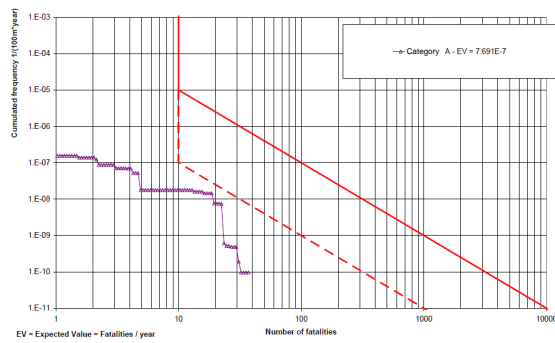
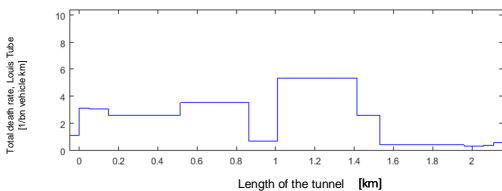
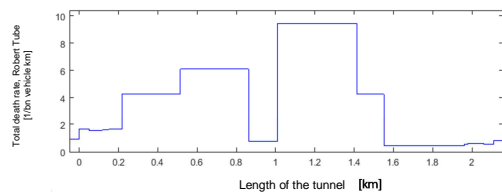




Course of the Pierre Pertuis Tunnel



Risks of transport of hazardous goods for the Pierre Pertuis Tunnel



Death rate for the two tubes of the Pierre Pertuis Tunnel

Description

The UPlANS U56 Tavannes – Bötzingenfeld concerns Highway N16 between Bienne and Tavannes and has several tunnels with different lengths, among which the Pierre Pertuis Tunnel. It is a two-tube highway tunnel with traffic in one direction (exceptionally also in two directions). The tunnel has a length of 2110 m and has a longitudinal ventilation completed in 1996. Within the UPlANS, one version for the renovation of the ventilation has been proposed.

In order to confirm the safety level of the construction following the UPlANS and to justify the investment for the realization of this project, a risk analysis is conducted according to the guideline ASTRA 19004. This analysis allows to obtain a global evaluation of the risk level. So by means of this analysis, the impact of the measures and the efficiency of (combinations of) measures can be evaluated.

By means of the risk analysis, the risk level of the construction is determined in the current configuration (before the UPlANS) and in the future configuration (after the VoMa UPlANS). On one hand, the results indicate an acceptable risk level and on the other hand the possibilities to analyze measures that reduce the risk level. The benefit of these measures (combinations of measures) is evaluated on the basis of the efficiency analysis according to the ASTRA 89005 documentation.

Services

HBI Haerter Consulting Engineers has provided the following services:

- Evaluation of the necessity of a risk analysis (analysis of the special characteristics) according to ASTRA 19004
- Realization of the risk analysis for the current state and for different measures with the software NabraRisk
- Calculation of the efficiency of the individual measures and of the combinations of measures
- Recommendation of measures
- Documentation of the analysis according to ASTRA 89007