

LCQ6:Gas safety enhancement

Following is a question by the Hon Fred Li and a reply by the Secretary for Economic Development and Labour, Mr Stephen Ip, in the Legislative Council today (May 17):

Question:

It has been reported that, following the gas explosion at Wai King Building in Ngau Tau Kok last month, the Hong Kong and China Gas Company Limited ("Towngas") has used Flame Ionization Detector ("FID") to inspect, throughout the territory, pipes of the same type as those involved in the explosion. In the inspections, gas leaks were detected in pipes at 51 locations, and corroded pipes were found at three of these locations. In addition, Towngas indicated that it would increase the frequency of inspecting its pipeline network from three to six times a year. In this connection, will the Government inform this Council of:

- (a) the details of these 51 pipeline locations and the leakage problem;
- (b) the reasons for pipe corrosion at the above three locations, and whether the authorities will request Towngas to replace their gas pipes with stainless steel pipes in order to avoid the occurrence of accidents; if not, the reasons for that; and
- (c) the reasons for using FID by Towngas in its inspections, the differences between the current inspection exercise and those conducted previously, and the reasons for increasing the frequency of inspection?

Reply:

Madam President,

(a) Between April 13 and May 1, 2006, Hong Kong and China Gas Company Limited (HKCG) conducted a comprehensive leakage survey on all its medium pressure ductile iron (MP DI) pipes, i.e. the same type as that involved in the explosion. Details are as follows –

- Minute leakage was detected at three locations, namely the junction of Wong Chuk Hang Road and Nam Long Shan Road on Hong Kong Island, Prince Edward Road

West in Kowloon, and Lai Yiu Street at Kwai Chung. The leakage was due to pipe corrosion, and HKCG has undertaken immediate replacement and repair works.

- Of more than 200,000 pipe joints along these town gas pipelines, minute leakage was detected at 30 joints. HKCG has carried out immediate repair works.

- HKCG has inspected its above-ground installations in the course of conducting the above mentioned leakage survey on the underground town gas pipelines, and carried out maintenance and repair works on 18 installations at which minute leakage was detected.

HKCG pointed out that such minute gas leakage was only detectable by using sophisticated equipment close to the point of leakage. Such leakage is commonly found in similar underground pipelines in other parts of the world. These leakages are caused by vibration due to road traffic, soil subsidence, and disturbance by road excavation work. As the leaked gas is lighter than air, it will quickly be diluted by air. According to international standard, such minute leakages will not give rise to any hazardous situation. EMSD is satisfied that the survey results indicate overall sound integrity of HKCG's underground town gas distribution pipelines, and there is no indication of public safety problem with HKCG's town gas distribution network. The locations of the pipe joints and above-ground installations that had minute leakages are listed in the Annex for reference.

(b) At the three locations where minute leaks were detected due to corrosion, HKCG observed from the results of a preliminary investigation that the contaminated soil around these pipes had caused localised pipe corrosion, which eventually led to formation of pin holes on the pipe wall and the resulting gas leakage. The quantity of leaked gas was well below the hazardous level.

DI pipes are still in service for gas distribution network in various parts of the world such as the USA, European Union, Singapore and Japan. These pipes, with protective coatings, meet international safety standards and should last for 50 years under normal circumstances. Since the 1990s, HKCG has gradually phased out laying of DI pipes and introduced new polyethylene (PE) pipes for underground distribution network to enhance gas safety. The PE pipes are free from ferrous corrosion problem, and possess enhanced quality of pipe joint and better resistance to ground subsidence. The gas industries normally do not replace ductile iron pipes

with stainless steel pipes, because the latter also has corrosion problem to some extent.

In the light of last month's gas incident at Wai King Building in Ngau Tau Kok, EMSD urged HKCG to undertake further safety enhancement measure by accelerating its replacement programme of MP DI pipes by PE pipes. HKCG has already agreed to replace all 150 km of MP DI pipes installed for 20 years or more within two years.

(c) HKCG regularly conducts routine leakage surveys, with the assistance of "Flame Ionisation Detector (FID)" on its underground town gas distribution pipelines. FID is sophisticated detection equipment and is widely used by the international gas industries. It has very high sensitivity and is able to detect gas leak at very low concentration levels down to one part per million. The method employed by HKCG in the current leakage survey is basically the same as in their past surveys, and HKCG also took the opportunity to survey the manholes of other utilities near their pipelines. The results are similar to those of their past surveys. The frequency of leakage surveys carried out by HKCG is relatively higher than that of most other places. Nevertheless, to enhance the safety of the gas distribution networks, HKCG has recently increased the frequency of routine leakage surveys to six times per year. EMSD will also conduct site inspection regularly to monitor and follow up on the effectiveness of the surveys conducted by HKCG.

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