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Panel on Security

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for the meeting on 6 July 2010**

Daya Bay Nuclear Station Notification Mechanism

According to the website of the Security Bureau, the design and operation of the Guangdong Nuclear Power Station and the Lingao Nuclear Power Station at Daya Bay are strictly in accordance with international safety standards. Although the risk of any serious nuclear accidents is extremely low, the Government of the Hong Kong Special Administrative Region ("HKSAR") has developed a comprehensive Daya Bay Contingency Plan, as given in **Appendix I**, to deal with nuclear accidents.

2. The Daya Bay Contingency Plan provides that in the event of a safety incident at the Guangdong Nuclear Power Station or the Lingao Nuclear Power Station leading to a release of radioactivity, different bureaux and government departments have specific roles to play. The Guangdong authority will notify the Hong Kong Observatory ("HKO") as soon as possible through an established dedicated channel. In addition, in case of any special event which may affect the normal operation of the power stations, the plant operator concerned will, through the CLP Power Hong Kong Limited, notify HKO. Upon notification, HKO will, in consultation with the Electrical and Mechanical Services Department and the Department of Health, assess the situation and advise the Secretary for Security on the need to activate the Daya Bay Contingency Plan and the appropriate activation level.

3. The issue of "Daya Bay Nuclear Station Notification Mechanism" has not been discussed by the Panel on Security. There have been media reports in mid-June 2010 about a nuclear incident in Guangdong Nuclear Power Station on 23 May 2010. Concerns have been raised on the impact of the suspected release of radioactive material from the power station on public safety, and the Administration's existing notification mechanism in respect of nuclear accidents. The relevant press reports on the incident and the Security Bureau's response to media enquiries on the Guangdong Nuclear Power Station incident on 23 May 2010 are at **Appendices II** and **III** respectively for members' reference.

**DAYA BAY CONTINGENCY PLAN
OF THE HONG KONG
SPECIAL ADMINISTRATIVE REGION**

What the Hong Kong Special Administrative Region Government would do, and what you should do, in the unlikely event of a nuclear accident at the Guangdong Nuclear Power Station or the Lingao Nuclear Power Station?

The Guangdong Nuclear Power Station (GNPS) and the Lingao Nuclear Power Station (LNPS) at Daya Bay are located about 50 km from the urban areas of the Hong Kong Special Administrative Region (HKSAR). The GNPS and LNPS began commercial operation in February 1994 and May 2002 respectively.

How safe are the Guangdong Nuclear Power Station and the Lingao Nuclear Power Station?

The pressurised water reactors used in the nuclear power stations adopt a successful French reactor design. They are operated strictly in accordance with international safety standards. The risk of any serious nuclear accidents is therefore extremely small.

The pressurised water reactors used in the two nuclear power stations adopt a successful French reactor design. France has been operating these reactors since the late 1970s without a single serious accident of significant radiological effects.

The International Atomic Energy Agency (IAEA), an autonomous organization under the United Nations, has conducted safety reviews on the GNPS reactors before and since their operation, and has found that they are operated strictly in accordance with international safety standards. The risk of any serious nuclear accidents is therefore extremely small.

The GNPS and LNPS have pressurised water reactors with multiple safety design features. Each reactor has been built with three separate protective barriers designed to prevent the escape of any radioactive material due to accidents at the stations.

The GNPS and LNPS are different in both design and technology from the reactor at Chernobyl. The kind of accident that occurred at Chernobyl in 1986 simply cannot happen at the GNPS and LNPS.

A comprehensive risk assessment conducted by the UK Atomic Energy Authority in 1990 concluded that the risk of an accident at GNPS endangering the health of the Hong Kong people was smaller, by a very large margin, than the risks encountered in everyday life.

In the unlikely event of a serious nuclear accident, how might HKSAR be affected?

The chance of any serious nuclear accidents at the GNPS and LNPS is very remote. In case of

a radiological release, radioactive material will go in the direction of the prevailing winds and affect areas in the path of the radioactive emission.

How does radioactive material travel?

In the unlikely event of a serious nuclear accident, radioactive material will go in the direction of the prevailing winds. It behaves in the same way as a cloud of smoke from a chimney, dispersing into the atmosphere following the winds, and depositing some of its contents onto the ground.

By natural mixing and dilution in the atmosphere, the concentration of radioactive material, and its effect to the health, diminishes rapidly with distance from the reactor, and with time from the accident.

In the unlikely event of a nuclear accident, how might HKSAR be affected?

HKSAR might be affected by exposure to radiation in the following two pathways:

- direct exposure, affecting people in the path of a radioactive emission by external irradiation or inhalation; and
- through the consumption of contaminated food, livestock, water or milk.

In the unlikely event of a serious nuclear accident, what countermeasures should be taken in HKSAR?

Full countermeasures will be considered within a zone of 20 km radius around the nuclear power stations, i.e. areas covering Mirs Bay and the island of Ping Chau, while ingestion pathway countermeasures are targeted at the areas up to 85 km from the nuclear power stations.

