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4 May 2011

Ms Joanne Mak
Clerk to Subcommittee
Subcommittee on Matters Relating to Railways
Panel on Transport
Legislative Council Secretariat
Legislative Council Building
8 Jackson Road, Central
(Fax：2121 0420)

Dear Joanne,

Panel on Transport
Subcommittee on Matters Relating to Railways
Follow up issues concerning MTR Corporation Limited

After the meeting of the Panel on Transport Subcommittee on Matters Relating to Railways held on 18 March 2011, Hon Lau Kong-wah and Hon Ip wai-ming requested information related to MTR Corporation Limited (MTRCL). The relevant information is enclosed as follows –

(a) Information on incidents involving rail cracks provided MTRCL at Annex 1;
(b) the Administration's paper on the Ma On Shan Line service disruption on 7 April 2011 at Annex 2; and
(c) MTRCL's paper on the Ma On Shan Line service disruption on 7 April 2011 at Annex 3.

I would be grateful if you could distribute the enclosures to Members for information.

Yours sincerely,

(Miss Ellen Chan)
for Secretary for Transport and Housing

c.c.

MTRCL	(Attn: Mr Jeff LEUNG)	Fax: 2795 9991
TD	(Attn: Ms LUI Ying)	Fax: 2824 0433
EMSD	(Attn: Mr KM Leung)	Fax: 3579 2016

Annex 1

MTRCL's response to questions raised by Hon Lau Kong-wah in a letter to the Chairman of the Panel on Transport Subcommittee on Matters relating to Railways on 11 April 2011 in respect of incidents involving rail breakages

Rails in the MTR network are made of steel. As with any metal, the possibility of cracks/breakages developing is a natural phenomenon that will occur. Rails are securely fastened onto track support structures with steel clips which are located two feet apart. Altogether, 2.5 million steel clips currently hold the MTR network's 820 kilometres (excluding Light Rail) of rail securely in place. Even in the event of a vertical crack developing from the rail top to bottom, i.e. breakage, the steel clips will keep the rail firmly in place, preventing movement and ensuring continued safe train operations.

Regarding the questions raised by Hon Lau Kong-wah in his letter, MTR Corporation Limited (the Corporation) now replies as follows –

1, 2 & 3. In early 2010, the Corporation discovered two defective rail crossings manufactured by Edgar Allen. Having made prudent consideration from the perspective of asset management, the Corporation decided to replace all rail crossings of the same model from the same supplier in the whole network. A total of six rail crossings were replaced, incurring costs of about HK$600,000 for materials and another HK$600,000 for installation. The replacement work was completed in April 2010. The Corporation did not seek compensation or ask for a refund from the manufacturer because at the time of the replacement of the rail crossings, the contract warranty period has expired.

4. As mentioned in the Corporation's paper submitted to the Legislative Council Subcommittee on Matters Relating to Railways in February 2011, among the 14 rail crack incidents from 1 January 2008 to 10 February 2011, a total of eight cases involved Balfour Beatty and Tata Group. The costs of materials and installation for the rail replacement were about HK$480,000. Of the eight, four cases involved weak weld joint made on site and were not related to the manufacturing process, thus the Corporation did not pursue compensation or refund from the rail manufacturer. Another case involved a steel cable protection pipe in contact with the underside of the rail which led to intermittent arcing, causing partial damage to the bottom part of the rail and resulting in high stress concentration in the area. As the cause was also not related to the

manufacturing process, the Corporation did not seek compensation from the manufacturer. Another two cases involved impurities inside the rail head and design deficiency respectively. In these two cases, the rails concerned had been in use for 17 years and 8 years respectively and their warranty had expired. As such, no compensation from the manufacturer was pursued. The last case involved a defective weld joint during manufacturing. Considering that the cost of the rail crossing concerned was only several tens of thousand dollars, which did not justify the administration cost for seeking compensation from the manufacturer, the Corporation therefore decided not to pursue compensation.

