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Panel on Transport

Subcommittee on Matters Relating to Railways

**Minutes of special meeting on
Monday, 3 October 2005, at 9:00 am
in the Chamber of the Legislative Council Building**

- Members present** : Hon Miriam LAU Kin-ye, GBS, JP (Chairman)
Ir Dr Hon Raymond HO Chung-tai, S.B.St.J., JP
Hon LAU Kong-wah, JP
Hon Andrew CHENG Kar-foo
Hon TAM Yiu-chung, GBS, JP
Hon Abraham SHEK Lai-him, JP
Hon Tommy CHEUNG Yu-yan, JP
Hon Albert CHAN Wai-yip
Hon WONG Kwok-hing, MH
Hon LEE Wing-tat
Hon Jeffrey LAM Kin-fung, SBS, JP
- Members absent** : Hon Mrs Selina CHOW LIANG Shuk-ye, GBS, JP
Hon Patrick LAU Sau-shing, SBS, JP
- Public Officers attending** : Miss Cathy CHU
Deputy Secretary for the Environment, Transport and Works
- Mr William SHIU
Principal Assistant Secretary for the Environment,
Transport and Works
- Mr K H LO
Chief Inspecting Officer (Railways)
Hong Kong Railway Inspectorate Section
Environment, Transport and Works Bureau

Mr Albert YUEN
Assistant Commissioner for Transport/Bus and Railway

Attendance by invitation : Kowloon-Canton Railway Corporation

Mr Y T LI
Senior Director, Transport

Mrs Grace LAM
General Manager, Corporation Affairs

Mr Henry CHEUNG
Signal & Communications Systems Manager

Clerk in attendance : Mr Andy LAU
Chief Council Secretary (1)2

Staff in attendance : Mrs Mary TANG
Senior Council Secretary (1)2

Miss Winnie CHENG
Legislative Assistant (1)5

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I Review of West Rail incidents

(LC Paper No. CB(1)2314/04-05(01) - Information paper provided by the Administration attaching a paper provided by the Kowloon-Canton Railway Corporation (KCRC) on "West Rail Trains Collision Incident and Signalling Failures")

Mr YT LI, Senior Director, Transport, Kowloon-Canton Railway Corporation (SDT/KCRC) briefly explained KCRC's findings on the collision incident of two West Rail (WR) trains at Pat Heung Maintenance Centre (PMC) and the investigation results of WR service delay due to signalling failures by highlighting the salient points of the information paper. Mr Henry CHEUNG, Signal and Communications Systems Manager, KCRC, (SCSM/KCRC) gave a power point presentation on causes of the signalling failures and the improvement measures implemented and to be implemented by KCRC. (Copies of the power-point presentation materials were circulated to members under LC Paper No.CB(1) 2306/04-05).

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Train collision incident inside PMC

2. Ir Dr Raymond HO enquired about the reason behind the train collision incident inside PMC as it appeared that the driver was not under the influence of alcohol and he did have sufficient rest before carrying out his duties on that day. SDT/KCRC said that the driver concerned was suspended from driving duties immediately after the incident. A medical assessment had been carried out and the results indicated that the driver was not suitable for resumption of driving duties for the time being. It was not appropriate to disclose details of the driver's health condition on grounds of personal privacy.

3. Ir Dr Raymond HO however pointed out that the proposed improvement measures of providing a yellow line in front of every stopping point within the depots and restricting the speed limit to less than 10 kilometres per hour could not have resolved the problem of train collision. He said that since it was not uncommon for a person's performance to be affected by personal problems, a driver who was so affected and who felt that he would not be fit to drive should notify the management. The driver should not be allowed to drive under such circumstances. SDT/KCRC said that KCRC would require drivers to inform the management if they felt that they were not fit to drive. Following the train collision incident, a consultant had been engaged to review the train operation inside the depot, the roster arrangements for drivers and their working conditions. It was found that the existing roster arrangements and working conditions were acceptable. To prevent recurrence of similar incidents, a yellow line was painted 20 metres in front of every stopping point so that drivers would move their trains manually at a speed of less than 10 kilometres per hour to the stop mark. In addition, more prominent signs would be installed at suitable locations and staff would be assigned to remind drivers to take critical actions such as slowing down or stopping the trains.

