

Press Releases

LCQ1: Daya Bay Nuclear Power Station

Following is a reply by the Secretary for Security, Mr Ambrose S K Lee, to a question by the Hon Tam Yiu-chung in the Legislative Council today (June 30):

Question:

A small increase in radioactivity was observed in the reactor cooling water at Unit 2 of the Daya Bay Nuclear Power Station on May 23 this year. On the day following the disclosure of the incident by the media on June 14, CLP Power Hong Kong Limited (CLP), one of the shareholders of the nuclear power station, issued a statement stating that the incident was "a minor operational incident" with no impact on public safety, public health or the environment, and as the incident was not significant enough to be classified as belonging to any of the levels under the International Nuclear Event Scale (INES) adopted by the International Atomic Energy Agency, it was therefore not necessary to activate the reporting system. Yet, it has been reported that a member of the Daya Bay Nuclear Power Station Safety Advisory Committee (Advisory Committee) has queried that CLP had underestimated the impact of the incident. In this connection, will the Government inform this Council:

(a) when and through what channel the Government learnt about the aforesaid incident; how the Government has assessed the impact of the incident and of the assessment outcome;

(b) given that there have been occasional "Below Scale" and "Level 1" incidents since the commissioning of the Daya Bay Nuclear Power Station, whether it knows the persons who are responsible for grading such incidents; and whether the previous incidents have all been reported in accordance with the existing mechanism; and

(c) given that it has been reported that the deputy chairman of the Advisory Committee has openly criticised the current communication and notification mechanism between the Government and the Advisory Committee to be inadequate, whether the Government has planned to review the existing reporting system on nuclear incidents; if it has, of the details ?

Reply:

President,

(a) Upon receipt of a media inquiry on June 14 concerning the alleged nuclear incident that occurred on May 23 at the Daya Bay Nuclear Power Station (DBNPS), the Security Bureau (SB) immediately sought verification from the Hong Kong Nuclear Investment Co. Ltd. (HKNIC). According to the information provided by the HKNIC at that time, DBNPS observed a slight increase in radioactivity in the cooling water in Unit 2 reactor on May 23. Analysis was made and the preliminary assessment attributed the event to a minor imperfect sealing of one of the fuel rods in the Unit 2 reactor. Since the reactor cooling water was enclosed by another two layers of containments and

completely isolated from the external environment, the public were by no means affected. The level of radioactivity of the cooling water remained stable without any material change in the two weeks after the event. The HKNIC indicated to the Administration that they did not activate the notification mechanism because the operation of the DBNPS had not been affected and the situation was below any rating (i.e. out of scale) on the International Nuclear Event Scale (INES); the incident was only a minor operational incident without any impact on public safety, public health or the environment.

Apart from seeking verification from the HKNIC, the SB immediately requested the Hong Kong Observatory (HKO) to confirm the monitoring data concerning the radiation level in Hong Kong from the date of the event to mid-June. According to the data collected by the radiation monitoring network of the HKO, there were no abnormal changes in the local radiation level in Hong Kong on or after May 23. For example, according to the data collected at Ping Chau, which is the radiation monitoring station closest to DBNPS, the daily average radiation levels in May were within the normal range of fluctuation. The HKO will continue to monitor the local radiation level round the clock. If any abnormality is detected, it will raise alert immediately.

In addition, the SB also contacted the Prevention and Emergency Administrative Commission Office of Guangdong Province for Nuclear Accident of Civil Nuclear Facility (PEACO, GD) to seek further information. In its reply, the PEACO, GD indicated that there was an abnormal increase in the radioactivity level of the cooling water in the Unit 2 reactor of the DBNPS on May 23, and it had been determined that the incident was caused by a minor crack in the sealing of one of the fuel rods. The monitoring equipment at the nuclear power station recorded no abnormality in the radiation levels inside the plant or in its surrounding environment. Independent monitoring by the Guangdong authorities at the radiation monitoring points set up around the nuclear power station also did not detect any abnormality, indicating that the incident had made no impact on the environment.