There is a reasonable consensus of international opinions that full countermeasures against direct exposure to radiation or inhalation of contaminated air will be considered within a planning zone of 5 to 20 km from a nuclear power station. Countermeasures against ingestion of contaminated food, water or milk are targeted at the zone of 20 to 100 km away from the nuclear power station. The HKSAR Government has taken a cautious approach: full countermeasures have been prepared for an area of up to 20 km from the site of the nuclear power stations. Mirs Bay and the island of Ping Chau fall within this zone. Furthermore,

ingestion pathway countermeasures will be implemented throughout the territory, i.e. covering areas up to 85 km from the nuclear power stations.

In the unlikely event of a serious nuclear accident, how would the HKSAR Government respond?

The HKSAR Government has prepared a comprehensive Daya Bay Contingency Plan, which would immediately come into operation in the unlikely event of any accidents at the power stations leading to a release of radioactivity.

Although the risk of any serious nuclear accidents at the power stations is extremely small, the HKSAR Government has prepared a comprehensive Daya Bay Contingency Plan (DBCP), which would immediately come into operation to minimize the effect to HKSAR due to such accidents.

The main components of the DBCP include:

- Immediate assessment of the nuclear accident consequences – obtain latest conditions at the nuclear power stations, enhance radiation monitoring and conduct nuclear accident consequence assessment immediately
- Key countermeasures of the contingency plan – inform the public about the accident and the countermeasures to be taken; when necessary, full countermeasures would be put into effect at Mirs Bay and the island of Ping Chau, and ingestion pathway countermeasures throughout the territory
- HKSAR Government emergency structure – mobilize relevant government personnel rapidly to assess the situation, to give decision-makers advice based on that assessment and to recommend countermeasures

In November 1990, May 1993, December 1996 and again in February 2001, this contingency plan went through comprehensive testing under the observation of IAEA or other international experts. These four exercises have shown that the plan is sound and all the departments and agencies involved are fully prepared to respond when there is an accidental release of radioactive material from the nuclear power stations.

Immediate assessment of the nuclear accident consequences

In the unlikely event of a nuclear accident with release of radioactive material, it is essential to obtain timely information about the nuclear power stations and the radiation levels in Hong

Kong for the assessment of the nuclear accident consequences and adoption of effective contingency measures.

Communication channel between HKSAR and Guangdong

An effective communication channel between HKSAR and Guangdong is in place. In case a nuclear accident occurs at the nuclear power stations, the relevant party in Guangdong will inform the HKSAR Government immediately. The Hong Kong Observatory is the first contact point for Hong Kong with Guangdong.

Radiation monitoring

Radiation is invisible and cannot be sensed. However, the HKSAR Government constantly conducts comprehensive monitoring of radiation levels in air, foodstuff and water by advanced instruments to accurately identify any variations of radiation levels in the territory to ensure that water and foodstuff are fit for human consumption.

Assessment of the nuclear accident consequences

To facilitate the assessment of the radiological consequences of a release, an Accident Consequence Assessment System (ACAS) is operated at the Hong Kong Observatory. Using meteorological data from weather stations in Hong Kong, information on the magnitude of the radiological release and meteorological data around the nuclear power stations provided by Guangdong, the ACAS models the transport and dispersion of the radioactive material. Based on the results of radiation monitoring and the ACAS simulation, the Hong Kong Observatory will, in consultation with the Department of Health, advise the Security Bureau on the necessary countermeasures.

Key countermeasures of the contingency plan

In the unlikely event of a serious nuclear accident, the HKSAR Government would immediately assess the associated consequences and

- Inform the public of the situation, the radiation levels in Hong Kong, government's response and countermeasures to be taken.

The following countermeasures would also be put into effect when necessary,

- To prevent possible direct exposure to radiation or inhalation of contaminated air, vessels

in Mirs Bay would be asked to leave the area. Residents and visitors of Ping Chau would be assisted to take shelter indoor on Ping Chau or to leave the island.

- Anyone coming in overland to HKSAR from the Mainland would be scanned for radioactivity at the border points, as would their personal effects. Decontamination of persons would be arranged as required.
- Water, foodstuffs, cargo and any livestock coming in from the Mainland would be closely monitored and would not be allowed to enter HKSAR if they were found having radioactivity exceeding the internationally agreed control levels.
- There would be close monitoring of foodstuff sold at main distribution points and wholesale markets throughout HKSAR. Vegetables, agricultural products, livestock, seafood, freshwater fish and drinking fluids, especially milk, would all be constantly monitored to ensure their fitness for human consumption.
- Samples would be collected from reservoirs in Hong Kong, the inlets and outlets of water treatment works, water catchment areas and consumer taps for monitoring to ensure the water is fit for human consumption.

HKSAR Government emergency structure

Under the DBCP, the HKSAR Government has set up an emergency structure to handle the consequences to Hong Kong in the unlikely event of a serious nuclear accident. Relevant government personnel will be mobilized rapidly to assess the situation, to give decision-makers advice based on that assessment and to recommend countermeasures.

