

**For discussion
on 19 March 2001**

**Legislative Council
Panel on Environmental Affairs**

Handling of Low-level Radioactive Wastes in Hong Kong

PURPOSE

This paper informs Members of the arrangements for the handling of radioactive wastes in Hong Kong.

THE RADIATION ORDINANCE

2. The Radiation Ordinance (Cap 303) controls the import, export, possession and use of radioactive substances and irradiating apparatus in Hong Kong through a licensing system¹. The objective is to protect the health of the workers and members of the public while allowing the beneficial use of ionising radiation. The Radiation Board set up under the Ordinance has prescribed regulations stipulating the requirements for disposal of radioactive wastes². The Department of

¹ The Radiation Board set up under the Radiation Ordinance is responsible for granting licences for the manufacture, sale, possession or use of radioactive substances or irradiating apparatus. The requirements for storage of radioactive substances are prescribed by regulation 8 of the Radiation (Control of Radioactive Substances) Regulations.

² Regulation 25 of the Radiation (Control of Radioactive Substances) Regulations puts the onus of disposal on the proprietor of the undertaking concerned, who is required to cause all radioactive wastes to be removed from the workplace and cause such wastes to be placed in containers of a type approved by the Authority and thereafter disposed of in accordance with the provisions of the regulations. Additional guidelines on the responsibilities of the licensees and requirements for protection of workers and the public, storage of radioactive substances and disposal of wastes are given in the conditions of the licence and a set of basic safety standard for licensees issued by the Radiation Board.

Health (DH) has also issued a code of practice for the handling, storage, packaging, transportation and disposal of radioactive wastes.

RADIOACTIVE WASTES IN HONG KONG

3. Radioactive wastes in Hong Kong are generated from the use of radioactive substances in industry, medicine, education and research³. These wastes are of low radioactivity content, with an annual volume of 0.26 cubic metres.

EXISTING STORAGE AT QUEEN'S ROAD EAST

4. A small amount of low-level radioactive wastes is currently stored inside an air-raid shelter at Queen's Road East in Wan Chai. The volume is about 55 cubic metres. The wastes have a very low level of radioactivity and are properly packaged in new standard containers that are suitable for transportation according to the requirements of the International Atomic Energy Agency. DH has been monitoring the condition of the wastes and the radiation levels inside and outside the store to ensure that public health is well protected. The radiation levels outside the store have been consistently found to be the same as normal background radiation levels.

5. The geotechnical condition of the air-raid shelter is closely monitored by the Highways Department. Improvement works are carried out when such is required, with the last one completed in 1999.

³ The wastes comprise mainly luminous dials and hands of clocks and watches, rayon mantles of kerosene lanterns, smoke detector chambers, lightning conductor heads, and used medical radiation sources. Some items, like smoke detector parts and luminous watch components, are parts of consumer products that are suitable for direct disposal by the end-users in small quantities.

No evidence of any structural problems have been detected.

LONG TERM PLAN

6. The Government considers that in the long run these wastes should be stored at a purpose-built facility. The Environmental Protection Department (EPD) is responsible for the planning of the long-term arrangement. One option that was considered in the early- to mid-1990s was to construct a purpose-built storage facility at Siu A Chau.

DEVELOPMENTS

7. EPD had invited tenders to design, build and operate the Siu A Chau facility in late 1995. However, only one valid tender was received and the tender price was much higher than the estimate⁴ at that time. As the tenderer could not provide an acceptable tender price after negotiation, the tender exercise was subsequently cancelled in 1997.

8. At the same time, there was a substantial decrease in the volume of low-level radioactive wastes generated each year⁵ because a major producer of such wastes stopped its production line in Hong Kong. The Government therefore considered it necessary to explore if there were other more cost-effective options to handle the wastes.

9. Other alternative arrangements that have been considered include landfill disposal, trench and repository disposal, incineration, dispersal of liquid wastes to the sewerage system and vitrification etc.

⁴ The tender price was \$106 million, compared with our estimate of \$66 million then

⁵ The volume decreased from 0.76 cubic metre to 0.26 cubic metre

However, none of them is considered viable. We have also explored the possibility of sending the wastes to other countries with storage facilities. However, none of the 22 countries contacted agreed to accept the wastes from Hong Kong.

PRESENT POSITION

10. We are exploring the feasibility of storing these low-level radioactive wastes at purpose-built facilities in the Mainland. At present, we are still discussing with the Mainland authorities the technical feasibility. We hope to obtain the necessary information within this year so that we may consider this option together with the Siu A Chau option before making a decision.

CONCLUSION

11. It is our intention in the long run to relocate the low-level radioactive wastes to a purpose-built facility. In the interim, DH will continue to monitor the radiation levels inside and outside the existing storage to ensure that the wastes will not present health or safety hazards to people nearby. We will regularly inform the Wan Chai District Council and Wan Yan College of the monitoring results of the radiation level and progress regarding our examination of options for relocating the wastes from the existing storage.

Environment and Food Bureau
Health and Welfare Bureau
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