Wyssen Reference Projects

First avalanche control operation in Norway with Remote Avalanche Control Systems

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wyssen switzerland avalanche control

First avalanche control operation in Norway with Remote Avalanche Control Systems (RACS)

Project:	Securing County Road 53 Tyin - Årdal
Place:	Tyin, Oppland Country
Country:	Norway
Year:	2016 - 2018
Customer:	Norwegian Public Road Administration (NPRA)
Protected Object:	Road
Provided services:	- Establishment of an avalanche control operation - Avalanche forecasting - Field trips and observations - Execution of preventive avalanche control - Documentation and evaluation

Initial Situation

In the spring of 2016 NPRA awarded Wyssen Avalanche Control the contract to construct 14 Wyssen Avalanche Towers to mitigate the avalanche hazard along County road 53 between Tyin and Årdal. The road connects the two counties Sogn & Fjordane and Oppland and is especially important for the industry town Årdal with a big alumium refinery.

In the past years, avalanches has hit the open road several times every year, causing high risk for both traffic and workers on the road. In addition, the road is exposed to heavy snow drift which closes the road for several days each winter. In these cases road closes often endured for days after the wheather calmed down due to high avalanche danger. Clearing the road after big natural avalanches could also take days in some cases.

First time in Norway

As this was the first road in Norway to be protected by preventive avalanche control using RACS (Remote Avalanche Control System), the NPRA did not have the experience of running an operation like this. Therefore they inluded the operational responsibility as an option in the official tender. After reviewing the proposed operational concept NPRA decided to give Wyssen the responsibility to start up- and run the operation.

Our Solution

Planning

Before the first operational season started, a detailed planning process was necessary. This was done in cooperation with NPRA and included, among other things:

- ✔ Analysis of relevant avalanche paths
- ✔ Analysis of local weather patterns
- ✔ Developing safe routes/locations for relevant field observations
- ✔ Develop procedures for avalanche control
- ✔ Discussions about risk and accepted risk
- ✔ Develop routines and templates for Avalanche Forecasting

Execution

Timing is everything when it comes to avalanche control. To ensure high quality in the decision making process, all avalanche forecasts are reviewed by a second person before published. Field observations are conducted regulary to provide important information about the snowpack structure to the forecasters.
All observations are shared on the public snow and avalanche observation platform RegObs. Wyssen Avalanche Control has run the operation at Tyin for two winter seasons. During this period 189 avalanches has been released during 24 avalanche control missions. **No natural avalanches has hit the open road.**

Årdal isolation 2018

At the 4th of January a landslide blocked the main road to the Årdal community for 10 days, leaving 8,000 people with County road 53 to Tyin as their only transport route. During this period a winter storm with extreme winds and heavy snowfall was expected. Under these conditions the road is usually closed for several days due to wind drifts and avalanche danger, but because of the extraordinary situation this was not an option. To make sure that the maintainance contractor could work safely and keep the road closure to an absolute minimum, three avalanche control missions was conducted over 32 hours. This resulted in a very quick re-opening of the road and prevented a long lasting isolation of the Årdal community.

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