In the unlikely event of a serious nuclear accident, the Chief Executive (CE) would direct Hong Kong's response. The CE would be advised by a working group, the Chief Executive's Working Group (CEWG), comprising heads of relevant bureaux and departments.

The Secretary for Security (S for S) would direct and co-ordinate the HKSAR Government's response. Based on the latest information and assessments, a Technical Working Group, comprising heads of key technical support departments or their representatives, would provide professional advice to the S for S.

The Information Policy Committee would provide advice to the CEWG and S for S on public announcements concerning the most significant events. The Information Services Department would disseminate, through the media, accurate and timely information and advice to the

public.

The Emergency Monitoring and Support Centre (EMSC), managed by the Security Bureau, co-ordinates the HKSAR Government's response and keeps close contact with the Guangdong authority to obtain latest information on the accident.

The Hong Kong Observatory, the Electrical and Mechanical Services Department and the Department of Health are the key departments providing technical support to EMSC. The Hong Kong Observatory would co-ordinate the emergency monitoring of radiation and assess the associated consequences. The Electrical and Mechanical Services Department would advise on the engineering conditions of the nuclear power stations, developments of the accident and the security of power supply in HKSAR. The Department of Health would provide an assessment of the potential health hazard and give technical advice on the countermeasures to be taken. The Water Supplies Department, Food and Environmental Hygiene Department and Agriculture, Fisheries and Conservation Department would monitor water and foodstuff closely to ensure that they are fit for consumption. Hong Kong Police Force, Fire Services Department, other departments and organizations would also have specific roles to play in accordance with the Daya Bay Contingency Plan.

In the unlikely event of a serious nuclear accident, what should the public do?

The public should pay attention to announcements about what to do from the radio, TV and government website.

The GNPS and LNPS have reactors with multiple safety design features and are located about 50 km from the urban areas of Hong Kong. Given this distance, it is highly unlikely that HKSAR would be affected significantly following any accidental release of radioactivity from the nuclear power stations.

In the extremely unlikely event that an accident occurs, the accident would very likely be minor. The HKSAR Government would enhance the monitoring work and closely follow the development of the situation. The public should remain calm and follow the announcements and advice by the Government.

How could the public know what is going on?

In the unlikely event of an accident involving the release of radioactivity from the nuclear power stations, the Information Services Department would be responsible for giving out

information and advice through radio, television, press announcements and government website, informing the public of the situation of the nuclear accident, the radiation levels in Hong Kong, the HKSAR Government's response as well as countermeasures to be taken.

What should the public do?

The public should pay attention to announcements about what to do from the radio, TV and government website.

For the effective implementation of the contingency plan, the public should co-operate with the government in its response to the nuclear accident and implementation of countermeasures. It is for their well being that the public should gain a better understanding of the Daya Bay Contingency Plan to protect themselves from mishaps during a nuclear emergency.



明報即時新聞

2010-06-14

港聞

報道指大亞灣五月疑泄輻射(23:15)

自由亞洲電台報道，深圳大亞灣核電站上月發生懷疑核輻射洩漏事故。報道稱，港特區政府接受電台查詢時，未能即日答覆是否收到核洩漏的通報。有反核能組織指事件涉及公眾利益，譴責當局隱瞞事實。當年大力反對興建大亞灣核電廠的長春社理事長黎廣德周一指，他對事故表示十分震驚，亦感到很憤怒，他指當年他們花了很大勞力，才能成功爭取該核安全諮詢委會內有港方代表成員，他質疑成員監督不力，監察機制形同虛設。黎廣德說，他們作為港方的代表應當擔當監督及向香港政府及時彙報的責任，若果他們有匯報港府的話，那為何香港政府沒有向公眾匯報事件呢？事故發生至今相距兩個幾星期，好明顯是有人故意隱瞞向公眾交代他向記者指，會立即去信涉及相關的政府部門，例如環境局、政制及內地事務局及商務及經濟發展局等了解，要求公開交代，以釋除疑慮。該電台稱，中電發出書面的聲明，指5月23日大亞灣核電站二號機組反應堆冷卻水發現放射性碘核素和放射性氣體均有輕微上升，在過去兩星期，這些放射性水平保持穩定，沒有特別變化。聲明又指，這些放射性核素會被完全隔離，因此不會對公眾有任何影響。(即時新聞)

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大亞灣核燃料棒泄漏 中電指極微小 天文台：輻射無異樣

【明報專訊】與本港僅距離50公里的深圳大亞灣核電廠，5月23日發生反應堆內的核泄漏事故，核電站二號機組反應堆核心的一根燃料棒，疑因質量問題出現「小洞」造成泄漏，令反應堆冷卻水的放射性碘核素和放射性氣體均上升，但問題燃料棒仍未更換。中電強調有關泄漏極「微小」，並不列入國際核事件評級內，不會對公眾構成危險。立法會議員則要求政府盡快了解事件，向香港市民交代。