WR signalling incidents

Alert system and contingency measures

4. Mr WONG Kwok-hing expressed grave concern about the alert system, particularly the dissemination of inaccurate information to passengers by KCRC on the extent of service delay in the morning of 21 July 2005, and the delay in the deployment of emergency buses to provide alternate transport to the traveling public. He pointed out that on the day of the incident on 21 July 2005, while the public was notified about the incident before 6 am, no subsequent announcements had been made since and emergency buses were only provided after a 40-minute delay. He also enquired about the criteria for the provision of emergency buses and whether there was any performance pledge on such provision.

5. The Deputy Secretary for the Environment, Transport and Works (DSETW) said that the Emergency Transport Coordination Centre of Transport Department (TD) was notified about the service disruption soon after the occurrence of the signalling incident on 21 July 2005. While KCRC had been urged to expedite service recovery,

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a close watch had been made on the situation to ensure the availability of alternative transport services to affected passengers. To minimize inconvenience to passengers during service disruptions, KCRC had been requested to exercise more flexibility in deploying standby emergency buses so that affected passengers could make their own choice of alternative transport. The Assistant Commissioner for Transport/Bus and Railway (ACT/BR) added that upon notification by KCRC on the morning of 21 July 2005, TD had arranged to notify the press and the media regarding the service disruption. On the criteria for the provision of emergency buses, he said that when it had come to notice that an incident would lead to a reduction in the capacity of the train service by 20% during the peak and such situation would continue for over 20 minutes, KCRC would have the responsibility to notify the public and consider the provision of emergency buses.

6. SDT/KCRC said that apart from notifying TD, KCRC had informed the public and passengers of the incident through the media and public announcements in stations and inside train compartments. Under the agreed mechanism, KCRC would provide emergency buses for affected passengers if the delay was expected to last more than 20 minutes. This was because the mobilization of emergency services from the bus fleet of KCRC, Kowloon Motor Bus Company or other non-franchised bus companies would take time. On the day of the incident on 21 July 2005, standby vehicles were parked near Tsuen Wan West and Kam Sheung Road Stations but no despatches were arranged because the delay to passengers was then expected to be about ten minutes only. The use of emergency feeder bus services might have incurred a longer travelling time having regard to the traffic congestion in the area during peak periods and the time for picking up and setting down passengers along the stops enroute.

7. Mr WONG Kwok-hing was of the view that a 20-minute wait was too long, particularly if large numbers of passengers were affected. DSETW advised that KCRC had been requested to exercise flexibility in the deployment of emergency buses when large numbers of passengers were involved in the delay. The Principal Assistant Secretary for the Environment, Transport and Works added that the alert system of railway incidents, which comprised two level of alerts - the "Amber Alert" and "Red Alert", had been presented to the Railways Subcommittee through an information note in March 2004. Starting from January/February 2004, railway operators were required to notify TD of incidents within eight minutes on any service disruption incident that had occurred or was expected to last for eight minutes or more (as compared with 20 minutes under the previous arrangements). Upon receiving notification, TD would liaise with relevant public transport operators, such as bus operators, to standby to provide assistance as necessary. If "Red Alert" was issued and warranted the activation of emergency bus services, relevant operators would immediately mobilize their resources and provide alternative transport services to stranded passengers.

8. Mr Andrew CHENG criticized KCRC for being slow in disseminating information to the public and opined that this might have been due to the fact that KCRC had included the waiting time, the total travelling time in addition to a buffer time in the assessment of service delays. SDT/KCRC said that the assessment of

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service delays was based on the impact on headway and total travelling time. In anticipation of the over-crowded conditions at the stations during service disruptions, there was a need to include a buffer time in the assessment. Passengers would be posted on the latest information and the expected travelling time to enable them to plan ahead for their journeys.

Performance indicators

9. Mr Andrew CHENG said that it was the request of the Democratic Party that a more objective and systematic monitoring mechanism on rail services should be established through the introduction of performance indicators, which would depict the number of service disruptions as against the level of penalties.

