

January 31, 2019

Mr. Keiichi Ishii,
Minister of Land, Infrastructure, Transport and Tourism

Kazuhiro Nakahashi, Chairman,
Japan Transport Safety Board

On the opinion concerned with the train derailment accident
in Nankai Line, Nankai Electric Railway Co.Ltd.

In view of the result of this accident investigation, the Japan Transport Safety Board expresses its opinions the Minister of Land, Infrastructure, Transport and Tourism pursuant to Article 28 of the Act for Establishment of the Japan Transport Safety Board as follows in order to contribute the prevention of recurrence of the accidents of the same kind.

If any measures are taken in response to this opinion, please notify us of the details.

Notes

It is highly probable that this accident caused by the vehicle derailing because the train ran on the track significantly deformed due to the subsided and tilted pier by the occurrence of the scouring in around the pier by the swollen river water,.

The foot protection had been constructed as the scour protection work to the piers, and Nankai Electric Railway Co. Ltd. had been implemented the diagnosis of the piers by the impact vibration test, as already recognized the unusual status of the pier before the occurrence of the concerned accident. To review the occurrence of the accident, the impact vibration test is the effective method to diagnose the healthiness of the pier at that time, but it suggested that there is the possibility to cause the result to overlook the deterioration of the protecting function of the scour protection works by the swollen water in the future, based on only the diagnosis by the impact vibration test.

In order to prevent the same kind of the scour disasters, it is important to study on the measures by implementing the inspection process properly referring the Standards for Management of Maintenance for Railway Structures, etc., Structure Edition, as the guide line, and to implement the precise investigation steadily for the scour protection works in the individual inspection if necessary.

As the Standards for Management of Maintenance for Railway Structures, etc., Structure Edition, have been made well known from the Railway Bureau of the MLIT to the railway and tramway operators by the "On the Establishment of the Standards for Management of

Maintenance for Railway Structures", notification from the Director-General, Railway Bureau issued on January 16, 2007, the following points should be made well known in the railway and tramway operators having the river bridges, considering that the scour disaster may cause the serious accident, based on the occurrence of the accident.

1. When implement the inspection of the bridges, the Standards for Management of Maintenance for Railway Structures, etc., Structure Edition, should be used as the guideline, and refer to the comments of the Standards on the inspection method, the judging method of the healthiness and the measures, etc. When the unusual status of the scour protection works, etc., were found in the general inspection, implement the judgement of the healthiness considering the inspected results for the scour protection works and judge the necessity of the individual inspection. When the individual inspection was judged as needed, implement the precise inspection for the status around the pier and the maintained status of the protecting function for the scour protection work and study the necessity and the urgency of the measures, then implement the measures systematically.
2. In the comments of the Standards for Management of Maintenance for Railway Structures, etc., Structure Edition, the "marking table to pick up bridges scoured easily" was proposed. The marking table is the optional material in order to pick up the bridges having risks to cause the scour disaster, however, according to the process described in 1 above, implement the judgement of the necessity of the individual inspection properly and steadily referring to the similar marking table.