大亞灣核電廠股東之一的中電的發言人昨晚表示，5月23日大亞灣核電站二號機組反應堆的冷卻水，其放射性碘核素和放射性氣體均出現輕微上升，經分析初步判斷，有一根燃料棒存在微小泄漏，專案小組現正跟進及監測有關情況。

發言人強調，放射性核素會被完全隔離，核電站運作和公眾都無受影響，而過去兩周放射性水平保持穩定，事故輕微程度至毋須列入國際核事件評級內，惟電站主動向國家核安全局及大亞灣核電站核安全諮詢委員會匯報。

5月23日發現上周四始匯報

核安全諮詢委員會主席何鍾泰昨晚向本報證實，上周四的定期會議，廠方主動向成員匯報泄漏事故。電廠表示，當時匯報二號機組反應堆，有一條燃料棒懷疑質素有問題出現「小洞」，但因這只在「一迴路」（反應堆）中出現，「不可能走出來」，輻射水平亦無增加，絕不屬國際核事件評級須呈報的事故。但各委員會關注事件，促請廠方盡快提供事件調查報告。被問及該「小洞」到底有多大，何鍾泰說並無此資料，但據他理解是極微小，甚至「毋須急於更換」，他相信可能是燃料棒的質素監控問題。

據政府權威人士透露，政府高層昨晚聞悉「自由亞洲電台」有關泄漏的報道後，第一時間向中電及負責監察大亞灣輻射的天文台了解，初步獲悉情況並非報道般嚴重，並無輻射外泄。

保安局發言人指天文台監察數據顯示，上月23日至昨日的輻射數據均無異樣，而此次事故對核電安全不構成任何影響，根據目前機制，毋須即時通報，但政府已要求中電稍後提交詳細事件報告。

由美國國會資助、向中國廣播的「自由亞洲電台」昨日報道，廠方於上周四在安全諮詢委員會會議報告上述事故，與會者對發生泄漏事故均感到十分震驚，察覺事態嚴重。

電台引述一名香港專家指出，據報事發時已有大量放射性碘核素散佈於空氣，空氣中的活性氣體也大量增加，顯示輻射泄漏已超出廠區範圍。

兩年前轉用國產燃料棒

核燃料設有燃料棒、壓力罩及混凝土三重密封式保護，這次泄漏的組件正是最內層的保護層燃料棒。報道引述專家說，廠方原先一直使用法國出產的燃料棒，兩年前開始轉用中國製的軍用燃料棒，曾被各方質疑其安全性。據悉，肇事機組已運轉10多年，電站已有老化跡象，單在5月內曾

發生4宗異常事故，包括2次停電及1次回水電路故障。

立會議員促向公眾交代

民主黨張文光表示，是次懷疑發生核洩漏事故，情況可大可小，當地政府應與港府作緊密通報，並向公眾交代。公民黨副主席黎廣德要求今天與政府官員會面，了解詳情。大亞灣核電站位於深圳大鵬半島，是內地首座使用國外技術及資金建設的核電廠；香港的電力四分之一由大亞灣核電廠供應。

核電廠運作

核電廠主要由「一迴路系統」和「二迴路系統」兩大部分組成，前者又稱核島系統，是核反應堆和蒸汽發生器等系統所在。為確保安全，整個核島完全密封於一個安全殼內，而「二迴路系統」則是發電機系統。

核島系統內的堆芯裝有核原料，核原料發生核裂變後產生熱能，然後透過蒸汽發生器把水轉為蒸汽，透過管道傳送到發電系統（二迴路系統），驅動發電機組發電。

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大亞灣洩輻射港府蒙鼓裏 學者痛批：不聞不問、後知後覺、知而不報

【本報訊】深圳大亞灣核電廠上月輻射洩漏，聯合國國際原子能委員會和內地國家核安全局都獲知會，偏偏距離不足50公里的香港政府，一個多月來一直被蒙在鼓裏。環境局局長邱騰華事發後曾到核電廠參觀，仍懵然不知，至港府前日接獲傳媒查詢，才得知事件。事件反映通報機制存在漏洞。有學者批評港府不聞不問、後知後覺、知情後仍不報，「在美國，就算是員工有小意外也要通報」。

記者：夏志禮、謝明明、雷子樂

中電昨日發表聲明，指今次事件輕微，毋須啟動匯報機制。但電站已主動向國家核安全局及大亞灣核電站核安全諮詢委員會匯報，並將按程序，向政府及安全諮詢委員會，提交調查結果。

安全諮詢委員會副主席李焯芬接受查詢時表示，核電廠起碼會就事件向國際原子能委員會（IAEA）及國家核安全局提交報告。聯合國及內地當局先後收到通報，反觀港府一直懵然不知；大亞灣核電營運管理公司5月28日曾發出新聞稿，環境局局長邱騰華在5月26日，即事發後3日，曾到訪大亞灣核電基地，並由公司總經理盧長申「熱情接待」，卻沒提及今次事故。環境局發言人昨日證實，邱騰華當日到訪核電廠時，廠方無告知今次事故。