Details of the aforementioned incidents are set out in the table below:

On-site Welding

Date	Location	Rail Manufacturer	Root Cause	Age of Rail
10 Mar 2010	Kwun Tong Line East of Kwun Tong Station (Plain rail)	British Steel/ Corus (Tata Group)	Weak weld joint (welded on site)	16 days
15 Jul 2010	Tsuen Wan Line South of Kwai Hing Station (Plain rail)	British Steel/ Corus (Tata Group)	Weak weld joint (welded on site)	6 months
1 Nov 2010	Tsuen Wan Line North of Admiralty Station (Plain rail)	British Steel/ Corus (Tata Group)	Weak weld joint (welded on site)	4.5 years
10 Feb 2011	Tsuen Wan Line North of Admiralty Station (Plain rail)	British Steel/ Corus (Tata Group)	Weak weld joint (welded on site)	4 years

Others

Date	Location	Rail Manufacturer	Root Cause	Age of Rail
19 Jan 2008	East Rail Line North of Mong Kok East Station (Rail crossing)	Balfour Beatty	Defective weld joint by manufacturer	3 years

Date	Location	Rail Manufacturer	Root Cause	Age of Rail
18 Nov 2009	East Rail Line North of Tai Wai Station (Stock rail)	Balfour Beatty / British Steel/ Corus (Tata Group)	Impurities inside rail head	17 years
24 Jul 2010	Kwun Tong Line West of Ngau Tau Kok Station (Switch rail)	Balfour Beatty / British Steel/ Corus (Tata Group)	Design deficiency	8 years
19 Jan 2011	Tung Chung Line East of Sunny Bay Station (Plain rail)	British Steel/ Corus (Tata Group)	A steel cable protection pipe was in contact with the underside of the rail, inducing intermittent arcing, which resulted in high stress concentration in the area.	12 years

5. In the procurement of rails, the Corporation follows the procurement procedures of the World Trade Organization and rigorously requires rail manufacturers to implement strict quality control to ensure that specifications are met. In fact, the aforementioned rail manufacturers also provide rails to many railway systems in the world.

   In addition, the Corporation has in place stringent procedures for the inspection and maintenance of rails. Regular inspections, including ultrasonic rail testing, visual inspection and dye penetration test are conducted as part of the routine maintenance regime. The aim is to identify irregularities and rail cracks/breakages as soon as possible so that preventative maintenance or replacement of the rail can be conducted in a timely manner. This serves to minimise the chance of cracks/breakages occurring in passenger service hours and causing delays as a result of temporary repairs having to be carried out.

6. Currently, the warranty period is set out in the contract between the Corporation and the manufacturer. The warranty period for plain rails is 5 years, while that for switch rails, rail crossings and other related parts is 60 months after delivery to the Corporation or 24 months after

installation, whichever is shorter. This arrangement is in line with industry practice.

7. The Corporation adopts the International Standard EN13674 in rail procurement and requires rail manufacturers to implement strict quality control to ensure that specifications are met. The Corporation's engineers also pay unscheduled visits to factories to inspect quality control documents and witness quality assurance tests. Release certificates will only be issued by the Corporation when it is satisfied that the rails meet the required technical specifications. When the rails are delivered to Hong Kong, MTR staff will conduct further inspection to ensure they are in good condition.

   With a commitment towards continuous improvement, the Corporation has engaged a team of experts on rail technology from the Monash University – Institute of Railway Technology (the Institute) to conduct a comprehensive review of the Corporation's rail procurement, quality control, inspection and maintenance regime with particular focus on rail cracks and breakages. The Institute is an internationally recognised authority on railway technology and is expected to complete the review in July 2011.

8. The Corporation places great emphasis on providing safe and reliable service for its passengers. In benchmarking studies of major railways around the world by the CoMET group, the Corporation's performance is consistently amongst the best in safety, reliability and passenger journeys on time. In particular, in comparison with other railways in the world, the Corporation's performance in terms of service reliability has remained very good. With more than 7,000 train journeys being operated each day, the overall rate of passengers arriving at their destinations reaches 99.9%.

   The Corporation understands the public's expectations for its services. The Corporation will not lower its guard and will strive to provide good service to passengers. However, it is impossible to avoid incidents entirely and the Corporation hopes passengers would tolerate and understand this.

MTR Corporation
May 2011

Annex 2

MTR Ma On Shan Line service disruption on 7 April 2011

MTR Corporation Limited (MTRCL) has completed the investigation into the cause of the incident on 7 April 2011. The Administration's assessment on the investigation and the handling of the incident by MTRCL is set out in the following paragraphs.

2. The incident is caused by a fault in the overhead line power supply in the upline of Ma On Shan Line from Tai Wai Station to Sha Tin Wai Station at 7:56 a.m. on the day of the incident. Train service between Tai Wai Station and City One Station had to be operated bi-directionally for a time to maintain limited service. After urgent repair by MTRCL, the power supply for that section resumed at 8:38 a.m. and train service for the entire line resumed normal at 8:50 a.m. The safety protection device of the overhead line performed normally in the incident with no safety implications on railway operation.