10. DSETW said that the Administration had all along been very proactive and transparent in the monitoring of rail services. The provision of performance indicators on rail systems had been brought up at a motion debate of the Legislative Council but some members had expressed reservations against the said provision. When conducting the review on the performance and asset management by the Lloyd's Register Rail, the Administration had exchanged views with experts on rail systems and there was a general consensus that the criterion to be used in the performance assessment of rail systems should not deviate from internationally accepted standards. Concern had been raised that the introduction of performance indicators and/or a demerit system would impose pressure on frontline staff such that, in an attempt to meet the performance target, service recovery would be completed in an expedient manner which might compromise passenger safety. Such was found to be the case in a recent railway incident in Japan. As safety was of prime concern, it had been decided that the existing criteria for assessment of performance be maintained.

Design of WR

11. Mr WONG Kwok-hing said that he would find it hard to accept the outcome of KCRC's findings on WR signalling incidents. He said that KCRC's electric trains had been in operation for years and service disruptions due to inclement weather and lightning strikes were rare. The high occurrence rate of WR signalling incidents, amounting to 35 incidents since its commissioning (representing more than 80% of the total number of WR incidents), had undermined public confidence over the reliability of WR service. The need to invest \$10 to \$20 million to improve the earthing system of WR network appeared to indicate that the design of the signalling system was flawed from the start. Sharing similar views, Mr Andrew CHENG expressed concern that KCRC had blamed the occurrence of WR signalling incidents on inclement weather. As similar incidents were rare in East Rail (ER), he raised doubts about the reliability of WR's signalling system and its capability to withstand lightning strikes. He was also concerned that the system might not be up to the required standard.

12. SDT/KCRC said that the signalling system of WR was designed and installed by a Canadian company called Alcatel Canada Inc based on European standards, taking into account the climatic condition and operating environment in Hong Kong

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obtained through the Hong Kong Observatory. The signalling system had been in use by railways in a number of cities in the world including San Francisco, Vancouver, Toronto, London, Berlin, Ankara and Wuhan. Meanwhile, Guangzhou and Shanghai would be installing similar systems in their new railway lines. There were teething problems in the initial operation of WR but the situation was worsened by the unusually high occurrence of lightning strikes over the past months. It was worth to note when the electric trains of ER first came into operation in the 1980s, a lot of time and efforts were put to improve the system and subsequent upgrading was necessary due to increased patronage. As the elevated section of WR was much longer and more exposed to the environment as compared to ER, WR was thus more vulnerable to lightning strikes. He said that the signalling system had been quite reliable and he could not agree that it was not up to standard. As with any other system, there was room for improvement taking into account operational requirements.

13. Mr LAU Kong-wah enquired if the lightning strikes and thunderstorms for this year were much more serious than before, and that their severity was way beyond expectation. He also enquired if the earthing arrangements for WR which differed from that of ER, were acceptable to the Administration. The Chief Inspecting Officer (Railways), Hong Kong Railway Inspectorate (CIO(R)) said that the number of thunderstorm warnings issued in 2005 was higher than the average number in the past four years. Meanwhile, the duration of thunder warning for 2005 was 510 minutes as against an average of 434 minutes for the past four years. According to KCRC, the lightning strikes occurred during the signalling incidents were quite serious and an expert in the field had been engaged to study the impact of inclement weather on rail services. He said that the lightning protection systems for WR were designed to meet an acceptable international standard. There were cost implications of over-provisioning a system to enable it to meet extreme weather conditions. The lightning protection systems for WR were not much different than ER and were considered effective. The proposed separation of WR's earthing systems for the signalling system and the rolling stock electricity supply was meant to minimize disturbance.

14. Mr Jeffrey LAM said that in view of the severity of recent weather storms in nearby countries, the adoption of European standards for WR taking account of past climatic data might no longer be appropriate. As such, it would be necessary to work out guidelines for operating WR during thunderstorms as well as long term plans for rail operation in inclement weather. SDT/KCRC said that as past climatic data might not be useful in reflecting the actual weather conditions nowadays, he agreed on the need for more forward planning in the design of rail systems. CIO(R) said that the local weather conditions had been taken into account in the design of WR lightning protection system. Nevertheless, improvement should be made as necessary. The number of thunderstorm warnings issued within this year was higher than that of last year. The Hong Kong Observatory was now able to indicate the locations struck by lightning and this would be useful.