保安局查詢才獲告知

保安局發言人表示，該局本周一晚接獲傳媒查詢，向中電查詢時才得悉今次事故。對於會否檢討現行通報機制，該局昨日沒有回覆。中電發言人承認，並無就今次事件主動通知保安局，至局方接獲傳媒查詢向中電了解時，中電才匯報。

一個月知情不報，顯示通報機制存在漏洞。核能可靠性研究專家兼城市大學校長郭位認為，政府知悉事故後，應公佈以釋除疑慮，「在美國，核電廠一定會跟市民保持溝通，就算核電廠的員工有小意外或毛病，也要通報。」他指，香港與核電廠距離不足50公里，港府不應置身事外。

籲考慮建新通報機制

浸會大學物理系主任謝國偉認為，就算核電廠事故未達嚴重級別，也應向外公佈。他說：「如果唔盡快澄清，會令外界以為刻意隱瞞仲大鑊，相反，立刻講清楚，等公眾唔使恐慌。」環保團體綠色和平項目主任古偉牧要求政府交代事故的詳細資料。

李焯芬指出，核安全諮詢委員會成員非港府委任，主要向大亞灣核電廠負責。「委員會又唔係政府諮詢機構，保安局又唔嚟搵佢。咁當委員知有事件，又不構成安全威脅，應該點呢？」他建議，港府應考慮建立新機制，與委員會定期溝通，或讓委員會定期向港府簡報。他說：「保安局可以提出，我做咗呢個會十幾年，港府從來冇人搵吓我。」

或燃料棒老化肇事

【本報訊】中電指出，今次大亞灣核電廠事故，是其中一支核燃料棒外洩核輻射，相信是燃料棒焊接不完善所致。但有學者不排除與燃料棒老化有關，應盡快更換有問題燃料棒。

估計焊接欠完善

中電常務董事藍凌志昨稱，上月23日大亞灣核電廠發現，核電站二號機組反應堆冷卻水放射性碘核素和放射性氣體均輕微上升，懷疑其中一支燃料棒因焊接不完善，引致事故。所有燃料棒是由法國生產商供應，在內地組裝，由核電廠啓用沿用至今，設計及生產方式都沒有改變。

大亞灣核電站安全諮詢委員會副主席李焯芬估計，今次事故可能是因爲其中一支核燃料棒在焊接時手工未臻完善，出現裂縫。

不過，浸會大學物理系主任謝國偉不排除今次事故可能是核燃料棒老化所致，認爲廠方應盡快更換，並建議廠方檢查時更謹慎及仔細。

他指大亞灣核電廠採用壓水反應爐技術，電廠的核反應堆有三層保護，其中核燃料棒在冷卻水外加厚200毫米的鋼製殼及0.9米鋼筋混凝土外層，處於密封狀態。一旦核燃料棒的核輻射物質全部外洩，核反應堆會自動停止運作，避免核輻射擴散。

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SUN特搜：中電洩漏輻射 港深市民恐慌

大亞灣核電廠上月二十三日驚現燃料棒洩漏輻射事故，合營公司中華電力稱事件或與其中一支法國製燃料棒在內地焊接時出現瑕疵有關，強調不會威脅公眾安全，根據國際標準毋須公布事件，並無隱瞞。不過，事件已惹來港深兩地市民恐慌，環保團體更批評廠方至今不肯徹底公開事故資料，質疑輕微洩漏之說。

中電常務董事藍凌志昨日出席一公開活動後表示，核電站反應堆有四萬一千支燃料棒，出事的只是其中一支，他否認核電廠轉用國產燃料棒，強調燃料棒一直沿用法國製及設計，裝嵌及維修工作則由中國公司參與。

中電企業發展總監陳紹雄亦稱，涉及的反應堆冷卻水處於完全密封狀態，與外界完全隔離，對公眾沒有任何影響，過去兩星期核電站的放射性水平亦保持穩定。他說，事件不列入國際核事件評級之內，「等如任何機器有少少輕微毛病……貿貿然好似螺絲有事（都）公布，沒有意思！」而廣東核電集團有限公司昨亦指大亞灣核電站兩台機組保持安全穩定運行，未發生放射性核洩漏事件。

上半年有數宗異常事件

不過，踢爆洩漏事故的《自由亞洲電台》昨日卻在網頁披露兩頁疑是核電廠提交的內部文件。除今次事故外，今年上半年亦曾發生數宗異常事件，包括上月七日下午，同樣是兩號機組斷電近四小時，應急候命狀態終止；同月十四日為處理嶺澳核電廠一號機組水質惡化，須進行冷凝零件維修工作。

綠色和平項目主任古偉牧批評核電廠運作欠透明，並引報告指核電廠事後也須趕急成立專家小組加強監測及輻射防護措施，令人質疑中電聲稱此次事故連評級零也達不到的說法，他已將事件交由海外辦事處專家跟進，核實嚴重性。本港多個政黨及立法會議員昨到中電總部抗議，又去信立法會作書面質詢，要求當局交代事件；而公民黨黎廣德正約見保安局表關注：「政府有責任交代，起碼個窿有幾大？放射性物質上下限係幾多？」

