

本署檔案  
OUR REF :  
來函檔案  
YOUR REF : CB4/PAC/R70  
電 話  
TEL NO : 2872 1750  
圖文傳真  
FAX NO :  
電子郵件  
E-MAIL :  
網 址  
HOMEPAGE : <http://www.epd.gov.hk>

**Environmental Protection Department  
Headquarters**

16/F, East Wing,  
Central Government Offices,  
2 Tim Mei Avenue,  
Tamar, Hong Kong



環境保護署總部  
香港添馬添美道 2 號  
政府總部東翼 16 樓

**By Email and Fax**

Public Accounts Committee  
Legislative Council Secretariat  
Legislative Council Complex  
1 Legislative Council Road  
Central, Hong Kong  
(Attn: Mr. Anthony CHU)

25 May 2018

Dear Sir,

**Public Accounts Committee**  
**Consideration of Chapter 1 of the Director of Audit's Report No.70**  
**Management of Restored Landfills**

Thank you for your letter dated 15 May 2018. Please find in the enclosed appendix the information requested. If you need any further information, please contact the undersigned.

Yours faithfully,

(FONG Kin-wa)

for Director of Environmental Protection

Encl.

c.c. Secretary for Environment (fax no. 2537 7278)  
Secretary for Home Affairs (fax no. 2591 5536)  
Director of Leisure and Cultural Services (fax no. 2691 4661)  
Director of Architectural Services (fax no. 2810 7341)  
Director of Home Affairs (fax no. 2574 8638)  
PEO(G), FSTB(TsyB) (Mike WM CHENG/TSYB/HKSARG)  
Director of Audit (fax no. 2583 9063)

## Appendix - EPD's response to PAC's request for information

Q(a)	whether the Environmental Protection Department ("EPD") has any plan to allocate more land for other uses if aftercare of a landfill had been conducted for 30 years;
	<p>The Government has been striving to develop, where appropriate and feasible, the land in restored landfills for beneficial use in order to better utilize the land resources and satisfy the community's need. The landfill restoration contracts have specified an aftercare work period of 30 years. Without prejudice to the aftercare work and protection of public safety, the Environmental Protection Department (EPD) will continue to allocate the land for other uses as appropriate during the aftercare period in consultation with the relevant district councils and stakeholders. The EPD will conduct regularly environmental review to examine the progress and effectiveness of the aftercare works. Moreover, nearer the end of the aftercare period, the EPD will examine in detail to see if the aftercare work still needs to continue. If no longer necessary, we would remove the restoration facilities (e.g. leachate treatment plants or site offices) and examine the feasibility of releasing such residual small areas which have once been occupied by the facilities for other appropriate uses and consult the relevant district councils and stakeholders.</p>
Q(b)(i)	<p>please list out the commonalities and differences on the requirements for compliance by contractors in terms of environmental parameters, such as flow rate of the discharge, total nitrogen level of leachate discharge, landfill gas emission limits etc. as set out in the following documents:</p> <ul style="list-style-type: none"> <li>● statutory requirements under the Water Pollution Control Ordinance (Cap. 358) ("WPCO") (the Technical Memorandum or any other requirements);</li> <li>● license(s) issued by Director of Environmental Protection to the contractors under WPCO; and</li> <li>● landfill restoration contracts;</li> </ul> <p>and provide a copy of the Technical Memorandum and information as required in the table in the Appendix;</p>
	<p>The requirements in the licenses issued under the Water Pollution Control Ordinance (WPCO)(Cap. 358), the Technical Memorandum (TM) and the Contractor's obligations under the landfill restoration contracts are set out in the enclosed <b>Annex 1</b> for reference. A copy of the TM is enclosed in <b>Annex 2</b> for reference.</p>
Q(b)(ii)	<p>Director of Environmental Protection stated at the public hearing that contract requirements were more stringent than the statutory requirements stipulated under WPCO. Please provide a comparison between contract requirements and WPCO requirements demonstrating that a stricter control was imposed under the landfill restoration contracts;</p>
	<p>The requirements under the landfill restoration contract (contract) are more stringent than the statutory requirements stipulated under the WPCO and cover a wider range. Apart from complying with the discharge standards and requirements stipulated under the WPCO, the</p>

**\*Note by Clerk, PAC: Annex 2 not attached.**

	<p>contract has also specified additional non-statutory requirements (e.g. on operating temperature of the landfill gas flaring plant and surface water discharge). Under the contract, there are different levels of environmental performance indicators that require the Contractor to set stricter or additional trigger limits and action limits that are not required in the environmental legislation. From project management and supervisory points of view, specifying such requirements under the contract would allow the Contractor to discover problems early and take proactive actions and implement mitigation measures so as to avoid causing environmental pollution and/or breaching the law. Furthermore, in case of any non-compliance with the contract requirements, the Contractor will not only be penalized by way of deduction of operation payment but also required to increase the monitoring frequency until the contractual requirements are complied with. Related information is enclosed in <b>Annex 3</b> for LegCo PAC's internal reference.</p>
Q(b)(iii)	<p>is a breach of license conditions equivalent to a breach of relevant requirements under WPCO? If yes, is the penalty imposed the same? If not, reasons for the difference;</p>
	<p>The Water Pollution Control Ordinance (WPCO) (Cap. 358) provides general controls on the discharge of polluting matters in waters of Hong Kong by any person. These controls aim to broadly cover offences of all kinds and those without specific discharge routes. The Water Pollution Control (General) Regulations (WPC(G)R) provides more specific controls* on WPCO licencees (generally involving facilities with regular discharges such as wastewater treatment plants and restaurants). Any discharge of effluent in breach of the terms and conditions specified in the licence is an offence liable to prosecution, irrespective of whether the discharge involves polluting matters or not<sup>#</sup>. The WPCO has different provisions for controlling discharges under different circumstances. Breach of licence terms and conditions would be prosecuted under WPC(G)R. The maximum penalties of these offences under WPCO and WPC(G)R are different with details as follows:</p> <p>Maximum penalty:</p> <p><b>WPCO</b></p> <p>(1) For discharges of any waste or polluting matter:</p> <p>6 months imprisonment and</p> <ul style="list-style-type: none"> <li>● for a first offence, a fine of \$200,000</li> <li>● for a second or subsequent offence, a fine of \$400,000</li> <li>● in addition, if the offence is a continuing offence, a fine of \$10,000 for each day</li> </ul> <p>(2) For discharges of poisonous or noxious matter:</p> <ul style="list-style-type: none"> <li>● for a first offence, a fine of \$400,000 and imprisonment for 1 year</li> <li>● for a second or subsequent offence, a fine of \$1 million and imprisonment for 2 years</li> <li>● in addition, if the offence is a continuing offence, a fine of \$40,000 for each day</li> </ul>

**\*Note by Clerk, PAC: Annex 3 not attached.**

	<p><b>WPC(G)R</b></p> <p>(3) For contravention of the conditions of a licence:</p> <ul style="list-style-type: none"> <li>● a fine of \$200,000 and imprisonment for 6 months</li> </ul> <p>* e.g. requirements on flow rate, treatment facilities, discharge point(s), sampling points(s), monitoring, records and reporting</p> <p># e.g. failing to submit monitoring reports or to keep monitoring records is an offence</p>
Q(b)(iv)	<p>if a breach has resulted in a fine for the offence under the license/WPCO, whether EPD would still pursue civil remedies under the contract, including the deduction of points and/or deduction of payments; and</p>
	<p>The Environmental Infrastructure Division (EID) of the EPD is responsible for monitoring the operational performance of the Contractor while the Environmental Compliance Division (ECD) of the EPD is responsible for enforcing relevant environmental legislation. Due to the difference in the scope and nature of the work of the two divisions, with the enforcement officers acting independently, the two divisions will take leachate samples separately and at irregular time (not necessarily be at the same time). If the Contractor has been found violating both the contractual and statutory requirements, when the two divisions took samples at the same time, both divisions under the EPD will take strict actions under the contract and the relevant ordinance accordingly. There is no contractual clause in the current landfill restoration contract which stipulates that the Contractor's conviction results can be used as evidence for deducting points under the point system and hence the operational payment. The EPD therefore has no basis under the contract and cannot use such conviction results for deducting points or payment. Any amendment to the current contract requires mutual agreement between the EPD and the Contractor and any unilateral decision may lead to potential litigation. Nevertheless, the EPD agrees to consider, before awarding future contracts, reviewing introducing such mechanism with relevant government tendering boards. However, before making such decision, the EPD will also need to consider the possible impact, for example, whether it is consistent with the contractual mechanisms of other government bureau and departments.</p> <p>In addition, both the Contractor's non-compliance with contractual requirements and convictions will be reflected in his performance reports prepared by the EPD. Such performance assessment will directly affect the Contractor's grading when bidding new government contracts (i.e. not limited to new contracts under the EPD) and the opportunities for future appointments. These mechanisms/arrangements are similar to other government departments practice with their outsourced service contractors.</p>
Q(b)(v)	<p>according to paragraph 2.12 there is a demerit point system for the deduction of monthly payments for Contract A3, details of this system;</p>

