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Panel on Environmental Affairs

Meeting on 24 November 2014

**Background brief on "Emergency sewage discharge incident at
the Pillar Point Sewage Treatment Works"
prepared by the Legislative Council Secretariat**

Purpose

This paper provides background information on the emergency sewage discharge incident at the Pillar Point Sewage Treatment Works ("PPSTW") in Tuen Mun.

Background

2. PPSTW was built in 1982 and designed for treatment of sewage from the Tuen Mun district before discharging to the marine waters at the Urmston Road channel to the south west of Tuen Mun. The Drainage Services Department ("DSD") completed upgrading of the plant in May 2014 to enhance its sewage treatment level to chemically enhanced primary treatment together with ultra violet disinfection, and to increase the treatment capacity necessary for the future development of Tuen Mun district. At present, the daily sewage influent to the plant is about 180 000m³.

3. At 9:57 pm on 25 August 2014, the Leisure and Cultural Services Department ("LCSD") issued a press release announcing that due to the possible sewage pollution caused by facility malfunction in PPSTW, all beaches in the Tuen Mun and Tsuen Wan districts¹ were temporarily closed for the sake of public health. Members of the public were advised not to swim at those

¹ The 14 affected beaches were: Butterfly Beach, Castle Peak Beach, Kadoorie Beach, Cafeteria Old Beach, Cafeteria New Beach, and Golden Beach in Tuen Mun District and Anglers' Beach, Gemini Beaches, Hoi Mei Wan Beach, Casam Beach, Lido Beach, Ting Kau Beach, Approach Beach and Ma Wan Tung Wan Beach in Tsuen Wan District.

beaches during the closure period. It was also announced that LCSD had requested the Environmental Protection Department ("EPD") to take water samples from the concerned beaches for analysis.

4. In response to members' request after the incident, the Administration arranged a site visit for the Panel on Environmental Affairs ("the Panel") to PPSTW on 8 September 2014 to explain the causes of the incident and the follow-up actions taken to deal with the resultant sewage pollution.

The incident and its environmental impacts

5. According to the Administration, mechanical failure occurred to all the four fine screens² at PPSTW at about 2:30 pm on 25 August 2014. The chains that drive scrappers for removing small sized particles caught on the fine screens fell apart. While emergency repair works commenced immediately, the small sized particles in the incoming sewage quickly accumulated and clogged the fine screens thus stopping the sewage from passing through them and continuing with the downstream sewage treatment process. As sewage continued to come to PPSTW, to avoid depleting the small temporary storage space upstream, it was decided that the sewage influent should be discharged through the emergency submarine outfall of the plant starting from about 3:30 pm. The sequence of events and the response actions taken were as follows –

Date	Time	Response actions
25 August 2014	2:30 pm	Mechanical failure occurred to all the four fine screens at PPSTW
	3:18 pm	DSD notified EPD of sewage bypass at the plant via email
	About 3:30 pm	DSD decided to discharge the sewage influent through the emergency submarine outfall of PPSTW
	4:00 pm	Staff of EPD conducted a joint inspection with DSD
		Taking into consideration the proximity of the discharge location to the beaches, EPD opined that the discharge via the emergency submarine outfall might have an impact on the water quality in the coastal waters of Tuen Mun and Tsuen Wan

² Fine screens are common installations in sewage treatment plants to filter solid matters.