香港天文台指沒有發現本港核輻射水平有異常情況，而食物環境衛生署則稱有透過恒常食物監察計劃抽查進口、批發及零售層面食物的輻射含量測試，自年初至今共抽取七百個樣本，結果全部滿意，當局會繼續留意跟進事件。

核中子沒密封穿牆透壁

廣東大亞灣核電站、嶺澳核電站核安全諮詢委員會主席何鍾泰則指，正等候廠方提交事件報告。另一成員溫石麟則指摘中電誤導公眾，指核中子沒有密封，能穿牆透壁，非常危險。

身兼能源諮詢委員會成員的浸會大學能源研究中心主任周全浩解釋，每根燃料棒有十至廿呎長，一般核電廠會有數千至數萬根燃料棒，燃料棒平均使用一年後，內裏的鈾便會耗盡，一般發電廠會更換全新的燃料棒，若在此之前燃料棒外殼出現裂縫，廠方會按滲漏程度決定是否需立即更換燃料棒，如洩漏情況嚴重，需停止機組運作盡快更換。

周全浩又稱，燃料棒內藏核原料鈾，核分裂亦在燃料棒內進行，分裂反應所產生的能量會把水加熱使其變成蒸氣，再推動渦輪機來發電。

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核洩漏通報 揭3部門互卸責 港府與核委會零溝通 「想匯報無渠道」

深圳大亞灣核電廠上月發生投產以來首次核洩漏，但股東之一的中電未有主動公布事件，港府3個政策局或部門，昨互指由對方回應，其後才統一由保安局回應。

身兼大亞灣核電核安全委員會副主席的港大專業進修學院院長李焯芬（圖）批評，他加入委員會15年，港府從無就核電事宜與他聯絡，早前接獲電廠通知事故後：「想匯報也沒渠道！」美國國家工程院院士、核能專家城大校長郭位呼籲，港府要多做公眾教育，讓港人明白核電屬安全。

中電昨指事故未達向外公布級別，毋須啟動通報機制，但事發翌日（5月24日）已通知內地及核安全諮詢委員會，亦毋須通報港府。中電已成立專家小組跟進。

本港電力政策由環境局負責、核事故通報機制由保安局負責，監測輻射水平由天文台負責。本報昨向環境局查詢如何跟進，該局指由保安局回應；本報再致電保安局查詢有否向政府通報、及通報指引，該局卻稱監測及與內地的對口單位是天文台；本報再向天文台查詢，其後不同部門通知，事件由保安局統一回應。

李焯芬：15年來港府無聯絡

大亞灣核電核安全委員會成員由內地委任，曾於加拿大從事約20年核電廠工程工作、兼委員會副主席李焯芬向本報稱，上周四電廠向他們匯報個多星期前，電廠已發電郵通知各委員，發生事故。

他坦言：「委員會15年以來，港府從無就電廠事宜與我們聯絡，早前接獲通知後，想匯報也沒渠道！」他認為，港府應與委員會商討溝通及通報機制，包括向外通報準則。

李焯芬及城大校長郭位均指，大亞灣事故不會對公眾構成影響；郭強調，港人要明白香港與內地是毗連，無論水、空氣及經濟均難以分割，港府可多做公眾教育，讓港人明白核電十分安全，港府應檢討如何公布事件。

中電：無洩輻射 未達公布級

中電常務董事藍凌志昨強調，電廠並無向外洩漏核輻射，屬輕微事故，不列入國際核事件評級之內。他解釋，2號反應堆冷卻水上月出現輻射水平輕微上升，可能是一枝燃料棒焊接不完善，一個反應堆有多達4.1萬枝燃料棒，燃料棒在反應堆核心處密封狀態，無洩漏輻射風險。

對於核安全委員會主席何鍾泰昨指出事燃料棒由內地生產，藍昨澄清，出事燃料棒由法國生產商供應，在內地組裝，核電廠啓用沿用至今。承認事件雖罕見，但世界其他核電廠曾發生。

中國廣東核電集團有限公司昨晚澄清，5月23日大亞灣核電站2號機組監測發現，一回路放射

性水準異常上升，28日放射性水準已達平衡並保持穩定。

相關文章:

郭位：核發電較搭飛機安全

深圳民眾憂安全 不滿隱瞞

文章編號: 201006160300055

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回歸至今120宗運行事件 遲公布核廠泄漏政黨批中電隱瞞

【明報專訊】大亞灣核電廠上月23日一宗燃料棒泄漏輻射事件，令核電安全再備受關注。本報翻查紀錄，發現大亞灣自1997年至今共發生120宗運行事件，當中三成即35宗為較嚴重的1級事件，按機制須向本港通報，而上月的燃料棒泄漏是首次發生在反應堆內的「非等級」事件；立法會主要政黨均批評中電有隱瞞事實之嫌，要求港府調查，並研究是否需要加強通報機制。