	<p>The “demerit point” system stated in paragraph 2.12 of the Audit Report is only for calculating the payment deduction due to non-compliances with contractual requirements, not for assessment in the Contractor’s performance report. The EPD’s five landfill restoration contracts all include a deducting point system which specifies the number of points and the maximum points to be deducted in a month for each specified non-compliance with the environmental and pollution control requirement. Taking the Pillar Point Valley Landfill contract as an example, if the total nitrogen level of leachate discharge sample exceeds the specified limit, 1 point would be deducted and the maximum number of points to be deducted for various non-compliances in a month is 35. Related information is enclosed in <b>Annex 4</b> for <u>LegCo PAC’s internal reference</u> (English version only).</p>
Q(c)	<p>the tender procedures for the five landfill restoration contracts (Table 2 in paragraph of 2.3 of the Audit Report refers), including the number of companies which had been invited for submission of tender proposals for each of the five contracts and the number of tender proposals received. Whether references had been made to overseas experience when drawing up the tender documents. If yes, details of these references;</p>
	<p>The tender procedures, number of invited prequalified tenderers and tenders received; and overseas reference of the five landfill restoration contracts are enclosed in <b>Annex 5</b> for <u>LegCo PAC’s internal reference</u>.</p>
Q(d)	<p>(d) reasons for EPD to adopt a design-build-operate form of contract for the restoration and management of the 13 landfills which lasts for 30 years. Even though the contracts include a termination clause, whether such a form of long-term contract might impose restrictions to terminate a contractor for consistent poor standard of performance because of the difficulty to invite another contractor to run the restoration facilities designed by the original contractor, thus hinder the effectiveness of the contract termination clause as the last resort? Please provide an extract of the contract termination clause for the Contract A3 as an illustration.</p>
	<p>Since the 80s, the EPD had adopted the design-build-operate (DBO) form of contract for the development and management of its waste facilities, employing via open tendering specialist Contractors for the restoration of the closed landfills and their aftercare work for a period of 30 years.</p> <p>Requirements on the performance of the waste facilities and their relevant environmental parameters (such as waste handling capacity, odour control, wastewater discharge and air emission standards, etc.) are stipulated in the DBO contract. To this end, a specialized Contractor has to choose the most appropriate design and operational mode to meet the contractual requirements. This has not only allowed bringing in the best available professional knowledge and technologies, but also ensured that the specialist Contractor who is responsible for the design and construction would continue to fulfill his contractual obligations in operating the waste facilities throughout the entire contract period. In addition, the contract also requires the specialist Contractor to submit his detailed designs, as-built drawings, operation procedures and reports for approval and record-keeping by the independent consultant and EPD.</p>

**\*Note by Clerk, PAC: Annexes 4 and 5 not attached.**

Our landfill restoration contracts stipulate that the Government has the right to terminate the contracts anytime by giving the Contractor 9 months or 12 months advance notice in writing (i.e. depending on the relevant clauses of various contracts). For the PPVL contract, a 9-month advance notice in writing is required to terminate the contract. The relevant clause is extracted and enclosed in **Annex 6** for LegCo PAC's internal reference (English version only).

When deciding whether to terminate early the contract, besides making reference to the contract, the Government also needs to take into account a host of factors including but not limited to whether the non-compliances with contractual requirements/ statutory requirements involve any systemic fault of the Contractor; the Contractor's performance in meeting the contractual requirements; whether the Contractor has promptly taken responsible and appropriate follow-up actions upon receipt of our warning; whether the Contractor has intentionally created loopholes/committed non-compliances with the contractual and statutory requirements so as to indirectly avoid his legal and contractual obligations; the potential risks associated with litigation and contractual claims made by the Contractor; implications of early contract termination of the contract on the community in relation to environmental and waste management; and how to ensure there are other companies with suitable professional background and qualifications to participate in the re-tendering, etc.

For the PPVL contract, upon carefully examining the non-compliance cases, we consider that although the Contractor is at fault, there has been no systemic problem in his operational management. The Contractor has also continuously taken various follow-up and remedial actions and there has been progressive improvement in his operational management of the PPVL. Taking into account of the above and after consulting legal advice, we consider early contract termination is not the best way to safeguard public interest.

There are various contract arrangements for project developments, including DBO. The DBO concept is that the Government will pay for the construction cost while the private company (i.e. the Contractor) carry out design and construction works for the facilities in accordance with the requirements set out by the Government. Upon completion of the works, the Contractor then operates the facilities in accordance with the contractual operational requirements. All along, for projects that are unique in nature and require commitment of specialized technologies and equipment (such as restored landfill projects), the EPD considers that the DBO form of contract should be adopted, with the same Contractor responsible for the design, construction and operation of the facilities. So far, the EPD's waste facilities awarded under DBO contract, have been operating smoothly in general. As for PPVL, upon our review of all other landfill restoration contracts, we consider that the PPVL incident is an isolated case, in which the Contractor has failed to meet the contractual and statutory requirements in leachate treatment and monitoring.

As it takes a long time, up to 30 years or above, to carry out landfill restoration and aftercare work, we consider that adopting the DBO contract arrangement can effectively enable a single contractor to design and construct suitable restoration facilities and continue to carry out works accordingly. All in all, this can ensure that the contractor will continuously carry

**\*Note by Clerk, PAC: Annex 6 not attached.**

	<p>out and be responsible for the aftercare work throughout the entire aftercare period.</p> <p>Also, to reduce risks when tendering for landfill restoration project, EPD will award the contracts to the most suitable candidate. In this regard, EPD will make reference to the tenderer's past experience, financial capability, technical knowledge etc. during the prequalification and tendering exercises.</p>
Q(e)	<p>(e) an extract of the relevant sections of the tender documents for Pillar Point Valley Landfill ("PPVL") providing information including tender requirements and specifications, relevant experiences/expertise required of the applicants, criteria in evaluating tenders;</p>
	<p>The tender documents of PPVL is enclosed in <b>Annex 7</b> for <u>PAC's internal reference</u> (English version only).</p>
Q(f)	<p>(f) according to Note 15 of paragraph 2.7, a review was conducted after five years of commissioning the aftercare work and the first environmental review for PPVL was completed in 2011. Please provide details of the first review, such as when the review started and ended and issues covered under the review. Why did the second review commence in 2017 (instead of 2016) after a lapse of six years after the completion of the first review;</p>
	<p>The main objective of conducting environmental review is to understand the progress of the aftercare works and the environmental conditions of the restored landfill. In brief, a restored landfill is deemed to be fully restored and aftercare needs not continue when the following conditions are satisfied:</p> <ul style="list-style-type: none"> <li>(i) the untreated landfill gas has a methane content of less than 1% by volume; and</li> <li>(ii) the quality of untreated leachate meets the relevant standards before discharging to the government sewers.</li> </ul> <p>The first Environmental Review for PPVL commenced in early 2011 and completed in April 2011. During the review, we gathered the past environmental monitoring data of the restored landfill (from July 2006 to December 2011) including:</p> <ul style="list-style-type: none"> <li>(i) quantity of landfill gas collected and concentrations of the parameters (e.g. methane and carbon dioxide);</li> <li>(ii) quantity of leachate collected and concentrations of the parameters (e.g. biological oxygen demand, chemical oxygen demand and ammonia nitrogen);</li> <li>(iii) groundwater elevation; and</li> <li>(iv) records of settlement for the various points within the landfill.</li> </ul> <p>The first Environmental Review report is enclosed in <b>Annex 8</b> for <u>LegCo PAC's internal reference</u> (English version only):</p> <p>For the PPVL's second Environmental Review (which is supposed to commence in the first half of 2016), in view of the 9-month overhaul and shutdown period for the leachate treatment plant from May 2016 to January 2017, related water quality monitoring was</p>

