

Legislative Council Panel on Transport

Fire Incident at the Cross Harbour Tunnel on 29 May 2000

Introduction

The ownership of the Cross Harbour Tunnel (CHT) was transferred to the Government on 1 September 1999. The contract to manage and operate the CHT was awarded, after an open tender, to the Hong Kong Tunnels & Highways Management Company Limited (hereinafter referred to as the tunnel operator) on the same date.

2. A private car caught fire inside the Kowloon bound tunnel tube of CHT on 29 May 2000. This paper gives a brief account of the incident, the public complaints, our preliminary assessment and the future improvement measures.

The Incident

3. The tunnel operator reported that they detected at 1325 hours on 29 May 2000 via the closed circuit television (CCTV) at the tunnel control room that there was smoke in the Kowloon bound tube. They immediately activated the standard fire emergency procedures, namely informing the Fire Services Department (FSD) through the direct telephone line, dispatching the first rescue team of three staff (including a driver) to the incident scene, stopping all vehicles at both tunnel entrances, alerting tunnel users of the emergency situation through tunnel radio broadcast, switching on the fire mode of the ventilation system and opening the emergency gate to facilitate the fire engines to access the incident scene. According to the incident record of the tunnel operator, their first rescue team arrived at the scene at 1328 hours and found that a private car was on fire. They attempted to control the fire, but failed. As fire officers were arriving, they proceeded to evacuate drivers and passengers in the tunnel. Majority of the tunnel users were evacuated by 1337 hours. The FSD received a 999 call reporting the incident at 1324 hours and a similar call from the tunnel operator at 1325 hours. They arrived at the tunnel portal at 1328 hours and the fire scene at 1330 hours. A summary of events for the incident is shown in the Annex.

4. During the incident both the Hong Kong and Kowloon bound tunnel tubes were closed for fire-fighting, evacuation and recovery operation. There were traffic queues at both ends of the tunnel. The nearside lane of the Hong Kong bound tube was re-opened to traffic at 1357 hours and then the off-side lane at 1410 hours. For the Kowloon bound tube, it was re-opened to traffic at 1420 hours. The traffic on both Hong Kong and Kowloon sides gradually resumed normal at about 1450 hours.

The Public Complaints

5. Following the above fire incident, several public complaints were received :

- (a) The tunnel operator was slow to respond to the incident.

Video tape taken by ATV cameramen (incidentally trapped by the incident about 30 metres behind the scene) did not show any tunnel staff at the incident scene for about 10 minutes (between 1323 and 1333 hours), though the tunnel operator claimed that their first rescue team arrived at 1328 hours.

- (b) The radio broadcasts by the tunnel company about the fire were confusing.

Some earlier broadcasts advised tunnel users about the breakdown of a vehicle, while later broadcasts advised about a car on fire, causing confusion to the people inside the tunnel.

- (c) The evacuation process was unsatisfactory.

Some motorists and bus passengers complained that they were trapped in their vehicles for some time before being directed to evacuate. Also, no clear messages were given to them while they were waiting to be evacuated.

6. The tunnel company explained that they had reacted promptly and properly according to established procedures. The complaints and the operator's response are assessed below.

Assessments

7. The Transport Department (TD) has conducted a review of the incident together with the relevant Government departments and the tunnel operator. Our overall findings on the various complaints are given below :

- (a) The slow response of the tunnel operator

It took two minutes for the tunnel staff at the control room to detect the fire. The fire should have been detected as early as possible and replacing the CCTV system will help address this. The tunnel operator's staff reportedly took three minutes to reach the incident scene. This is longer than the pledged response time of two minutes specified

in the management contract. We however consider that this target two-minute response time is quite stringent and may be affected by the location and nature of any incident. In this particular case, it may have taken the tunnel vehicle over a minute just to reach the scene. We have viewed a copy of the ATV news report. However, because of smoke, it provides no clear evidence concerning the arrival or non-arrival of the tunnel staff. The tunnel operator cannot provide definite evidence to substantiate their claim that their staff arrived at the incident scene at 1328 hours (i.e. within 3 minutes after detection of the incident). However FSD indicated that at 1328 hours when their fire engines arrived at the Kowloon portal, the tunnel operator had already fully activated the fire emergency procedures. A tunnel vehicle was already waiting to escort them to the incident scene.

The two recovery staff who first arrived at the incident site had not fully complied with the standard emergency procedures. Firstly, they did not wear smoke masks when entering the scene. Secondly, they used a fire extinguisher instead of a fire hose to control the fire. Thirdly, one member of the staff left the scene to help with the evacuation, but should have stayed to work as a team. Fourthly, both members of the staff should have stayed at the scene to hand over the operation to the fire officers on their arrival. According to the report from the rescue staff, as they did not wear smoke masks, they felt uncomfortable because of the heavy smoke and could not stay at the scene. Both staff proceeded to conduct evacuation. Failure to follow standard procedures may put the staff at risk.

(b) The confusing radio broadcasts

The confusion may have been due to another incident occurring before the fire incident. According to the tunnel operator, a private car broke down in the Kowloon bound tube at about 1310 hours. This caused stoppages to the Kowloon bound tunnel traffic and the tunnel company had made 5 broadcasts informing motorists of the incident. The incident ended at about 1316 hours with the fire occurring soon after that event. These two separate incidents might have trapped some vehicles inside the tunnel as early as 1310 hours. Some motorists therefore had first received broadcasts about the breakdown of a vehicle and later on about the fire incident. Nevertheless, whatever the cause might be, there is room for improvement in communication with the affected people.