促立會跟進增運作透明度

多個政黨均批評中電上月未有即時公布事件，公民黨余若薇昨去信立法會保安事務委員會主席劉江華，要求委員會開會跟進。民主黨及民建聯均批評中電隱瞞事實，延遲公布事件，兩黨多名代表昨午到中電總部請願，要求提高核電站運作的透明度，以保障公眾知情權。至於政府會否加強通報機制，保安局至昨晚本報截稿仍未回覆。

上月23日，大亞灣核電廠二號機組一根燃料棒泄漏輻射，令反應堆冷卻水輻射量上升，因輻射最終未有外泄，根據國際核事件分級表，屬於最輕微的「非等級」運行事件，未達至被列入分級表內0至7級的任何級別，在既定機制下，毋須啟動通報機制。

中電常務董事藍凌志昨出席一個場合後形容，今次屬非常輕微的「事件」，連國際標準中的零級都未達到，但事發當日已立即主動向國家核安全局、港府及大亞灣核電站核安全諮詢委員會匯報，認為在通報上已做到「高透明度」，「這只是一件小事，毋須通報公眾，但是我們現在已經做好了」。

大亞灣核電站核安全諮詢委員會主席何鍾泰亦表示，若事無大小均向外公布，可能引起公眾恐慌，他又認為目前粵港通報機制恰當，毋須檢討。

按粵港通報機制，大亞灣發生1級事件，必須通報本港，保安局亦有制訂大亞灣應變計劃，將緊急情況分成4類，由最輕微的核電站安全水平下降，以致輻射影響超越核電站範圍。

過去80宗「非等級」未交代香港核電投資有限公司在網上公布的資料顯示，自97年公布大亞灣運行事件以來，共發生120宗運行事件，當中35宗是1級事件，全部與反應堆無關，反而上月發生的「非等級」事件是反應堆內泄漏輻射，但大亞灣並未有交代過去的80多宗「非等級」事件內容。綠色和平指現存機制有漏洞，要求交代「非等級」事件內容，保障市民基本知情權。

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曹宏威解畫：核電三重屏障保安全

【本報訊】科普工作者曹宏威表示，大亞灣核電廠設有三重屏障，即燃料包殼、壓力堆和安全罩，確保安全。在第一重屏障裡，核反應堆裡的鈾燃料棒用一種名為鋯的金屬包裹着，以免輻射外泄。第二重屏障的壓力堆裡，用攝氏三百三十多度的水，經第一回路鑪輸送，去把第二回路三百度的水，煮成蒸氣，即是高溫高壓水煮低溫水。因為任何放射物質放入水，「只有熱交換，並無物質交換，談不上什麼輻射外泄。」第三重屏障則是安全罩，所以根本不可能發生核輻射外泄。

未達國際通報標準

身為大亞灣核電站核安全諮詢委員會委員的曹宏威指出，是次事故是壓水堆發現有些微放射性碘核素，但冷卻水被密封，與外界多重隔離，放射性碘核素又遇半衰期短，且穩定而無增變，故不影響公眾安全。他相信是核分裂物而非核燃料所產生的輻射，有可能是鈾棒有小孔，但按國際規格只屬零級，根本不必通報；而以中國核電廠的安全水平既未至失控也不會爆炸。法國就核能發電設有四十多個獎項，大亞灣核電站向有優良表現，獨佔二十個獎，處理這類未入級事件應有足夠信心。

再以核電廠與民居的距離，大亞灣是五十公里，但外國有大城市是二十公里。曹宏威重申，事故不影響市民安全，「難道我們這些委員的命夠賤，甘願提着腦袋去核電廠開會？核電廠廠長等管理層如實答覆了提問，詳盡解釋令我相信它透明度夠高，我在會上建議徹底查清原因，看看是不是燃料棒來料問題或者安放燃料棒的扭力偏差？」

倡專家論證查原因

曹宏威直斥自由亞洲電台的報道別有用心，「不配做負責任的傳媒，香港應予取締。」他建議召開國際會議，讓專家學者論證，拆穿自由亞洲電台的西洋鏡。香港一定要建立機制，不要給別有用心的傳媒渾水摸魚。他呼籲有遠見的政治家應考慮立例督促和懲處。

又訊，根據天文台的環境輻射監測網絡的資料顯示，天文台在香港境內所量度得的輻射水平並沒有任何異常變化。以最接近大亞灣核電站的東平洲環境輻射監測站為例，五月份的日平均輻射劑量均在正常波動範圍之內。

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明報

2010-06-21

A08I 港聞

天文台24小時監測輻射

為監測大亞灣核電站對本港的實際影響，天文台在本港設有10個監測站，24小時監測環境輻射變化，並定期收集食物、水、泥土以及塵埃樣本，分析有否受輻射污染。5月23日大亞灣反應堆內部洩漏輻射事件發生後，天文台亦曾到本港各區額外收集泥土樣本分析，至今未有結果。