25 August 2014	6:24 pm	DSD alerted LCSD that sewage was being bypassed to the emergency submarine outfall due to the malfunction of the facility in PPSTW
		LCSD decided to temporarily close the 14 beaches at Tuen Mun and Tsuen Wan
	8:27 pm	LCSD sent an email to EPD and DSD to inform them of the action taken
	9:30 pm	The fine screening operation was partially resumed
	10:00 pm	LCSD issued a press release to announce the closure of the 14 beaches
26 August 2014	2:30 am	All the emergency repair works was completed and PPSTW resumed normal operation
	morning and afternoon	EPD collected two rounds of beach water samples at the 14 beaches
27 August 2014	afternoon	The laboratory analysis results confirmed that the levels of <i>E. coli</i> on 26 August 2014 in all 14 beaches were suitable for swimming
	early evening	EPD and LCSD jointly released a press release to inform the public of the re-opening of the 14 beaches

6. As advised by the Administration, DSD immediately tightened its control after the incident. This included warning the contractor that such incident of failure of all the four fine screens including the stand-by one was unacceptable and urged them to take proper and immediate steps to prevent recurrence. The contractor has immediately replaced all fine screens with new chains. They have also strengthened their resources for operation and maintenance of the plant and have increased the inspection frequency of the fine screens from once per day to three times per day. The contractor has further carried out reinforcement works on the chains to further minimize the risk of their failure. Besides, DSD has also asked their consultants to further tighten the supervision of the plant operation and the essential installations.

7. EPD has also conducted daily beach water quality monitoring at all 14 beaches in Tuen Mun and Tsuen Wan since the incident. The test results of the water samples indicate that there was no material impact on the water

quality of the nearby beaches due to the emergency discharge from PPSTW.

Follow-up actions taken by the Administration

8. Relevant government departments have taken the following actions to prevent recurrence of similar incidents and to enhance the co-ordination amongst government departments in responding to similar emergency incident in future –

- (a) DSD has conducted an investigation on the cause of failure of the fine screens and the investigation was carried out by a Task Force led by the Deputy Director of DSD;
- (b) DSD has examined the feasibility of modifying the process of PPSTW so that incoming sewage flows could be channeled into the plant for treatment notwithstanding failure of the fine screens at the plant inlet;
- (c) EPD has investigated the incident on the compliance with the regulatory requirements; and
- (d) a review on the efficiency and effectiveness of communication and co-ordination amongst concerned government departments and the publicity arrangement have been carried out in order to identify improvement opportunities.

Follow-up actions requested by the Panel on Environmental Affairs

9. After the site visit by the Panel on 8 September 2014, the Administration was requested to –

- (a) provide the terms of the penalty provisions of the contract for the upgrading of PPSTW and advise whether the contractor would be held liable to the loss of public enjoyment due to the closure of the 14 beaches;
- (b) advise whether a trial run had been conducted to ensure that the upgraded PPSTW could handle the required treatment capacity of 241 000 m³ per day;
- (c) provide the report of the Task Force to investigate the cause of the incident to the Panel in due course and inform the Panel of the findings and follow-up actions; and

- (d) advise how the communication and co-ordination among concerned government departments and the publicity arrangements in handling similar emergency incidents would be improved in the future.

Latest development

10. The Administration will brief members on the investigation of the incident conducted by the DSD's Task Force and the improvement measures on the communication and co-ordination among the concerned government departments, and the publicity arrangements in handling similar emergency incidents at the Panel meeting on 24 November 2014.

Relevant paper

11. A list of relevant papers is set out in the **Appendix**.

Council Business Division 1
Legislative Council Secretariat
20 November 2014

Appendix

List of relevant papers

Council/ Committee	Date of meeting	Paper
--	--	Letter dated 26 August 2014 from Hon Tony TSE Wai-chuen regarding the possible sewage pollution caused by facility malfunction in the Pillar Point sewage treatment works (Chinese version only) (LC Paper No. CB(1)1951/13-14(01)) http://www.legco.gov.hk/yr13-14/chinese/panels/ea/papers/eacb1-1951-1-c.pdf
Panel on Environmental Affairs	8 September 2014	Administration's response on possible sewage pollution caused by facility malfunction in the Pillar Point Sewage Treatment Works (LC Paper No. CB(1)1989/13-14(01)) http://www.legco.gov.hk/yr13-14/english/panels/ea/papers/eacb1-1989-1-e.pdf