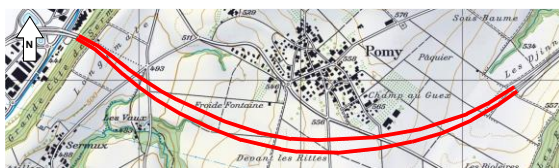
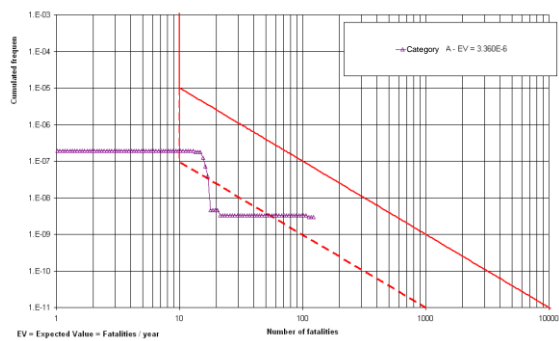


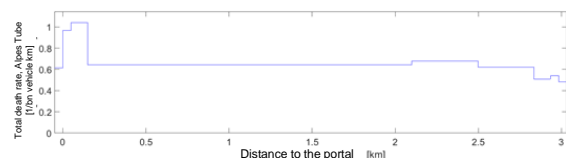
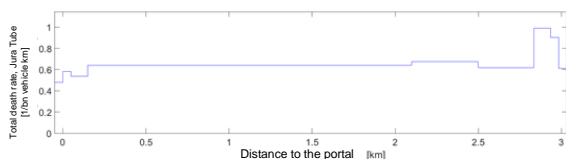
Course of the Arrissoules Tunnel



Course of the Pomy Tunnel



Risks of the transport of hazardous goods for the Pomy Tunnel



Death rate for the two tubes of the Arrissoules Tunnel

Description

Due to the condition of certain components of the ventilation system for the tunnels of Pomy and Arrissoules, the Federal Department of Roads wants to analyze several renovation options as preparation for the establishment of a project.

Because of the characteristics of these two constructions with a length of c. 3000 m, a decision must be made with respect to the ventilation system (longitudinal ventilation or targeted fumes extraction). In order to be able to compare the two variants on a large scale and to make a decision, they will be compared by means of a risk analysis according to ASTRA 19004 and the methodology ASTRA 89005.

On the basis of the impact of a realization of a targeted fumes extraction with respect to the risk level and the estimate of the associated costs, the efficiency of this measure can then be determined (investment versus gain with respect to the risks). For the Pomy and Arrissoules tunnels, the realization of the targeted fumes extraction according to the efficiency of the measure does not appear useful, therefore the ventilation principle shall not be changed, and a longitudinal ventilation can be kept.

The Arrissoules Tunnel shows, with the exception of the ventilation, an additional deviation from the norms that can be analyzed by means of the analysis: the distances between the emergency exits (cross connections). According to the impact and the costs of the measure (addition of one connection), they are not recommended because this would not be efficient enough.

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 NablRisk with a simplified approach
- 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