**\*Note by Clerk, PAC: Annexes 7 and 8 not attached.**

	rescheduled to early 2017. Also, due to the prolonged heavy rainfall in 2017, significant amount of leachate was generated on site, which hindered the operation of the leachate treatment plant, the Contractor had to continue with follow-up remedial works. Irrespective of whether the second Environmental Review was conducted as scheduled, the aftercare works would have to be continued. We consider it more appropriate to conduct the second Environmental Review; and collect and collate all relevant data from 2011 to 2018 (including the leachate generated in 2018 wet season) only after the maintenance works are completed and the leachate treatment plant resumes normal operation, so as to comprehensively and effectively review the environmental conditions of PPVL. We expect to complete the concerned Environmental Review by end of 2018.
Q(g)	regarding the long period of non-compliances with statutory and contractual requirements at PPVL and the conduct of review as stated in paragraphs 2.9 to 2.15, please provide the following information:
Q(g)(i)	A chronology of events prior to and after the receipt of complaints, including discovery of non-compliances (before and after receiving the complaints), reviews and investigations made, initiation of prosecutions, imposition of fines by the court, deduction of points/payments made to the contractor, and monitoring/follow-up/remedial actions taken by EPD;
	Key events of Contractor's non-compliances with statutory and contractual requirements at PPVL is enclosed in <b>Annex 9</b> for <u>LegCo PAC's internal reference</u> .
Q(g)(ii)	a copy of the complaint letters received by EPD;
	Records of complaints received are enclosed in <b>Annex 10</b> for <u>LegCo PAC's internal reference</u> (English version only).
Q(g)(iii)	a copy of Investigation Report as mentioned in paragraph 2.9 and the 2016 EPD Review Report mentioned in paragraph 2.20;
	The Investigation Report and 2016 EPD Review Report are enclosed in <b>Annex 11 &amp; 12</b> for reference. (English version only). ( <b>Annex 12</b> is for <u>LegCo PAC's internal reference</u> only)
Q(g)(iv)	How would EPD verify that the performance of the contractor complied with the contractual requirements? A sample of the aftercare monthly statement submitted by the contractor (which provides information including monitoring data on leachate discharge, landfill gas and ground settlement);
	All restored landfill contracts require relevant Contractors to carry out specific environmental monitoring and take environmental samples regularly (including treated leachate, groundwater and river water near landfills) for testing by independent qualified laboratories. The testing reports will be submitted to EPD for review to prove that the landfill operation

**\*Note by Clerk, PAC: Annexes 9, 10 and 12 not attached.**



	<p>(including the leachate treatment and discharge) complies with the contractual requirements. As the Contractor's Aftercare monthly report for April 2018 can provide more comprehensive monitoring data while monitoring for ground settlement will only be carried out once every November, two Contractor's Aftercare Monthly reports (Apr 2018 and Nov 2017) are attached in <b>Annexes 13 and 14</b> for <u>LegCo PAC's internal reference</u> (English version only).</p> <p>The EPD staff will also conduct regular inspection and complete the daily operation checklists for cross-checking the monitoring results reported in the Contractor's aftercare monthly reports (which provide information including monitoring data on leachate discharge, landfill gas and ground settlement). In case the EPD staff identify any non-compliance or abnormalities in the Contractor's aftercare monthly reports, the EPD staff will follow up swiftly with the Contractor and handle the issue in strict accordance with the contractual requirements.</p> <p>Besides, after completing the review in 2016, EPD has accordingly implemented a number of improvement measures to strengthen site supervision of the Contractors in the restored landfills, including installation of advanced equipment in PPVL and other restored landfills with leachate treatment plant, landfill gas flare plant and utilisation plant; conducting surprise checks on weekdays and weekends; adopting random inspection mode; and identifying new sampling points of leachate discharge, etc. Installation of advanced equipment, which includes upgrading data logging systems, can provide real-time monitoring of the operating data of leachate treatment plants, landfill gas flare plants and utilisation plants, obviating the need for cross-checking Contractors' site records (e.g. daily log sheets) with aftercare monthly reports.</p>
Q(g)(v)	<p>according to paragraph 2.15, on-site monitoring based on regular sampling and daily visual inspections and manual checking of contractors' operating data were conducted prior to the 2016 EPD Review arising from the complaints received. Please provide guidelines on how such sampling and inspections were to be conducted; sample records showing data collected by EPD on-site staff; and reasons why contractor's non-compliances were not detected by on-site staff prior to the complaints received;</p>
	<p>Prior to the 2016 EPD review, we had been monitoring the Contractors' compliance with the contractual requirements mainly through the following means:</p> <ul style="list-style-type: none"> <li>(i) carrying out regular inspections and completing the daily operation checklists by site staff for cross-checking the monitoring results reported in the Contractors' aftercare monthly reports (which provide information including monitoring data on leachate discharge, landfill gas and ground settlement); and</li> <li>(ii) reviewing the aftercare monthly reports submitted by Contractors.</li> </ul> <p>The operation manual and a sample daily operation checklist before the 2016 EPD Review</p>

**\*Note by Clerk, PAC: Annexes 13 and 14 not attached.**

	<p>are enclosed in <b>Annex 15 and Annex 16</b> respectively for <u>LegCo PAC's internal reference</u> (English version only). We have updated the operation manual and daily operation checklists after the 2016 EPD Review and they are enclosed in <b>Annex 17 and 18</b> <u>LegCo PAC's internal reference</u> (English version only). The major improvements are stated in paragraphs 5.8.1 and 5.8.8 in <b>Annex 17</b>. Furthermore, subsequent to the 2016 EPD Review, advanced equipment is being progressively installed at PPVL and other restored landfills installed with leachate treatment plants and landfill gas flaring plants; daily and weekend surprise checks are conducted; irregular inspection patterns are adopted; and new sampling points for leachate discharge have been identified.</p> <p>Our daily operation inspection records did not reveal any Contractor's non-compliance prior to the complaint received in January 2016. Under the PPVL contract, there is no requirement for the Contractor to keep the data record of flare temperature of the landfill gas flare plant/utilization plant and submit it to EPD. After we received the complaint in January 2016, we had requested the Contractor to provide daily log sheets covering 973 days from January 2013 to August 2015 for checking. However, the Contractor later informed us that daily log sheets for 299 days were found missing and 1 daily log sheet was found undated. We could not take further actions as failure to provide data record of the flare temperature of the landfill gas flare plant/utilization plant was not a breach of contractual or statutory requirements. In light of the incident, we had reviewed comprehensively the mechanism of monitoring the Contractor's performance and recommended a number of improvement measures, including the installation of real-time data logging system as to monitor and record the operational conditions of the leachate treatment plant, flare temperature of landfill gas combustion, heat exchanger temperatures, etc. in order to enhance the checking of the Contractor's monthly reports and the operational performance of the facilities.</p>
Q(g)(vi)	<p>the number and ranks of on-site staff deployed to PPVL and whether they were stationed at PPVL on a full-time basis, their daily duty list, frequency of conducting water sampling test, and mechanism for handling irregularities. In this connection, the number of on-site staff for the other 12 landfills;</p>
	<p>Currently, the work of our staff at the 13 restored landfills include:</p> <ul style="list-style-type: none"> <li>(i) monitoring of aftercare works (including tree management, security, etc.) and afteruse developments (e.g. temporary shooting range, football training centre, etc.);</li> <li>(ii) regular environmental monitoring (e.g. around 28 times of water sampling at PPVL in each month, including leachate, surface water and groundwater);</li> <li>(iii) provision of technical support and frontline management for the facilities and contract;</li> <li>(iv) handling complaint and enquiry cases; and</li> <li>(v) undertaking irregular surprise checks at the 13 restored landfills during nighttime and public holidays.</li> </ul>

**\*Note by Clerk, PAC: Annexes 15 to 18 not attached.**

To handle abnormal cases, our guideline specifies that the environmental performance of the Contractors shall be inspected and monitored by our site staff. The Contractors are required to carry out samplings and testing of the specified environmental parameters and submit the testing results to us on a monthly basis under contract. We will review the monthly environmental reports and check against the site inspection results submitted by our site staff. If there are non-compliances and/or abnormalities, our site staff shall report to the officer as soon as practicable for follow-up. If any non-compliance of environmental performance is identified, the officer shall promptly request the Contractors to investigate the cause, rectify the situation and increase the monitoring frequency as appropriate.