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15. Mr Jeffrey LAM further said that with the completion of the Hong Kong-Shenzhen Western Corridor, it was envisaged that there would be a significant increase in the patronage of WR. Since improvements to the signalling system of WR would take time, he enquired whether contingency measures would be kept in place to cater for the increase in service demand. SDT/KCRC said that KCRC had engaged the services of a consultant to conduct a study jointly with the Hong Kong Polytechnic University on the improvements which could be made to WR's signalling system. The study was expected to complete by the end of the year for implementation in mid 2006. While some improvements had already been made to the system, consideration was being given to the installation of optic fibres as part of a long term improvement plan. It was expected that the reliability of WR could be improved with the improvements made.

16. Mr LAU Kong-wah sought the Administration's views on whether the design had taken into account the impact of lightning strikes on the signalling system of WR. CIO(R) said that WR had adopted the best international practices in its design. An assessment on the lightning protection systems had been carried out by KCRC taking into account the weather conditions in Hong Kong.

17. Mr Albert CHAN demanded that the contractors be required to provide a paper explaining the causes of the incidents and whether the impact of lightning strikes had been taken into account in the design. He said that he needed to find out the truth of the matter as he had reservations about KCRC's explanation on the signalling incidents. SDT/KCRC said that he would try to request the contractor, the Alcatel Canada Inc, to provide relevant information on the standard adopted for lightning protection in the WR signalling system. He also undertook to provide members with information on the relevant contract provisions governing the design and installation of the WR lightning protection system.

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Difference between ER and WR

18. Mr Albert CHAN said that the inefficiency in the handling of railway incidents had reflected the inadequacy in the management of rail services by KCRC. There appeared to be a lack of coordination in KCRC management and he hoped that this could be improved with the changes in its organization structure. He said that as the frequent service disruptions of WR, which could be due to inclement weather and/or problems associated with substandard design and installation, had yet to be determined, there was a need for KCRC to explain how the design of WR differed from that of ER and MTR.

19. SDT/KCRC denied that there were inadequacies in the management of rail services by KCRC but he agreed that as with any organization, there was room for improvement, for example, in communication and supervision. The WR system was designed for trains to run at a higher speed and frequency compared with ER. The WR corridor from Kam Sheung Road to Yuen Long were run on elevated tracks to overcome the technical difficulties in running adjacent to developed areas. WR was so designed to meet with the said requirements. Mr Abraham SHEK considered it

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Admin necessary that an information paper should be provided to explain the difference between the design of WR and ER earthing system and the justifications for adopting the design. Mr Albert CHAN also requested the Administration and KCRC to provide information on how the design of WR differed from that of ER and MTR.

Maintenance and remedial works for WR's signalling system

20. Mr TAM Yiu-chung said that he was aware that a magazine had recently reported that there were inherent flaws in the design of WR's signalling system and that such had been the cause of frequent service disruptions. The report further indicated that the contractors for the system would no longer provide repair and maintenance service for the signalling system since the warranty period of one year had already expired. He therefore requested clarification about these allegations. He also enquired about the expertise of KCRC in the maintenance of the signalling system and whether maintenance staff from the contractors had been retained for the purpose on account of their knowledge about the systems. SDT/KCRC clarified that according to the contract KCRC entered into with the contractors, they were responsible for the replacement of spare parts of the signalling system. The repair and maintenance work however had all along been performed by KCRC and not the contractors. Some of the engineering staff engaged in the project for installing the system had been retained by KCRC as part of its maintenance team. With the experience gained in the operation of WR for the past two years, the maintenance team of KCRC would have the necessary expertise in the repair and maintenance of the signalling system.

21. Mr TAM Yiu-chung further enquired whether the actual expenditure for repair and maintenance of WR's signalling system had exceeded estimation. SDT/KCRC said that the allegation as set out in the magazine that the maintenance cost of WR's signalling system amounted to \$1 billion was false. The cost of \$1 billion incurred by KCRC covered the expenses needed to maintain the rail systems of the entire corporation. In view of the need to expedite service recovery, additional maintenance staff as well as equipment had been engaged, in an attempt to reduce the response time.