(b) The INES was drawn up by the International Atomic Energy Agency (IAEA) to establish an internationally recognised standard for facilitating better understanding by the public, media and the nuclear industry of the degree of significance of nuclear events. International nuclear events are classified from Level 0 to Level 7. Any events that come within the classification of the INES are considered Licensing Operational Events. Level 0 is also known as "below scale" events, which implies that the incident has no safety significance. Levels 1 to 3 events are regarded as "incidents", which have very little or no impact to the environment. Levels 4 to 7 are regarded as "accidents", representing various degrees of radiological impact. As for events outside the INES (i.e. "out of scale" or below Level 0), they do not have any relevance to safety. The INES classification takes into account many factors, including any degradation of safety protection measures, the integrity of radiological barriers and control devices, as well as the impact on the public and the environment.

According to the HKNIC, the DBNPS also adopts the INES rating system. In case of a Licensing Operational Event (i.e. events at Level 0 or above), the DBNPS shall, in accordance with Mainland statutory requirements, report the event to the

relevant state regulatory body, namely the National Nuclear Safety Administration (NNSA). NNSA will handle the matter accordingly, including examining and confirming the contents of the report and the rating of the event. The HKNIC also indicates that NNSA has a number of inspectors stationed on-site at the DBNPS to monitor the plant's operation and performance.

The HKNIC indicated clearly to the Administration that the situation on May 23 has not reached the conditions for classifying it as a Level 0 event, and that the event has no relevance to safety.

There are two aspects of the current notification mechanism. On one hand, the operator of the DBNPS will notify the HKNIC of any Licensing Operational Event. The HKNIC submits monthly reports of Licensing Operational Events to its Board members, which include representatives of the Environment Bureau and the SB. The HKNIC also uploads such information on its website for the public's reference.

On the other hand, the HKSAR Government and the Guangdong authorities have established an official notification channel. In simple terms, the PEACO, GD is responsible for co-ordinating contingency actions to be taken by various Guangdong authorities in response to events at the DBNPS. In case of a contingency event or accident at the plant, the DBNPS operator will inform the PEACO, GD and other relevant state organisations immediately. The PEACO, GD will notify Hong Kong authorities in accordance with the contingency notification arrangements agreed between the two sides.

Apart from the existing notification mechanism, the HKSAR Government has also set up its own warning system to obtain first-hand information. One of the major components of this warning system is HKO's Environmental Radiation Monitoring Network mentioned above, which comprises 10 radiation monitoring stations for recording ambient gamma radiation levels. An alarm will sound at the HKO Headquarters if there is any abnormal change of ambient radiation level at any one of these stations. In addition, the Water Supplies Department (WSD) operates two identical on-line Water Contamination Monitoring Systems at Muk Wu Pumping Station to monitor incoming drinking water from Guangdong. The alarms at HKO and WSD will sound if there is any abnormal change in the radiation level.

Furthermore, an unscheduled power interruption at the DBNPS may indicate the occurrence of an abnormality at the power plant, though this does not necessarily mean a nuclear event. If such power interruption occurs, apart from being notified by the DBNPS, the System Control Centre of CLP will also be able to detect it immediately through its own monitoring system. CLP will alert the Electrical and Mechanical Services Department and the HKO in accordance with the established notification mechanism.

Once alerted, the departments concerned will follow relevant procedures and review their monitoring data immediately. They will also seek verification from relevant authorities, assess the situation, and assist the SB in deciding whether to activate the corresponding level of the contingency plan.

(c) The Administration will review the existing arrangement for

handling nuclear events and the notification mechanism with a view to strengthening coordination with all concerned parties.

Members of the Daya Bay Nuclear Safety Consultative Committee (NSCC), including local professionals, doctors and academics, joined the Committee at the invitation of the Daya Bay Nuclear Power Operations and Management Co., Ltd. The major responsibilities of the NSCC are to discuss plans and implementation reports for safeguarding nuclear safety in the course of plant operation and power station construction, and to give advice and recommendations on nuclear safety.

The Daya Bay Nuclear Power Operations and Management Co., Ltd has already set up an expert group to conduct a follow-up investigation on the event. The HKNIC has also undertaken to submit detailed investigation findings to the HKSAR Government. The Administration will continue to closely monitor the situation. We have also invited representatives from the CLP to attend the meeting of the Panel on Security of the Legislative Council on July 6, 2010 to provide Members with further information.

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