In view of the relatively low environmental risk and considering the effective use of manpower resources, we have adopted the following arrangements:

Contract	Restored landfills	EPD staff*
Contract A1	Tseung Kwan O Stage 1 <sup>^</sup> Tseung Kwan O Stage 2/3 <sup>#^</sup> (with office for EPD staff)	1 Senior Environmental Protection Inspector (SEPI), 2 Environmental Protection Inspectors (EPIs)
Contract A2	Gin Drinkers Bay <sup>#^</sup> (with office for EPD staff and EPD staff will need to travel from this office to other districts to carry out the routine works for Contract A2), Ma Tso Lung Siu Lang Shui Ngau Tam Mei	1 SEPI, 2 EPIs
Contract A3	Pillar Point Valley <sup>#^</sup> (with office for EPD staff)	1 SEPI, 1 EPI
Contract B1	Shuen Wan <sup>^</sup> (with office for EPD staff)	1 SEPI, 2 EPIs
Contract B2	Ma Yau Tong Central <sup>#^</sup> (with office for EPD staff and EPD staff will need to travel from this office to other districts to carry out the routine works for Contract B2) Ma Yau Tong West Jordan Valley <sup>^</sup> Ngau Chi Wan Sai Tso Wan <sup>^</sup>	1 SEPI, 3 EPIs

# with leachate treatment plant operating continuously

<sup>^</sup> with landfill gas flaring plant

\* We employed a contract staff in April 2017 to organize and oversee surprise checks in all the restored landfills.

Q(g)(vii)	as landfill operates round-the-clock, reasons for not conducting round-the-clock monitoring but only during office hours prior to the 2016 EPD Review;
	<p>We have been closely monitoring the restored landfills and carrying out regular environmental monitoring throughout the aftercare period. All our past environmental monitoring results had showed that they complied with the contractual and relevant statutory requirements, showing that the restored landfills were operating normally. When we allocate manpower resources to manage the various tasks at the restored landfills, we have taken into consideration their relatively low environmental risk and the effective use of manpower resources.</p> <p>After the PPVL incident, we had thoroughly reviewed in 2016 the performance of Contractors at all restored landfills and did not identify any similar case. We believe that the Contractor's malpractices of operating the PPVL leading to statutory and contractual non-compliances is an isolated incident. Nonetheless, we have attached great importance to the management and supervision of the facilities' Contractors and thoroughly reviewed our waste facilities monitoring system in 2016, including implementing improvement measures to strengthen the management and supervision of restored landfills by stepping up the frequency of irregular inspections; enhancing training for on-site staff; and installing real-time data logging system etc., so as to improve the existing monitoring system and its efficiency.</p>
Q(g)(viii)	according to statements made by Assistant Director (Environmental Infrastructure), EPD at the public hearing, prior to the 2016 EPD review, sampling points for collecting leachate discharge for testing as stipulated in the tender documents include effluents discharged from nearby settlements (such as offices). Please provide an extract of the contract stipulating the locations of the sampling points and the justifications for specifying such locations which would affect the accuracy of the sampling tests to show whether substandard leachate or untreated leachate had been discharged. Whether such choice of sampling points are stipulated in all five landfill restoration contracts;
	<p>Like all the other restored landfills, the PPVL contract was awarded in the form of Design-Build-Operate through open tendering. When the contract was awarded, the location of leachate sampling point was not specified as the design proposal of the leachate treatment plant had yet to be finalised. At a later stage, the sampling location was designated at the terminal foul water manhole of the site (i.e. the last discharge point prior to entering to the public foul sewer), where the treated leachate (taking up more than 99.5% of the total discharge) was mixed with sewage from the site office (taking up less than 0.5% of the total discharge). In the 2016 EPD Review, it was concluded that although the effluent in the sampling point could reflect the quality of effluent discharge into the public sewer, it might not reflect accurately the quality of treated leachate discharge from the leachate treatment plant. Hence, after the Review, the EPD proactively changed the sampling point, the related improvement measures are listed in <b>Annex 11</b> para. 7.4, so as to ensure further that the</p>

	treated leachate discharge be in compliance with both licence and contract requirements; and at the same time, it also allows EPD to effectively monitor the performance of the leachate treatment plant. Please refer to <b>Annex 19</b> for detailed location of sampling point at PPVL ( <u>for LegCo PAC's internal reference</u> ).
Q(g)(ix)	as the concentration of the discharge ( total nitrogen level etc.) is one of the key monitoring aspect of compliance with license conditions/WPCO, how could EPD effectively perform its monitoring duty if the sampling test results might be inaccurate as revealed in (viii) above?
	As stated in our response in (g)(viii) above, our EPD 2016 Review concluded that the location of sampling point at the terminal manhole might not reflect very accurately the quality of the treated leachate discharge from the leachate treatment plant. Hence, the EPD proactively relocated the sampling point so as to ensure the treated leachate discharge in compliance with both licence and contract requirements and at the same time, it also allows the EPD to effectively monitor the performance of the leachate treatment plant.
Q(g)(x)	improvement measures taken to enhance the monitoring of the performance of Contractor A, including the locations of the new sampling points and reasons for designating such locations;
	Please refer to our response in (g)(v) and (g)(viii).
Q(h)	according to paragraphs 2.18 and 2.19, site records (e.g. daily log sheets) shall be properly stored and be available for the EPD's inspection upon request but 299 daily log sheets on landfill gas flaring plant ("LGP") operating temperature were found missing from January 2013 to August 2015, which contravened contract requirements. Whether EPD has any guidelines for on-site staff to inspect the daily log sheets of Contractor A in order to verify the reliability and accuracy of the monthly statements submitted by the contractor. Why had the irregularities not been discovered by EPD on-site staff, the penalty, if any, imposed on the contractor in this regard and explanation given by the contractor on the missing log sheets. Please provide the correspondences between EPD and the contractor on this subject;
	Please refer to our response in (g)(v) on missing daily log sheets, not discovering problems earlier and our follow up improvement measures. In addition, the PPVL contract does not stipulate any penalty on missing daily log sheets. According to the Contractor, the majority of the dates with missing log sheets were either when the plant was not in operation; or when the plant was shut down for maintenance. Related follow up correspondences on missing daily log sheets are enclosed in <b>Annex 20</b> for <u>LegCo PAC's internal reference</u> (English version only).
Q(i)	further to (h) above, did EPD on-site staff maintain records of the readings for the 299 days for which the log sheets were missing? If not, how could EPD's on-site staff ensure accuracy of monthly report submitted by the contractors during the period?