22. Mr LAU Kong-wah said that he found KCRC's explanation about the impact of lightning strikes on the elevated section of WR not convincing in that a lot of rail systems in the world had a long length of their rail track exposed and elevated but they had not experienced the same kind of problems. Furthermore, such impact should have been taken into account in the design of WR. As the signalling problems had occurred frequently after the warranty period, he questioned why the flaws in the system could not have been identified earlier when the warranty was still valid. The Signal & Communications Systems Manager, KCRC (SCSM/KCRC) said that the defect liability period had since been extended from end 2004 to end 2005 and therefore the contractors were still held responsible for equipment defects. He said that the design had actually taken into account the impact of lightning strikes, but owing to the extensiveness of lightning strikes this year, the systems might have been subjected to additional stress, leading to the failures which occurred this year.

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23. Mr LAU Kong-wah enquired about the authority which would be responsible for such deviation. SCSM/KCRC said that KCRC had been working closely with the contractors and was able to identify the source of the problem. SDT/KCRC said that no system could be 100% foolproof and teething problems would likely occur. Since the commissioning of WR, the signalling system had been reviewed and additional equipment and spares were added taking into account operational need.

24. Mr WONG Kwok-hing enquired about who should shoulder the expenses amounting to \$10 to \$20 million to improve the earthing system of WR network as he was concerned that this would form part of the operating expenditure to be ultimately borne by passengers. He was of the view that if the proposed improvement works was necessitated by a substandard design, the management or the contractors should pay for the works without transferring the expenses to the passengers. SDT/KCRC said that the expenses associated with the improvements in the earthing system would be disbursed from the provisions earmarked for repair and maintenance. He denied that there were any flaws in the design of WR, adding that it had met with the required specifications. The improvement works would cover restructuring of hardware components of the signalling system to shorten the investigation time and speed up the recovery; increase in the stockpile of spare parts at strategic locations to reduce transportation time; and installation of remote monitoring system at the control centre to monitor the functioning of the major facilities.

25. Mr LAU Kong-wah said that while he accepted that no system could be 100% foolproof, he failed to accept that the system so designed could not be able to withstand lightning strikes which were so common in Hong Kong. Therefore, he remained of the view that the design had been flawed and as such there was a need to seek compensation from the contractors. Noting that investment of \$10 to \$20 million would allow for improvements to the earthing system by increasing the number of earthing devices as well as separating the earthing system from the rolling stock electricity supply with a view to minimizing disturbance, the Chairman questioned whether the investment would be necessary if the said lightning protection installations were included in the design in the first place. SDT/KCRC said that the signalling system was designed based on European standards and it had been agreed that the standard could be applicable to the Hong Kong situation. The system was designed to meet the required specifications and there was no negligence on the part of contractors. Some improvements were however needed to take account of the weather conditions in Hong Kong.

26. Mr Andrew CHENG was dissatisfied that a conclusion had already been drawn that the system failure was not due to inherent flaws in the design. As the signalling system had in fact failed and large sums of public money had to be spent on the remedial works, he queried why consideration had not been given to seeking compensation from the contractors for the defects/latent defects. He said that the contractors should not be let off easily and as such there was a need to study the terms of the contract regarding the compensation payable under the circumstances. SDT/KCRC said that KCRC had been closely supervising the work of the contractors

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to ensure there was no negligence on their part. A review had been made to see if the contractors should have responsibility over the signalling incidents. The conclusion was that the contractors had performed their task and delivered the contract works in accordance with the specifications. Remedial works had to be taken to improve the system in the light of operational requirements. With the benefit of hindsight, and taking into latest weather conditions, the earthing arrangements would need to be enhanced. Mr Andrew CHENG however said that as experts in the field, the contractors should have envisaged the problems at the design stage and incorporated the earthing requirements in the first place. Therefore, they should be held responsible for failing to do so. SDT/KCRC said that while KCRC had studied the possibility of holding the contractors liable, it was unlikely that compensation could be sought from the contractors for any negligence based on the fact that they had fulfilled the contract obligations and requirements.

27. Concluding the discussion, the Chairman said that members were dissatisfied about the use of public money to pay for improvement measures for WR which had only been in operation for a short time. They were also concerned about the recurrent expenses associated with its repair and maintenance which might be transferred to passengers. Given the frequent service disruptions, they found it hard to accept that WR's design had met with international standards, and had taken into account local weather conditions. There was a need to make reference to the contract terms and agreement between KCRC and the contracting company.

II Any other business

28. There being no other business, the meeting ended at 10:35 am.