(c) Unsatisfactory evacuation

It was necessary to evacuate the people from the tunnel during the incident. About 500 people were evacuated and no injuries were recorded. Further improvement in the means and message of communication with the tunnel users would be necessary to facilitate the evacuation process.

At present, the tunnel operator conducts monthly internal emergency training for their staff. The FSD conducts monthly visit to the control room and discuss emergency handling procedures with the tunnel staff. The FSD also conduct fire drills at least once a year with the tunnel operator on fire fighting and evacuation work.

Findings

8. Overall, the Administration considered that the tunnel operator had responded and handled the fire incident generally in an effective manner and in accordance with established procedures. However, we are concerned about the time taken to detect the fire. In addition, there are four procedural issues of concern, as outlined in para. 7(a) above. This is considered unsatisfactory and improvements are required.

9. In particular, we will work with the tunnel operator to identify ways to improve the following:

- (a) the response time; and
- (b) adherence to procedural aspects, including the need to wear smoke masks, the use of a fire hose to tackle the fire and to stay at the scene until a proper hand over to the FSD.

We will also pursue para. 9(b) with other tunnel operators.

Improvement Measures

10. At the review meeting conducted by the TD on 1 June 2000, it was agreed that the following preliminary measures would be adopted to improve the fire fighting capability of the staff and the equipment of CHT:

(a) Upgrading of the tunnel equipment

TD will seek funds to replace the cameras and the monitors of the CCTV system in the tunnel to enhance surveillance at the tunnel control room on traffic movement inside the tunnel. The existing CCTV

monitoring system of the tunnel would be replaced with a coloured system with a higher resolution and more monitoring features (including pan & tilt and zooming). This project is estimated to cost about \$8.5M.

In addition, our preliminary investigation shows that it is feasible to upgrade the existing fire hydrant system to fire hydrant/hose reel system in the tunnel to facilitate fire fighting. Subject to further investigation, we would seek funds to implement the scheme shortly.

(b) Enhancement of staff training in tunnel fire

In view of the unsatisfactory performance of the two tunnel staff first arriving at the incident scene, the tunnel operator has been asked to enhance the training for their staff on fire fighting. More emphasis will also be placed on broadcasting and communication with the affected public. Tunnel officers first arriving at the incident scene would from now on use loud hailers to inform motorists of the incidents and to direct evacuation as appropriate.

(c) Fire drills with participation from relevant parties

Fire drills in the tunnel had not involved bus operators previously. It is considered useful to involve the bus and public light bus operators to enhance communication and evacuation of bus passengers in case of tunnel fire. TD is planning such a fire drill for the tunnel in the next few weeks.

11. In addition to the above, TD will continue to examine further improvement measures for all tunnels. These will cover the following areas:

(a) Review of tunnel equipment

We have a rolling programme to upgrade/renew the various equipment for Government tunnels normally upon the end of their economic life, such as the environmental monitoring system, traffic control and surveillance system and ventilation system. We will conduct a review on the need to upgrade the existing fire protection facilities in the tunnels and to explore the feasibility of automatic detection systems.

(b) Planning and Monitoring of fire drills

At present, all tunnel operators conduct their internal fire fighting training for their staff and hold at least one fire drill a year with FSD. We will liaise with all the tunnel operators to consider possible

improvement in the planning and monitoring of fire drills. For example, bus and public light bus operators will be involved in these fire drills.

(c) Closer communication among the tunnel operators

Apart from ad hoc experience sharing and exchange of views, we are considering holding regular experience sharing sessions on tunnel emergencies for the tunnel operators. This will facilitate tunnel operators to share experience and to review the latest development in the emergency management in the industry.

(d) Education for the public

We will step up education for the public on safety guidelines in case of fire and other emergencies inside tunnels with the assistance of the tunnel operators, bus operators and the Road Safety Council.

Advice Sought

12. Members are requested to note the above report.

Transport Department
June 2000

Fire Incident at Cross Harbour Tunnel on 29 May 2000Sequence of Events (based on reports received)

Time (Hours)	Action by	Events
1324	FSD	Received 999 call about the fire
1325	TO	Detected via CCTV at tunnel control room that there was heavy smoke at Alcove 10 in the Kowloon bound tube. The staff activated the fire emergency procedures; namely informing the FSD via direct telephone line, dispatching first rescue team to the incident scene, stopping all vehicles at both tunnel entrances, switching on the fire mode of the ventilation system and opening the west emergency gate to facilitate the fire engines to access the incident scene.
1328	FSD	FSD arrived at the tunnel portal starting the rescue and evacuation process.
1328	TO	The tunnel rescue team arrived at the incident scene and attempted to control the fire and to evacuate people.
1330	FSD	The fire engines arrived at the fire scene to tackle the fire. Breathing apparatus were in use.
1337	FSD	The fire was upgraded to No. 3 Alarm to summon for additional manpower to assist in evacuation process. In the evacuation, most tunnel users were led from the Kowloon bound tube to the Hong Kong bound tube through the emergency cross passage towards the Hong Kong portal.
1344	FSD	The fire was under control.
1356	FSD	The fire was suppressed and evacuation operation was completed.
1357	TO	The nearside lane of the Hong Kong bound tube was re-opened to traffic
1402	TO	The wrecked car was towed away from tunnel.
1410	TO	The offside lane of Hong Kong bound tube was re-opened to traffic.
1420	TO	The Kowloon bound tube was re-opened to traffic.

(Note : FSD – Fire Services Department

TO – Tunnel Operator)