3. The incident was caused by a fault in a power cable located on the railway viaduct near City One Station. Investigation by MTRCL revealed that the insulation material of the power cable was damaged. The damage was very likely made during installation of the cable during construction of the Ma On Shan Line. As the insulation material was damaged, the insulation performance of the material weakened over time, finally causing the short-circuit fault in the power cable.

4. Transport Department (TD) has reviewed how MTRCL has performed in the areas of the notification procedures, dissemination of information and contingency arrangements. TD is of the view that, in handling the incident, MTRCL has notified the Emergency Transport Co-ordination Centre (ETCC) of TD, issued to TD and other public transport operators an Amber Alert and disseminated to the media information about the incident and train service arrangement, in accordance with the existing notification mechanism.

5. Following the incident, even though train service on the Ma On Shan Line could still be maintained, as service frequency was substantially reduced, MTRCL arranged shuttle bus service to serve affected passengers. MTRCL also informed passengers of the service disruption and shuttle bus arrangement through public announcement in train compartments and stations. Moreover, MTRCL provided information about alternative public transport services through giant information displays in concourses of the relevant stations. In addition,

MTRCL deployed additional staff (including mobilizing the new "Customer Service Rapid Response Unit") to the Ma On Shan Line, from Tai Wai Station to City One Station, to assist passengers as well as direct passengers to the boarding points of the shuttle buses, maintaining order of passengers during queueing and boarding.

6. The shuttle bus service arranged by MTRCL started running between Tai Wai Station and City One Station at 8:37 a.m. and ran until 9:30 a.m. (i.e. 40 minutes after train service resumption). During the incident, a total of 34 buses were operated and carried about 1,300 passengers.

7. As regards dissemination of information to passengers, MTRCL informed passengers of the Ma On Shan Line service disruption and alternative public transport service through the public announcement system and notices at all the Ma On Shan Line stations as well as announcements made on trains. Announcements were made on trains running on the East Rail Line when they were approaching Tai Wai Station, the interchange station with Ma On Shan Line, to inform passengers of the service disruption on the Ma On Shan Line. In addition, MTRCL used giant information displays and directional signs to provide passengers with information regarding the service disruption and alternative public transport.

Conclusion

8. MTRCL has submitted incident reports to TD and the Electrical and Mechanical Services Department (EMSD). TD is of the view that, on the whole, MTRCL has implemented the necessary contingency arrangements in respect of notification procedures, dissemination of information and regulation of passenger flow in accordance with the contingency plans agreed with the relevant government departments. EMSD has enquired into the cause of the power cable damage and agreed with MTRCL's findings on the cause of the incident. In light of the incident, MTRCL has replaced the damaged cable on 14 April 2011 and conducted a thorough inspection of all high voltage cables installed in cable containment of the same design to ensure there is no damage of the same kind, in order to prevent similar occurrences.

Transport and Housing Bureau
May 2011

Annex 3

MTR Ma On Shan Line Service Disruption on 7 April 2011

This paper provides information on the service disruption on the MTR Ma On Shan Line on 7 April 2011.

The Incident

2. At 7:56 a.m. on 7 April 2011, the alternating current circuit breaker (ACCB) for the overhead line section between Tai Wai and Sha Tin Wai Stations in the Wu Kai Sha-bound direction tripped open, cutting off power supply to the section and disrupting train service.

3. The Operations Control Centre (OCC) attempted to close the ACCB and restore power supply according to established procedures. Four attempts were made, but the affected section could not be re-energised.

4. At 8:09 a.m., train service on the Ma On Shan Line was reconfigured to operate in two sections. Train service between City One and Wu Kai Sha Stations was operated at 5-minute intervals. A shuttle train service operating in a bi-directional manner on the Tai Wai-bound track was arranged between Tai Wai and City One Stations at 10-minute intervals. This reconfiguration allowed train service to be maintained on the whole line but passengers travelling between the two sections had to interchange at City One Station to continue their journeys.

5. To supplement the train service, MTR free shuttle buses were also deployed on that day to operate between Tai Wai and City One Stations, with stops at Che Kung Temple and Sha Tin Wai Stations. MTR free shuttle buses began operating from Tai Wai and City One Stations at 8:37 a.m.