東平洲監測站最接近核電廠

有指大亞灣核電站洩漏的輻射可穿牆透壁，並擴散出去，天文台高級科學主任馬偉民說，香港境內的10個輻射監測站，以位於東平洲監測站最接近核電廠，在其20公里範圍內，事發當日該站錄到的輻射劑量為每小時0.1微希沃特，與其他站相若，事後亦未有錄得異常飆升，直至前日，東平洲的輻射量為0.09，與1個月前比較，完全無變化。

目前本港環境的輻射水平介0.06至0.3微希沃特，個別監測站錄到的輻射量只要上升1倍，位於尖沙嘴天文台總部的「輻射監測及評價中心」會響鬧，啟動緊急應變計劃。「輻射上升1倍，中心也會響鬧，若核電站洩漏輻射，數字可能飆升數千倍，香港怎會不知？」

該中心成立多年，從未需要啟動應變機制，但為確保應變機制運作暢順，政府除與廣東省核管辦每月測試通報機制運作是否暢順，港府多個部門每季都會演習，包括水務署、環保署、機電署、衛生署、漁護署、政府化驗所和保安局，測試在不同情況下，人員是否懂得應變。

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大亞灣研小事故均報港

大亞灣核電站反應堆內泄漏輻射事件，揭露港府後知後覺。據悉，港府內部認為現時按國際事故級數而設的通報機制是屬於應變層面，未能照顧到公眾對核電安全的關注，故部門正按「有效率、具透明」的原則，檢討如何加強通報機制。其中一方案是當核電站發生運行事件，如5月23日的廠內事故，不論級數，亦要通報港府的技術部門。

明報記者馬耀森

研改善通報「不宜太多層級」

據了解，政府內部認為，大亞灣核電廠5月23日的事務，雖不達國際核事故的級數而不用通報，但因公眾關注，政府有需要提高現時通報的透明度。

政府希望日後即使涉及一些輕微事故，如5月23日的廠內事故，也要有渠道通報港府。檢討原則是有「要有效率，不宜太多通傳層級」。

先報中電環保署機電署

據了解，其中考慮方案是，若遇輕微事故，核電廠也應通報股東中華電力，並同時通報港府技術部門，如環保署、機電工程署等。

對於可否善用已設立的核安全委員會作通報，或政府派官員出席委員會會議，政府內部也會作考慮，惟核安全委員會每半年才開會一次，並不合符政府「要有效率通報」的原則。

政府消息人士強調，加強通報亦要取得平衡，政府已展開研究，了解外國近年的通報機制，以確定粵港設立多年的通報機制是否存在不足。至於進行檢討的部門，除了負責應變計劃的保安局，亦包括掌管本港能源政策的環境局。中電發言人表示，正就通報機制事宜與有關當局商討，暫未有資料透露。

大亞灣核電站安全諮詢委員會副主席李焯芬亦認為，粵港通報機制停留在應變層次，當核電站發生嚴重事故才啟動應變機制已太遲，建議粵港加強溝通及交流。

粵港核事故通報機制沿用多年，由內地主導，遇到緊急事故，大亞灣核電站須即通知廣東省核管辦，然後通知香港（見圖）。港府首個獲知會的部門是天文台。天文台亦承認，政府過去多年都未能掌握大亞灣核電站的營運情況，包括廠內發生的運行事故。

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Press Releases

Security Bureau's response to Guangdong Nuclear Power Station incident

In response to media enquiries on a Guangdong Nuclear Power Station incident, a Security Bureau spokesperson made the following reply:

Upon receipt of an enquiry from Radio Free Asia (RFA) yesterday afternoon (June 14) concerning an incident that occurred on May 23 at the Guangdong Nuclear Power Station, the Security Bureau immediately sought information from CLP Power Hong Kong Ltd (CLP).

We understand that CLP has made the following response regarding the enquiry:-

* On May 23, 2010, a small increase in radioactivity (radioactive iodine and noble gases) was observed in the reactor cooling water at Unit 2 of Daya Bay nuclear power plant. The level of radioactivity thereat has since then remained stable in the last two weeks, without any material change.

* Preliminary assessment indicates that there was a very small leakage at a fuel rod. A dedicated task group has been following up and monitoring the situation.

* The reactor cooling water is sealed in completely and isolated from the external environment, thus causing no impact to the public.

* Since the above increase in radioactivity is small, the operation of Daya Bay nuclear power plant has not been affected. The situation was below the rating for the International Nuclear Event Scale.

Since the incident did not have any impact on nuclear safety, no immediate notification was required in accordance with the existing notification mechanism. The Security Bureau will continue to liaise with CLP to seek further information and follow up on the matter.

The Hong Kong Observatory has set up a Radiation Monitoring Network (RMN) consisting of 10 radiation monitoring stations to monitor environmental radiation levels. The RMN measurement has not shown any abnormality between May 23 and June 13.

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