**\*Note by Clerk, PAC:**  *Annexes 19 and 20 not attached.*

	<p>During the 299 days for which the Contractor’s daily log sheets were found missing, our site staff had conducted regular inspections and completed daily operation checklists (except on Saturdays, Sundays and public holidays) for cross-checking the Contractor’s aftercare monthly reports. Our site staff did not find any irregularities or unusual records of combustion temperature during the period.</p>
Q(j)	<p>the latest installation progress of advanced equipment, especially on "reviewing and installing automatic sampling device/on-line analyzer" which was still in the stage of quotation exercise, and reasons for the delay as depicted in Table 3 of paragraph 2.21;</p>
	<p>As depicted in Table 3 of paragraph 2.21 of the Audit Report, we have completed the installation of surveillance cameras at restored landfills with both LTP and LGP (Since the LTP of the Jordan Valley Landfill adopts biological technology for leachate treatment, and the respective restoration contract does not stipulate the operation temperature requirement for the LTP, we consider that it is not necessary to install surveillance cameras at the Jordan Valley Landfill). As at 21 May 2018, the advanced equipment installation progress at the five restored landfills with both LTP and LGP is as follow:</p> <p>(1) Reviewing and upgrading data monitoring system:  We have upgraded the data monitoring system at the PPVL and Jordan Valley Landfill (Since the LTP at the Ma Yau Tong Central Landfill operates in wet seasons only, it would not be economical to install data monitoring system. We consider that the installation of surveillance cameras would serve the purpose of strengthening the monitoring of the operating data). Regarding the two remaining ones, Tseung Kwan O Stage II/III Landfill and the Gin Drinkers Bay Landfill where data monitoring system has not yet been upgraded, the Contractor has arranged an overseas specialist to carry out on-site inspection in mid-May 2018, to review if such upgrading is compatible with the existing leachate treatment plants. It is anticipated that the results and study report will be submitted to the EPD on or before the 4<sup>th</sup> quarter of 2018, to determine whether the existing systems at the two landfills can be upgraded and, if affirmative, the expected upgrading time.</p> <p>(2) Reviewing and installing automatic sampling device/on-line analyzer:  We have installed automatic sampling devices at the Jordan Valley Landfill and Ma Yau Tong Central Landfill. Moreover, the supplier has delivered the automatic sampling devices to the PPVL, Tseung Kwan O Stage II/III Landfill and Gin Drinkers Bay Landfill. Upon completing installation in late May this year tentatively, our on-site staff will carry out regular sampling to enhance the efficiency of water quality monitoring.</p> <p>Having conducted on-site trial, the reading of the on-line analyzer for measuring “ammonia nitrogen” was found unstable and inaccurate. The “ammonia nitrogen” data obtained from the analyzer deviated largely from the results provided from laboratory testing. The supplier of the analyzer reckoned that the operation of the respective</p>

	<p>equipment might be affected in confined space and under high temperature, therefore being unable to provide accurate measurement (the temperature of treated leachate from LTP is above 40°C in general).</p> <p>In light of the above, we consider that the current arrangement of delivering samples as collected from auto-sampling devices to laboratory for testing could more effectively monitor the operation of the LTPs.</p>
Q(k)	referring to paragraphs 4.24 to 4.29 regarding Restored Landfill Revitalization Funding Scheme ("the Funding Scheme"):
Q(k)(i)	justifications for implementing the Funding Scheme in three batches;
	<p>There are seven restored landfills available for development under the Restored Landfill Revitalisation Funding Scheme (RLRFS). The Steering Committee (SC) on RLRFS considered that the seven restored landfills available should be launched in batches so that the operating details of the RLRFS could be refined after taking account of the experience from the first batch. Subsequent to the site visits to the restored landfills and having considered various factors such as location of the restored landfills, the SC agreed to include Tseung Kwan O Stage I Landfill (TKOIL) in Sai Kung, Ma Yau Tong Central Landfill (MYTCL) in Kwun Tong and Pillar Point Valley Landfill (PPVL) in Tuen Mun under Batch 1 of RLRFS. Batch 2 of RLRFS includes the remaining four restored landfills namely, Tseung Kwan O Stage II/III Landfill (TKOL-II/III) in Sai Kung, Ma Yau Tong West Landfill (MYTWL) in Kwun Tong, Siu Lang Shui Landfill (SLSL) in Tuen Mun and Ngau Tam Mei Landfill (NTML) in Yuen Long. Batch 3 of RLRFS includes any restored landfills unallocated from Batches 1 and 2 of RLRFS.</p>
Q(k)(ii)	reasons for including only seven landfills in the three batches, but not all 13 landfills;
	<p>There are 13 restored landfills in Hong Kong. The Environment Bureau and the EPD have strived to develop these restored landfills into various recreational facilities. At the time the RLRFS was launched, six restored landfills had already been developed into various types of recreational facilities or planned for designated uses for most of the useable areas, such as:</p> <ul style="list-style-type: none"> <li>• Shuen Wan Landfill as a temporary golf driving range;</li> <li>• Sai Tso Wan Landfill as a recreation ground for football and baseball;</li> <li>• Gin Drinkers Bay Landfill as an international BMX Park, with the remaining part of the site as a temporary cricket grounds and reserved for the planned Kwai Chung Park development;</li> <li>• Jordan Valley Landfill as Jordan Valley Park;</li> <li>• Ngau Chi Wan Landfill as Ngau Chi Wan Park; and</li> <li>• Ma Tso Lung Landfill as a camping and activity ground under short term tenancy.</li> </ul> <p>For the remaining seven restored landfills, the Government set up the RLRFS to fund</p>

	Non-profit-making Organisations and National Sports Associations to develop recreational facilities or other innovative proposals at these seven <sup>1</sup> restored landfills.
Q(k)(iii)	reasons for the long delay in implementing the projects and the latest progress. Whether there is room for improvement in the consultation process with District Councils/non-governmental organizations to speed up the implementation for Batches 2 and 3 restored landfills;
	<p>On 23 June 2014, the EPD consulted the Environmental Affairs Panel of the Legislative Council (LegCo EA Panel) regarding the proposed operation arrangement of the RLRFS. Based on the paper submitted, the EPD tentatively planned to complete the assessment of applications and grant approval-in-principle (AIP) to the successful applicants in August 2015. Subsequent to the provision of supplementary information, the LegCo EA Panel, at its meeting on 23 July 2014, supported the Government to apply to the LegCo Finance Committee (FC) for the non-recurrent funding for the RLRFS.</p> <p>During the implementation of the RLRFS, it was considered necessary to introduce various refinements to the operation arrangement, thus causing delays in the actual implementation of the RLRFS. The main refinements included:</p> <p>(a) more detailed documentation (including a detailed application form, a guide to applications, a technical information kit for each restored landfill and a dedicated website for the RLRFS etc.) was prepared to facilitate the applicants to take due consideration of the site characteristics and constraints as well as the assessment requirements, so that the applicants were well informed to prepare their submissions;</p> <p>(b) interviews with shortlisted applicants were considered necessary during assessment of applications, such that the SC might seek direct clarifications from applicants and assess their applications more carefully. Additionally, selected applicants were also required to enhance their proposals based on the suggestions received during the assessment process (refer to (k)(vi) on the key activities of the SC); and</p> <p>(c) enhanced engagement with the relevant District Councils (DCs) at an early stage of the RLRFS was considered necessary, such that views of the local community could be timely considered in the assessment process. The EPD and the SC thus consulted the DCs concerned in September 2015 prior to the launching of RLRFS, and in January 2017 after receiving the applications.</p> <p>An AIP was granted to Tung Wah Group of Hospitals (TWGHs) in February 2018 so that the proposed development of camp site-cum-green education ground at TKOIL could be taken forward, and TWGHs is now preparing the Technical Feasibility Statement (TFS) for the proposed project. In addition, Christian Family Service Centre (CFSC) is preparing the detailed revitalisation proposal for MYTCL with a view to obtaining the AIP the soonest possible.</p>

<sup>1</sup> There are seven restored landfills under the RLRFS, namely MYTCL, MYTWL, NTML, PPVL, SLSL, TKOIL and TKOL-II/III.



	<p>On the other hand, in accordance with the experience from the Batch 1 of RLRFS, the EPD and the SC will review the operation arrangement of the RLRFS so that the implementation of Batches 2 and 3 of RLRFS could be refined (including arrangement to expedite the overall implementation progress and the DC consultation) before inviting applications from eligible organisations for the remaining restored landfills.</p>										
Q(k)(iv)	timetable for implementing the projects in batch one to three; and										
	<p>As mentioned in (k)(iii), the first project under Batch 1 of RLRFS is now at the stage of preparing the TFS following the established procedures of public works projects. Upon the approval from the relevant Bureau, pre-construction activities will be carried out (including site investigation and survey, Landfill Gas Hazard Assessment, detailed design, drafting of the tender documents etc.) with a view to consulting the LegCo EA Panel and the Public Works Subcommittee in 2019-2020, followed by seeking funding approval from the LegCo FC.</p> <p>Further to the completion of TFS of the Batch 1 projects, the EPD will commence the review of Batch 1 of RLRFS. It is expected that the outcome of the review and the proposed refinements could be provided to the SC for consideration in 2019, the EPD will then develop the refinement details and relevant application information and arrangement for Batch 2 of RLRFS. Following the completion of the assessment of Batch 2 applications, implementation of Batch 3 of RLRFS will commence. EPD will expedite the commencement and implementation of Batches 2 and 3 of RLRFS.</p>										
Q(k)(v)	a chronology of actions taken/will take with timeline on inviting applications under the Funding Scheme for PPVL and explain the reasons for the delays using Table 8 of paragraph 4.26; and										
	<p>The timeline on inviting applications under the RLRFS for PPVL and the reasons for the delays is listed in Table 8 of paragraph 4.26 below:</p> <table border="1"> <thead> <tr> <th><b>Tentative timeframe submitted to LegCo in June 2014</b></th> <th><b>Key action</b></th> <th><b>Actual completion date (Delay as of Dec 2017)</b></th> <th><b>Major reasons for the delay</b></th> </tr> </thead> <tbody> <tr> <td rowspan="2">Dec 2014 to Apr 2015</td> <td>(a) To seek FC's approval for non recurrent funding of \$40 million</td> <td>May 2015 (1 month)</td> <td rowspan="2"> <ul style="list-style-type: none"> <li>■ Revised the operation details and arrangement of the RLRFS based on the suggestions from the SC</li> <li>■ Carried out site surveys for each Batch 1 restored landfill in order to collect the latest site information, e.g. the topography</li> </ul> </td> </tr> <tr> <td>(b) To invite preliminary</td> <td>Nov 2015 (7 months)</td> </tr> </tbody> </table>	<b>Tentative timeframe submitted to LegCo in June 2014</b>	<b>Key action</b>	<b>Actual completion date (Delay as of Dec 2017)</b>	<b>Major reasons for the delay</b>	Dec 2014 to Apr 2015	(a) To seek FC's approval for non recurrent funding of \$40 million	May 2015 (1 month)	<ul style="list-style-type: none"> <li>■ Revised the operation details and arrangement of the RLRFS based on the suggestions from the SC</li> <li>■ Carried out site surveys for each Batch 1 restored landfill in order to collect the latest site information, e.g. the topography</li> </ul>	(b) To invite preliminary	Nov 2015 (7 months)
<b>Tentative timeframe submitted to LegCo in June 2014</b>	<b>Key action</b>	<b>Actual completion date (Delay as of Dec 2017)</b>	<b>Major reasons for the delay</b>								
Dec 2014 to Apr 2015	(a) To seek FC's approval for non recurrent funding of \$40 million	May 2015 (1 month)	<ul style="list-style-type: none"> <li>■ Revised the operation details and arrangement of the RLRFS based on the suggestions from the SC</li> <li>■ Carried out site surveys for each Batch 1 restored landfill in order to collect the latest site information, e.g. the topography</li> </ul>								
	(b) To invite preliminary	Nov 2015 (7 months)									

		proposals		level and area, so as to facilitate the applicants to prepare their applications
		(c) To conduct briefings and site visits for all interested parties	Nov 2015 to Jan 2016 (7 to 9 months)	<ul style="list-style-type: none"> <li>■ Prepared more detailed documentation (e.g. detailed application form, guide to application, technical information kits, site plans and dedicated website) to facilitate applicants to take due consideration of the site characteristics, details and development constraints of PPVL and the assessment requirements</li> <li>■ For the purpose of enhancing district consultation, the EPD consulted the Tuen Mun DC in Sept 2015 on the preferred afteruses of the PPVL</li> </ul>
	May 2015 to Aug 2015	(d) To conduct vetting and assessment by the Steering Committee	Feb 2017 (18 months)	<ul style="list-style-type: none"> <li>■ Taking note of the considerable constraints and technical difficulty in developing afteruse projects on restored landfills, the EPD decided to allow a longer period for the applicants to prepare and submit their applications. Application for Batch 1 of RLRFS was closed on 29 Apr 2016.</li> <li>■ All Batch 1 applications were circulated to relevant Government Bureaux / Departments (B/Ds) for comment. After analysing the comments from B/Ds on individual applications, it was noted that the technical details provided in the applications were in general not sufficient. The EPD therefore invited all applicants to provide supplementary information on the engineering and environmental feasibility of their proposed projects. The supplementary information received was provided to</li> </ul>

				<p>relevant Government B/Ds for further comment</p> <ul style="list-style-type: none"> <li>■ The EPD circulated an information paper to the SC in Nov 2016. The information paper summarised the applications received under Batch 1 of RLRFS and reported the arrangement to enhance consultation with the relevant DCs</li> <li>■ For the purpose of enhancing district consultation, the EPD consulted the Tuen Mun DC in Jan 2017 on the proposed uses received for the PPVL (without disclosure of the applicants' identities)</li> </ul>
		(e) To grant approval-in-principle to successful applicants	Not applicable <sup>2</sup>	Not applicable
	From Sep 2015 onwards	(f) To conduct detailed planning, architectural, landscape and engineering design by successful applicants	Not applicable	Not applicable
		(g) To consult relevant District Councils		
		(h) To seek funding approval		

<sup>2</sup> For PPVL, since the applicants in general failed to address the various site constraints in developing their proposals, the SC did not recommend the Government to accept any application.



DC) Mr Chan Wan-sang (Representative of Tuen Mun DC) Mr Francis Chau Yin-ming (Representative of Sai Kung DC) Mr Tsang Hin-keung (Representative of Yuen Long DC) <u>Representatives from the  Government</u> Home Affairs Bureau Architectural Services Department Environmental Protection Department Home Affairs Department Leisure and Cultural Services Department	DC) Mr Francis Chau Yin-ming (Representative of Sai Kung DC) Mr Leung Fuk-yuen (Representative of Yuen Long DC) Ms Lung Shui-hing (Representative of Tuen Mun DC) <u>Representatives from the  Government</u> Home Affairs Bureau Architectural Services Department Environmental Protection Department Home Affairs Department Leisure and Cultural Services Department	Ms Sherry Tsai Hiu-wai Ms Idy Wong Lai-yin Mr Nelson Chan Wah-yu (Representative of Kwun Tong DC) Mr Francis Chau Yin-ming (Representative of Sai Kung DC) Mr Leung Fuk-yuen (Representative of Yuen Long DC) Ms Lung Shui-hing (Representative of Tuen Mun DC) <u>Representatives from the  Government</u> Home Affairs Bureau Architectural Services Department Environmental Protection Department Home Affairs Department Leisure and Cultural Services Department
---	---	--

As at today, seven SC meetings were held, and some issues were followed up separately through circulation of papers. The key activities of the SC were listed below:

<b>Dates</b>	<b>Key activities</b>
14 May 2014	SC Meeting to discuss the operation arrangement of the RLRFS
19 June 2014	The SC visited the MYTWL in Kwun Tong and the Ngau Chi Wan Park (former Ngau Chi Wan Landfill) in Wong Tai Sin, so as to understand the conditions of restored landfills and make reference to the revitalised development
19 September 2014	The SC visited the TKOIL, TKOL-II/III, MYTCL and Sai Tso Wan Recreation Ground, so as to understand the conditions of restored landfills and make reference to the revitalised development
25 September 2014	The SC visited the PPVL, SLSL and NTML, so as to understand the conditions and development constraints of restored landfills
10 December 2014	At the request of some SC members, another visit to the TKOIL, TKOL-II/III, MYTCL and Sai Tso Wan Recreation Ground was arranged

17 March 2015	SC Meeting to discuss the application and assessment arrangement of the RLRFS
20 July 2015	Circulated a paper to seek SC's view on Home Affairs Bureau's proposal to develop a Football Training Centre on part of the TKOIL
27 November 2015	The SC attended the kick-off ceremony of Batch 1 of RLRFS at the Jordan Valley Park (former Jordan Valley Landfill) <i>[Batch 1 of RLRFS was opened to applications from 27 November 2015 to 29 April 2016. Taking note of the considerable constraints and technical difficulty in developing afteruse projects on restored landfills, EPD decided to give a longer period (till 29 April 2016) for the applicants to prepare and submit their applications.]</i>
6 November 2016	Circulated a paper to summarise the applications received under Batch 1 of RLRFS and report the enhanced arrangement of DC consultation <i>[Application for Batch 1 of RLRFS was closed on 29 April 2016, all applications were then circulated to relevant Government B/Ds for comment. After EPD had analysed the comments from B/Ds and followed up with all applicants to provide supplementary information, SC meetings were arranged to assess the applications. Please refer to the reply of (k)(v) for details.]</i>
12 January 2017	The EPD and SC members (John Fung and Winnie Law) attended the sub-committee meeting of Sai Kung DC to consult DC the proposed uses of TKOIL received under Batch 1 of RLRFS (without disclosure of the applicants' identities)
19 January 2017	The EPD and the SC Chairman and member (Theresa Ng) attended the sub-committee meeting of Kwun Tong DC to consult DC the proposed uses of MYTCL received under Batch 1 of RLRFS (without disclosure of the applicants' identities)
20 January 2017	The EPD and SC member (Winnie Law) attended the sub-committee meeting of Tuen Mun DC to consult DC the proposed uses of PPVL received under Batch 1 of RLRFS (without disclosure of the applicants' identities)
16 February 2017	SC Meeting to discuss and assess the applications for MYTCL and TKOIL
23 February 2017	SC Meeting to discuss and assess the applications for PPVL
26 April 2017	SC Meeting to interview shortlisted applicants such that the applicants could present their proposals and the SC could seek direct clarifications from the applicants
15 June 2017	SC Meeting to consider the supplementary information provided by shortlisted applicants and assess their applications. After detailed consideration of all applications for Batch 1 of RLRFS in accordance with the established assessment procedures and criteria, the SC considered the applications from CFSC and TWGHs to be the most

		meritorious, and invited them to develop detailed afteruse proposals to revitalise MYTCL and TKOIL respectively
	30 October 2017	SC Meeting to discuss TWGHs' detailed revitalisation proposal for TKOIL and provide suggestions to enhance the proposal
	5 December 2017	Circulated a paper to inform SC of the enhancement proposal provided by TWGHs. The enhancement proposal was subsequently endorsed by the SC

The notes of the first to the sixth SC meetings (English version only) are enclosed at **Annex 21**<sup>3</sup>.

The notes of SC meetings contain details of applicants and their applications. As some applicants may apply for the impending RLRFS again, and without prior consent from the applicants, the notes of SC meetings should be for PAC's internal reference only and shall not be included in the PAC Report.

**Environmental Protection Department  
May 2018**

---

*3 The notes of the seventh SC meeting is not enclosed as it is not yet endorsed by the SC.*

*\*Note by Clerk, PAC: Annex 21 not attached.*

<b>Annex</b>	<b>Relevant Question</b>	<b>Document</b>
Annex 1	Q (b)(i)	• Comparison between WPCO Licence, Technical Memorandum and Contractual Requirements
Annex 2	Q (b)(i)	• Technical Memorandum Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters
Annex 3	Q (b)(ii)	• Detailed Comparison between WPCO Licence and Contractual Requirements
Annex 4	Q (b)(v)	• Table of Allocation of Non-compliance Points at PPVL
Annex 5	Q (c)	• Information Relating to Employment of Contractor; Tendering Procedures of Contractors, and Number of Invited Prequalified Tenderers
Annex 6	Q (d)	• PPVL Early Termination Clauses
Annex 7	Q (e)	• Content Page of PPVL Tender Documents • PPVL Prequalification Document - Experience Requirement • PPVL Instruction to Tenderers - Evaluation Criteria • PPVL Specification Section 26 & 27
Annex 8	Q (f)	• PPVL Environmental Review Report (April 2011)
Annex 9	Q (g)(i)	• Key Events of Contractor's Non-compliances with Statutory and Contractual Requirements at PPVL (January 2016 to May 2018)
Annex 10	Q (g)(ii)	• Records of Complaints
Annex 11	Q (g)(iii)	• Investigation Report
Annex 12	Q (g)(iii)	• 2016 EPD Review Report
Annex 13	Q (g)(iv)	• Aftercare Monthly Report No. 142 for April 2018

**\*Note by Clerk, PAC:**  *Annexes 2 to 10, 12 and 13 not attached.*



Annex 14	Q (g)(iv)	• Aftercare Monthly Report No. 137 for November 2017
Annex 15	Q (g)(v)	• Operation Manual (Before 2016 EPD Review)
Annex 16	Q (g)(v)	• Daily Operation Inspection Form Sample (Before 2016 EPD Review)
Annex 17	Q (g)(v)	• Operation Manual (After 2016 EPD Review)
Annex 18	Q (g)(v)	• Daily Operation Inspection Form Sample (After 2016 EPD Review)
Annex 19	Q (g)(viii)	• Sampling Locations of Leachate Treatment Plant (LTP) in PPVL (Before May 2016)
Annex 20	Q (h)	• Follow Up Correspondence on Missing Daily Log Sheets
Annex 21	Q (k)(vi)	• Meeting Notes of the First to the Sixth Steering Committee Meeting on the Restored Landfill Revitalisation Funding Scheme

**\*Note by Clerk, PAC: Annexes 14 to 21 not attached.**

**Comparison between WPCO licence, Technical Memorandum and Contract Requirements**

	Requirements in the license(s) issued by the Director of Environmental Protection under the Water Pollution Control Ordinance (WPCO)*	Requirements in the Technical Memorandum Standards For Effluents Discharged Into Drainage And Sewerage Systems, Inland And Coastal Waters (TM) (Cap. 358AK)*	Requirements in the landfill restoration contracts*
1. Operating temperature of the landfill gas flaring plant	No relevant requirements	No relevant requirements	Urban Landfills and Shuen Wan Landfill Restoration Contracts: Not lower than 870°C Other Landfill Restoration Contracts: Not lower than 1000°C
2. Maximum level of daily leachate discharge	Gin Drinkers Bay Landfill: <ul style="list-style-type: none"> <li>• 480 m<sup>3</sup>/day</li> </ul> Ma Yau Tong Central and Jordan Valley Landfills:	No relevant requirements	Comply with the requirements of licence issued under the WPCO

	<ul style="list-style-type: none"> <li>• 350m<sup>3</sup>/day</li> </ul> <p>Pillar Point Valley Landfill:</p> <ul style="list-style-type: none"> <li>• 990m<sup>3</sup>/day (For dry seasons)</li> <li>• 2600m<sup>3</sup>/day (For wet seasons)</li> </ul> <p>Tseung Kwan O Stage II/III Landfill:</p> <ul style="list-style-type: none"> <li>• 750m<sup>3</sup>/day (For dry seasons)</li> <li>• 1450m<sup>3</sup>/day (For wet seasons)</li> </ul>		
<p>3. Maximum level of total nitrogen of leachate discharge</p>	<p>Gin Drinkers Bay, Ma Yau Tong Central, Jordan Valley and Tseung Kwan O Stage II/III Landfills :</p> <ul style="list-style-type: none"> <li>• 200mg/L</li> </ul> <p>Pillar Point Valley Landfill:</p> <ul style="list-style-type: none"> <li>• 100mg/L (For wet seasons)</li> <li>• 200mg/L (For dry</li> </ul>	<p>Under the TM, the limit for total nitrogen level varies under different flow rate. Please refer to the enclosed TM.</p>	<p>Gin Drinkers Bay, Ma Yau Tong Central, Jordan Valley and Tseung Kwan O Stage II/III Landfills :</p> <ul style="list-style-type: none"> <li>• 200mg/L</li> </ul> <p>Pillar Point Valley Landfill:</p> <ul style="list-style-type: none"> <li>• Comply with the requirements of</li> </ul>

	seasons)		licence issued under the WPCO
--	----------	--	----------------------------------

\*Note: If the requirements are different for individual contracts/landfills, list out these requirements separately.

**Pillar Point Valley Restored Landfill  
Investigation of Alleged Mal-operation**

**Findings of the Investigation Team**

**May 2017**

## Introduction

1. The Pillar Point Valley Restored Landfill (PPVRL) received municipal solid waste between 1983 and 1996. PPVRL is now in the aftercare period undertaken by EPD's Restoration Contractor – SITA Waste Services Limited (SITA). Typical aftercare work includes operation and maintenance of the treatment facilities for landfill gas and leachate.

