

## **Executive Summary**

On October 24, 2023, at 13:41, a 35-ton tractor with a semi-trailer (hereinafter referred to as the "tractor-trailer") owned by Shih Fu Transportation Ltd. was traveling northbound on Provincial Highway No. 9 at a speed of approximately 56 km/h (speed limit: 40 km/h) when it crashed into a passenger vehicle that had stopped for traffic in the Xinao Tunnel at 117K+960. The tractor-trailer then pushed the passenger vehicle forward and crashed into other vehicles. The occurrence involved 13 passenger vehicles, 3 heavy trucks, and 1 heavy motorcycle, resulting in 1 death and 12 injuries.

In accordance with the Transportation Occurrence Investigation Act, the Taiwan Transportation Safety Board (TTSB) is the independent transportation occurrence investigation agency responsible for conducting the investigation. The investigation team also included members from the Highway Bureau of the Ministry of Transportation and Communications (MOTC) and Shih Fu Transportation Ltd.

The draft of this investigation report was completed in March 2025. In accordance with the procedures, it was revised after preliminary review at the 73<sup>rd</sup> Board Meeting of the TTSB on March 14, 2025, and then sent to relevant agencies (institutions) for their opinions. The investigation report was published after review and approval by the 74<sup>th</sup> Board Meeting on April 11, 2025.

After comprehensive investigation and analysis of the factual data, a total of 8 findings and 2 safety recommendations were obtained.

## **I. Investigation Findings**

### **Findings Related to Probable Causes**

1. After working for long hours, the driver in the occurrence was affected by the enclosed and low-brightness environment in the tunnel, which led to reduced concentration and alertness. Therefore, in a state of dazedness, he failed to notice that the traffic queue in front of him had stopped. He did not brake and crashed into the passenger vehicle in front.

### **Findings Related to Risks**

1. The carrier only arranged duties based on business volume and did not properly manage the working hours of its drivers. This may have caused drivers to be fatigued and affected their concentration, thereby increasing driving risks.
2. Although driving hours, training, and pre-departure inspection forms for drivers of trucking carriers are not statutory management items according to the Motor Vehicle Transportation Industry Management Regulations, the Highway Bureau still requires trucking carriers to conduct self-inspections on safety management. Shih Fu Transportation Ltd. did not fulfill management responsibilities in overseeing its vehicles and drivers by not completing the aforementioned self-inspections.

### **Other Findings**

1. The tractor-trailer has a valid motor license issued by the Highway Bureau. Furthermore, according to the tractor-trailer's vision-based

driver assistance system and the interpretation results of the vehicle inspection and the electronic control unit, even though the tires of the tractor-trailer were punctured by foreign objects and lost pressure and one of the brake pads was overheated and burned, they were found to be unrelated to this occurrence. The maintenance, repair, and inspection records of the tractor-trailer showed no abnormalities. Furthermore, no pavement abnormalities were found in the tunnel at the time of the occurrence. The driver involved in the occurrence held a valid driving license issued by the Highway Bureau; there is no evidence that alcohol or drugs were involved in this occurrence.

2. The driver involved in the occurrence worked a total of 68 days in the past 3 months prior to the occurrence, with an average driving time of 10 hours and 34 minutes. Among the 68 days, 8 days (12%) exceeded 12 hours, and 40 days (59%) exceeded 10 hours. In addition to 10% of the work days clearly violating the Labor Standards Act, it is possible that nearly 60% of the work days exceeded 12 hours.
3. Even though the motor vehicle supervisory authority verified that the carrier had completed improvements after the assessment, the carrier failed to maintain the improvement results and reverted to its flawed management methods in the past. This shows that the Executive Information System management and safety assessments are not fully effective in influencing the safety management of the transportation industry.
4. If the motor vehicles supervisory authority is not supported by a labor administration unit when conducting safety assessments of trucking carriers, it will be difficult for the motor vehicle supervisory authority to detect the working hours of the drivers.

5. Neither the Labor Standards Act nor the Motor Vehicle Transportation Industry Management Regulations have any provisions on the rest and driving time of truck drivers. Only the Labor Standards Act prescribes working hours not exceeding 12 hours a day. In contrast, bus drivers are not allowed to drive for more than 10 hours a day, and must have a rest period of more than 10 hours between 2 consecutive work days. This shows that regulations for trucking carriers are not rigorous enough, and there is a relatively high safety risk.

## **II. Safety Recommendations**

### **To Shih Fu Transportation Ltd.**

1. Implement a driver management system to accurately monitor and properly implement driver assignments, ensuring that drivers' working hours comply with regulations. In addition, self-inspections should be carried out to improve the management system of personnel and vehicles.

### **To the Ministry of Transportation and Communications**

1. Evaluate and establish regulations for driving hours and rest periods for drivers in the three freight transport industries, based on the duty management system for bus drivers.

Note: The language used in the occurrence investigation Final Report is in Chinese. To provide a general understanding of this investigation for the non-Chinese reader, the Executive Summary of the Final Report was translated into English. Although efforts are made to translate it as accurately as possible, discrepancies may occur. In this case, the Chinese version will be the official version.