability, also, on the foundation of a water channel project The Excavation process of the is to be noted for the different geology along the water Channel project. and terrain condition using reasonable construction method to dig the foundation of Water Conservancy channel Project tunneling, especially for some special water channel projects can be carried out according to the actual conditions of the engineering terrain of the Water Conservancy, to ensure Water Conservancy works Reliability and rationality of Process Foundation construction. excavation of foundation in water Channel Project The process needs to ensure that the soil in the foundation of the Water Channel Project can be dried in a natural condition to reduce the water content in the foundation soil of Hydraulic Canal project, To ensure subsequent water The tamping effect of the foundation of the channel works to ensure the lining concrete technology in water Conservancy channel Application effect in engineering construction. Complete the construction of the foundation for the Water Conservancy channel Project to Complete the placement of concrete linings, to complete construction for water conservancy workers. The production of concrete linings is also an important part of the construction quality of the water channel Project, to ensure that the lining concrete technology can be in the Water channel Project

Process, Operating Procedures and quality standards, do not violate actions, Construction by Specification. will quality out of shape, inner to heart.

(2) Implementing Quality management Accountability, Increase the enforcement of the system. Construction Enterprise and entry account manager, project manager and related quality management responsibility person layer sign quality control responsibility, A quality problem occurs from top to bottom, Who is responsible for the negative responsibility, not condoning, does not 还, Accountable Strictly to the system, Ask the responsible person to implement Accountability.

Summary, Project Quality control is a complex system engineering, factors more, people member, Material, negligence of any mechanical equipment and construction environment and workmanship, will give The overall quality of the project has a significant impact. Water Conservancy construction enterprises as long as the project has been under the process, fully implement full, Full-process, Enterprise-wide
quality management, Establish sound quality guarantee System, constantly improve quality management system, Hardening Process Quality control, Optimizing Apply Project order, Improve construction technology and detection means, Increase enforcement efforts, Concentric collaboration, Unison, ensures that the project is quality -compliant.

3. Case Study of concrete lining technology

3.1. Project Overview

A new project of a flood control gate is specially built for the purpose of solving the waterlogging. Pass , New Project's Backplane meter with 1.8m cmx cm RC bottomBoard , Tighten band select P 8 level of anti-seepage compensating shrinkage concrete, Wide 2m, this project Construction characteristics of a concrete pouring construction period of the project is tight, Heavy workload, only backplane required Bars 315 t, Concrete 1764m 3.

3.2. Construction side bar

The selected concrete is a commercial concrete, The Concrete Company Lab is responsible for providing Match Experiment. concrete slump to 135~165mm, Pump Concrete cement ratio 0.5~0.6, Minimum cement dosage for kg / m, Select qualified slag Portland cement, advance 1 Week store cement in storage, take effective action when saving, Avoid damp caking of cement. Select the most coarse aggregates of crushed pebbles, max size control on mm, The contains mud for <1%. no mud status, density required >2.5t/m 3, Super Size <3%, No mud group, density >2.5 T / m 3. selected admixtures by experimental comparison, expansive agent The amount of blending is for cement usage 3.1%, mixture use power plant to produce U level powder soot, fineness control in 7.7~ 8.0%S O 2 1.3%.

3.3. Construction Essentials of Concrete lining technology

① Lined Concrete transport. The total amount of concrete required for this project is 0.93 million m 2, with Shore pumping stations are more used. when forwarding ,using locomotive transport, To protect Proof concrete after mixing is complete, before it condenses, Send to to construction scene, Road Dry and flat „no big bump. in the case of the quality of the concrete no, to the scene, Concrete Transport work completed successfully. ② Horizontal transport. level Transport is actually the concrete that has been mixed up, from the mixing site to the cang face, current, in the various construction techniques used, Use concrete horizontal lose main 5 mode of transport, - Concrete mixer Truck, Concrete Pump, Belt Machine, locomotive and car. ③ Vertical transport. in essence, using cable cranes, Tower lifting machine and door-seat cranes for transport.

4. Pre-construction of lining concrete for hydraulic engineering project

During the construction of water conservancy projects, Pre-construction preparation is quite necessary for, old saying, Good start is half done, If you can do it before construction Sufficient preparation, Effective Foundation handling, To install templates, then will have a multiplier effect on the construction of Water conservancy projects, from a specific point of view, Pre-construction projects are as follows: ① to have a foundation with effects, in the process of working with the foundation, Prepare for construction lofting for, design drawings are paramount prerequisites, All construction lofting forms should be in strict accordance with The contents of the drawing are ,four respectively on the channel angle line and the canal orifice line, and excavation in manual form, so that the moisture in the foundation can be obtained Natural evaporation, to help reduce soil base strength, also prevents damage, in the channel excavation of Water Conservancy ,, should proceed from the actual situation Step Mining and fill work, Tamp the foundation and flatten it., for subsequent Construction lays an important foundation, ② to make the template and further security install. in the process of making a template, need qualitative channel steel, and then in the design drawing on the basis of making Groove steel, on the outside using a wedge-shaped triangle for fixing, in in Process, ensure strong support, There must be a close between the plates,, to Achieve a smoother effect, And in the process of installing the template, should After detailed measurement for lofting, effective control structure, stitching template You need to flatten the in the
process, usually, Lined Concrete templates for installation Strict control error, no more than Tenmm appropriate, Error in width direction bad should not exceed mm.

5. construction process for concrete lining
   Lining Concrete pouring construction process is the key link of hydraulic engineering construction, at the same time The impermeability of concrete is directly affected by concrete pouring construction.
   5.1. The uses the vibrating method correctly
   To fundamentally make sure that concrete impermeability is guaranteed, To ensure that the vibrating compactness, and strictly in accordance with the relevant provisions of the concrete pouring take mechanical to vibrate and to combine manual vibration, max. Air discharge.
   5.2. effectively reduce the cast time interval
   is generally, The construction process of lining concrete pouring construction time interval by to temperature effects, when construction site temperature >25°, Pouring construction interval to <2.5H, when construction site temperature <25°, Pouring construction time interval is < 3 H.
   5.3. finish Pouring processing work
   For its substance, Lining Concrete pouring construction the most important process is the Pouring processing, Fundamentally reduce the low roughness of concrete lining effectively down, set Increase water capacity of water Conservancy project, and enhance the seepage control effect of the concrete, take the raw paste for a rough wipe when the face is in the process, guarantees a more flat surface, second with iron mud for fine wipe, Ensure concrete surface is dense and smooth.
   5.4. maintenance of concrete lining after pouring
   The maintenance of concrete lining after pouring is mainly on the concrete of the human porosity reduce and cut off the pores of concrete, on concrete 2 Week's Maintenance () effectively improve impermeability of concrete.

6 closing
To summarize, Construction Technology for the application of concrete lining in water conservancy projects is a Certain practical significance, This can promote the overall construction quality of Water Conservancy project further elevation for Longer term development, bring ideal economic benefits for construction Enterprises benefits, also bring some social benefits to the people around you, help push Move our national economy to develop better and faster.

References: