



Real fire test and fume layer at the source of the fire



Fume layer East side with stairway



Smoke egress at the exhaust chimney

Description

From the platform level of the subterranean station Allmend with a length of c. 200 m, two tracks and one central platform, three stairways lead to the surface. The station will be equipped with a mechanical exhaust air system which is dimensioned to keep the central platform free from smoke in case of a fire. The smoke extraction channel runs along the longitudinal axis of the station and has smoke extraction openings facing the rails. Smoke screens installed at the smoke extraction channel prevent the rising smoke from spreading further horizontally.

Services

HBI has received the order to prove the functional efficiency and effectiveness of the ventilation systems in case of a train fire with varying time conditions in the station zone and the stairways by means of a smoke test.

HBI's essential services concerned the planning and execution of the smoke tests:

- The smoke tests were planned with a concept coordinated with the Swiss traffic authority BAV, the builder and the ventilation planner (the maximum heat release rate was fixed to 1 MW due to the existing ambient conditions).
- Preparation of the smoke production components at the fire site and installation of the measurement and recording devices.
- Execution of the real fire tests, measurements, recording and evaluation of the results taking account of the meteorological data at the tunnel portals and the exhaust air system for the documentation of the time-dependent smoke propagation.
- Dismantling of the smoke production components and the measurement and recording devices.

The real fire tests served as evidence of compliance of the required ventilation targets by warm smoke which is harmless for health.