SIKA AT WORK

MAE KUANG RESERVOIR, MAE TANG – MAE NGAD TUNNEL, CHIANG MAI, THAILAND

PRODUCTS FOR TBM: Sika® Foam TBM-101 FB TH

BUILDING TRUST

MAE TANG – MAE NGAD TUNNEL, CHIANG MAI, THAILAND






PROJECT DESCRIPTION

The Mae KUANG reservoir inflow augmentation project is a water transfer development program located in Chiang Mai province in the north of Thailand. A first tunnel intakes the water from the Mae Tang river and transfer it to an intermediate basin called Mae Ngad Reservoir. From the intermediate reservoir a further tunnel brings water into a second basin, the Mae Kuang Reservoir. The scope of this water development plan is a better water distribution management, flood control during the rainy season and irrigation benefits during the dry season. The total excavated length is around 49 km where 25.3 km are excavated with 3 double shield Hard Rock TBMs and 23.3 km are excavated using Drill and Blast technique. The Mae Tang-Mae Ngad tunnel is crossing a portion of the crystallin basement composed by granites and gneiss of low metamorphic grade followed along the alignment by quarzitic rocks from meta sediments. From the structural point of view these unites are interested by highly tectonized history with complex faults.

TBM DESCRIPTION

For the excavation of the Mae Tang – Mae Ngad tunnel two 4.74m HR double shield TBM are used. These TBM have been designed to face the high geological complexity along the alignment where rocks with unconfined compressive strengths from 10 to 200 MPa are foreseen to be excavated. Cutter head is provided with 32 disc cutters of 17", anti-wear plates and a full set of foam and polymer injection lines to provide wear reduction and to limit dust generation.

PRODUCT DESCRIPTION

A complete range of products was supplied to the site by Sika Thailand, Sika® Sigunit® L–53 TH as shotcrete accelerator fo D&B sections and adits, Sika® Antisol® S and E types for a proper curing of concrete casts, a full range of repair mortar Sika MonoTop®-614 TH, SikaRep® S TH, Sika® Separol® LP for formwork release; grouting has been provided with use of non shrinking cement grout SikaGrout®-214-11 TH and -212-11 TH.

For precast segments for lining Sikament® NN has been adopted, Readymix concrete batching plant have been supplied with Sikament®-520 N and proper setting stabilization was obtained with the use of Sika® Plastiment® R. Injection of fault zone and consolidation of rocks has been provided by the use of SikaFix®-501/-601.

The reduction of wear and dust during TBM excavation has been reached with the adoption of Sika® Foam TBM-101 FB TH, multipurpose foaming agent polymer modified.

PROJECT PARTICIPANTS

Client: Thai Royal Irrigation Department of Thailand
Construction: Right Tunneling (Lot 1 – Contract 1)
Supplier: Sika Thailand

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