CHINA: Transrapid Shanghai

The construction of a magnetic levitation train route between the international airport of Pudong and the city of Shanghai is the first commercial application of the Transrapid magnetic levitation train.

TÜV Rheinland InterTraffic GmbH, under contract with Transrapid International (TRI), handled the evaluation of operating regulations and procedures that were applied during the execution of trial runs and demonstration runs with passengers in the startup phase. Here, the procedures for normal operations, failures and emergency situations are to be observed.

The assessments continued as the operational regulations were updated. Newly added sections of track, newly delivered vehicles, modified components of the facility and adaptations to the demands of the commercial operation, which started January 2004, were taken into consideration.

Under a contract with the Chinese company SMTDC, which acts both as the operator and the authority issuing legal approval for this magnetic levitation train project, a safety engineering evaluation of the entire facility was carried out onsite in November and December of 2002. The highlight was a demonstration run with high-ranking Chinese and German government representatives which was carried out on December 31, 2002. The system safety had to be independently certified for this event.

Since the safety of the operation control system (OCS) components intended for commercial use had not yet been proven at that time, the safety-related reactions of additional safety systems (“auxiliary operation control system”) installed for the startup were examined.

On December 29, 2003, the license for commercial operation was issued based on final safety assessments of TÜV Rheinland InterTraffic GmbH.

Ordered by:
1. Transrapid International, TRI
2. Shanghai Maglev Transportation Development Company, SMTDC

Important date:
- Length of the route: 30 km
- Number of switches: 8
- Number of stations: 2
- Number of trains: 3
- Maximum speed: 430 km/h
- Est. number of passengers: 10 million/y
- Time of construction: 2001 - 2003

Tasks of TÜV Rheinland InterTraffic GmbH:
- Assessment of operating regulations and procedures as they were updated.
- Verification of validity and adherence to specific boundary conditions of all safety-related interfaces of the subsystems consisting of vehicle, guideway, OCS, propulsion and operation facilities.
- Verification of documents, visual and functional inspections.