

ARDAHAN DAM AND HYDROELECTRIC POWER PLANT

ARDAHAN, DOĞU ANADOLU, TURKEY

Surface Strengthening and Support

Problem

The Ardahan Dam and Hydroelectric Power Plant project was experiencing several rockfall problems on excavation slope surfaces. As a result during staff and equipment working the construction phase of the power plant were put at risk in terms of health and safety.

During a site visit of our technical engineers, the potential rockfall material has been evaluated and determined as usually small to medium sized rocks. Additionally, due to highly evolved discontinuities in some areas, blocks were about to detach and break from the slope.

Due to the fact that the construction works were located directly next to the toe of the slopes, there was no space for reshaping the slope area.

Solution

In accordance to the above mentioned rockfall problems, the roads were protected by double-twisted wire mesh in a simple drapery system. Previous to the installation of the simple drapery steel mesh system, the surfaces of selected slopes were cleaned from large rock material which was about to fall.

The passive protection system for the different slope surfaces was evaluated according to the block sizes and potential rockfall energy. The utilization of Wire Mesh constructed from 2.20 mm wire ropes with 6x8 mesh size, heavy galvanization and double twisted mesh structure was seen sufficient. For a better connectivity between mesh and slope the mesh was mounted on the slope with one slope anchorage each 50 - 75 m².

For the complete project site, a total of 15.300 m² Wire Grid has been utilized. The start date was 09.05.2014 and the end of the implementation was on 27.05.2015 .

Client: DEVLET SU İŞLERİ 24. BÖLGE MÜDÜRLÜĞÜ

Designer / Consultant: MACCAFERRI TURKEY

Contractor: EBD ENERJİ ÜRETİM VE TİC. A.Ş.

Products used (Qty.)

- Steelgrid 15.300,00 m²

Date of construction: 05/2014 - 05/2015



Rockfall Protection at Ardahan Dam



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