6. MTR Corporation Limited (the Corporation), after notifying the Transport Department (TD) at 7:59 a.m., issued an Amber Alert at 8:05 a.m. to seek assistance from other public transport operators to strengthen services in the affected area. Passengers were also advised to take other modes of public transport.

7. Maintenance staff were immediately deployed to conduct site inspection along the tracks while OCC staff continued to identify the cause of the power loss. Finally, OCC ascertained that the incident was due to power loss in a section of the high voltage power cable. The cable concerned was isolated and at 8:38 a.m., power supply was restored between Tai Wai and Sha Tin Wai Stations. After conducting the required safety check of the tracks to ensure all maintenance staff had been cleared, normal train service resumed on the entire Ma On Shan Line at 8:50 a.m. and the Amber Alert was cancelled.

Contingency Measures

8. The Corporation has in place contingency plans to cater for train service disruptions. New measures introduced recently to improve communication with passengers were also deployed during this incident.

Information Dissemination

9. According to established procedures, TD was informed and an Amber Alert was issued. At the same time. the media was also informed and requested to assist in disseminating the latest train service information to members of the public.

10. During the incident, centralised public announcements were made in all Ma On Shan Line stations and on trains to inform passengers of the power supply disruption and train service arrangement. Individual stations made additional announcements to provide station-specific information to passengers. At the same time, announcements were made on all trains along the East Rail Line as they approached Tai Wai Station to inform passengers of the disruption.

11. Giant information displays provided alternative public transport information including franchised bus routes, bus stop locations and MTR free shuttle bus pick-up points at the stations concerned including Tai Wai, Che Kung Temple, Sha Tin Wai and City One Stations.

12. Colour-coded signs in hot pink directing passengers to MTR free shuttle bus pick-up points were displayed in concourses and at street level of the four above-mentioned stations.

13. In addition, station-specific “Rail Service Suspension Passenger Guides” were made available and distributed to passengers at the

concerned stations to provide information on alternative public transport outside the station and MTR free shuttle bus service.

MTR Free Shuttle Bus Service

14. Although Ma On Shan Line train service was maintained throughout the incident, supplementary MTR shuttle buses were arranged to serve passengers between Tai Wai and City One Stations from 8:37 a.m. and continued to operate until about 9:30 a.m., well after train service on the Ma On Shan Line had resumed normal at 8:50 a.m. A total of 34 buses were operated, serving about 1,300 passengers.

Station Control

15. Members of the new "Customer Service Rapid Response Units" were mobilised to Tai Wai and City One Stations to maintain order, ensure smooth passenger flow at stations, direct passengers to the MTR free shuttle bus pick-up points, and manage queuing order at pick-up points.

16. Additional manpower was also mobilised from East Rail Line stations to Tai Wai and City One Stations to provide assistance to passengers.

17. During the incident, exit gates at Tai Wai, Che Kung Temple, Sha Tin Wai and City One Stations were temporarily set to allow passengers to exit without Octopus fares being deducted. Single Journey Tickets were returned to passengers who could re-use the ticket for travel on the same day or obtain a refund at Customer Service Centres.

Investigation Findings

18. Investigations revealed that insulation material on the underside of the high voltage power cable in the affected section was damaged. As the cable was located in covered containment and not subject to any handling since installation, the Corporation believed the damage was very likely to be incurred when the cable was installed during construction of the Ma On Shan Line. The damage became a weak point and the insulation material failed to perform its function over time with use. This ultimately resulted in the short-circuiting on 7 April 2011.

19. At the time of the incident, the overhead line ACCB performed its design function and tripped open as part of the fail-safe design of the railway. Safe train operations and passenger safety was maintained throughout.

20. The damaged section of the cable was replaced. An inspection of all high voltage power cables installed in cable containment of the same design has been conducted. All were found to be in normal condition.

Conclusion

21. The Corporation apologises for the inconvenience caused to passengers during the 7 April 2011 train service disruption on the Ma On Shan Line. Efforts were made to ensure train service was maintained on the whole line during the incident period, albeit at a reduced frequency, and MTR free shuttle buses were deployed to supplement train service.

22. The Corporation appreciates the public's understanding that train service disruptions may occur from time to time. The Corporation is committed to seeking continuous improvement to reduce the inconvenience caused when disruptions occur and to continue providing a safe, reliable and efficient mass public transit service for its passengers.

MTR Corporation
May 2011