2. On 11 January 2016, EPD started receiving complaints against alleged mal-operation of the PPVRL. Issues under complaint were:

- (a) The landfill gas treatment system had been operated at a temperature below the contract requirement, leading to air pollution problem;
- (b) Substandard leachate had been discharged to the foul sewer, leading to water pollution problems;
- (c) Untreated leachate had been discharged through an overflow pipe to the nearby stream.

The complainants also complained against the handling of their complaints by EPD. The complaints were -

- (a) Their complaint case had been pushed around between Special Waste and Landfill Restoration Group (SLG) and Regional Office (West) (RWG); and
- (b) EPD staff might have disclosed the identities of the complainants to SITA, which had led to their subsequent dismissal by SITA, and
- (c) SITA had been informed of the inspection by RWG one day before the EPD's inspection on 28 January 2016.

3. In response to the complaints, the Director of Environmental Protection has assigned an Investigation Team comprising a Deputy Director of Environmental Protection, three Principal Environmental Protection Officers and a Senior Environmental Protection Officer to conduct an investigation into the matters under complained. The findings of the investigation are provided in the following paragraphs.

## Temperature of the Vent Gas Unit

4. The landfill gas treatment facility of PPVRL comprised mainly a Vent Gas Unit (VGU). The VGU was designed to operate with landfill gas having a methane content of 20% to 65% at the temperature of 1000°C – 1200°C and a minimum retention time of 0.6 seconds. The contract between EPD and SITA required the landfill gas flaring temperature to be maintained at over 1000°C. If the methane content of landfill gas was not sufficient to support the burning process and maintain the temperature, external fuel (diesel) would be supplemented.

5. Since diesel was needed to support the combustion temperature to above 1000°C in case the methane content of landfill gas was not sufficient, the Investigation Team had also looked at the diesel consumption data. From the records provided by SITA, since January 2016, a large amount of diesel has been consumed by the VGU to maintain the temperature to above 1000°C, coincidentally after the complaints had been lodged. The diesel consumption in November and December 2015 was much lower.

6. Various operation parameters of the PPVRL including the VGU temperature were recorded in daily log sheets filled in by the technicians. The daily log sheets showed that the VGU temperature had been below the contractual requirement of 1000°C for many occasions in December 2015, February and March 2016. The Investigation Team also noted discrepancies between the VGU temperature recorded in the daily log sheets and those in the Aftercare Monthly Reports submitted by SITA to EPD. The low-temperature incidents had not been reported in the Aftercare Monthly Reports.

7. The Investigation Team had also considered whether the incidents with VGU temperature below 1000°C could emit excessive hazardous air pollutants (HAPs) such as dioxin and furan. On emission of dioxins and furans from landfill gas flaring, the USEPA (United States Environmental Protection Agency) had conducted a review<sup>1</sup> which concluded that “*EPA believes that the potential for dioxin emissions from the combustion of landfill gas is small.*” Given the USEPA review conclusion, the potential of large amount of dioxin emissions due to combustion of landfill gas should be small. The background dioxin levels measured by EPD in Hong Kong in the last 3 years also did not show any anomalies.

---

<sup>1</sup><https://www3.epa.gov/lmop/faq/public.html>

## Discharge of Substandard Effluent

8. The key component of the leachate treatment system was the Ammonia Stripping Plant (ASP), which recovered the heat generated from the VGU to produce hot steam to strip the aqueous ammonia out of the leachate generated by PPVRL. The treated leachate would be discharged to the foul sewer leading to the Pillar Point Sewage Treatment Works for treatment and then disposal via a submarine outfall to the waters south of Pillar Point. As rainfall would dilute the leachate generated, the discharge licence had two sets of effluent standards, i.e. the Total Nitrogen level of 200 mg/L at a maximum flow rate of 894 m<sup>3</sup>/day during the November – May (dry season), and the Total Nitrogen level of 100 mg/L at a maximum flow rate of 2600 m<sup>3</sup>/day during June – October (wet season).

9. The ASP was designed to operate at the temperature of 72°C – 74°C in order to strip off ammonia from the leachate before discharge. A test conducted by the Investigation Team in May 2016 found that the ASP had malfunctioned for an unknown period of time. The ASP temperature recorded in the daily log sheets during 1 Sept 2015 – 30 Apr 2016 indicated that the ASP was operated with the majority of the time with the top part of the ammonia stripping column operating between 60°C – 65°C, and the middle and bottom part of the ammonia stripping column operating below 60°C. The entire ammonia stripping column was operating below 60°C during December 2015. Since the ASP was operating below the designed temperature range, the ammonia removal capability could have reduced.

10. Regarding the leachate to be treated, the typical Total Nitrogen content of the strong leachate was about 350 mg/L and that of the weak leachate was about 150 mg/L – 170 mg/L. The latter was below the dry season discharge standard of 200 mg/L even without treatment. This allowed some freedom to manage the leachate treatment operation by mixing strong leachate with weak leachate such that even though the ASP was not functioning, the discharge might still meet the standard during the dry season.

11. The wet season discharge standard was 100 mg/L. The daily log sheets showed that the ASP had been operating below the design temperature range as a norm. Since the typical nitrogen content of weak leachate was about 150 mg/L – 170 mg/L and that of the strong leachate was about 350 mg/L, mixing of leachate could not meet this wet season discharge standard. Hence the Investigation Team could not exclude the possibility that substandard discharge had happened given the operation temperature condition as recorded. However, due to limitation of available data, the frequency and quantity of the substandard discharge could not be established.



12. The treated leachate was discharged via the public sewerage system and a submarine outfall into the sea south of Pillar Point and the key concerned parameter is ammonia. To check whether the marine waters nearby had been unduly affected, the Investigation Team checked the monthly water quality data at the EPD's Routine Marine Monitoring Station (NM2) which was located close to the outfall. The water quality objective is 0.021 mg/L of unionized ammonia nitrogen as annual average. As shown in the table below the unionized ammonia nitrogen concentration between 2014 – 2016 was well below the water quality objective. The marine environment had been normal.

**Unionized Ammonia Concentration at the EPD's Routine Marine Monitoring Station (NM2)**

Year	2014	2015	2016
Unionized Ammonia Nitrogen (mg/L)			
Jan	0.005	0.004	0.011
Feb	0.004	0.002	0.002
Mar	0.004	0.003	0.005
Apr	0.008	0.003	0.005
May	0.006	0.008	0.002
Jun	0.002	0.002	0.003
Jul	0.003	0.001	0.002
Aug	0.000	0.001	0.003
Sept	0.001	0.005	0.003
Oct	0.001	0.000	0.003
Nov	0.002	0.003	0.003
Dec	0.002	0.002	0.003
Annual Average	0.003	0.003	0.004

Discharge of Untreated Leachate to the Stream

13. The Investigation Team noticed that the contaminated ground water collection chamber had an overflow pipe leading to the stream next to PPVRL. Inspections found that the overflow pipe was actually blocked. No significant quantity of effluent could go out through the pipe. Close examination showed that the cover was not new, i.e. the overflow pipe had been blocked for a long time. Therefore untreated leachate could not be discharged to the stream via the overflow pipe.

14. Further dye tests revealed that only a very small flow was observed seeping out of the pipe when the pump was switch off and the water level in the chamber was allowed to rise up to 30 cm above the overflow pipe. In view of this, it is unlikely that a large amount of leachate could have been deliberately discharged to the stream through this overflow pipe. Between 28 Jan 2016 and 15 April 2016, EPD collected 5 water samples from the stream next to PPVRL. The Total Nitrogen level of the stream was below 2 mg/L, indicating that the stream was not polluted. Hence the Investigation Team considered that this allegation was not substantiated.

#### Complaint Pushed Around within EPD

15. The Investigation Team found that upon receipt of the complaints, both SLG and RWG had taken immediate actions to carry out the site inspection and arranged for water and effluent sampling, collection of site diary and log sheets for follow up actions. The complaints were handled by 2 groups from different aspects. Complaints against violation of environmental laws would be handled by the law enforcement team (i.e. RWG) while contract management issues would be handled by the contract management team (i.e. SLG).

#### Complainant's Identity Disclosed

16. On the allegation that EPD staff might have disclosed their identities to SITA, the Investigation Team found that one of the Complainants, had alerted the SITA staff of PPVRL on 11 Jan 2016 that he would make a report to EPD on the illegal discharge of wastewater to the sea. Hence SITA might already be aware of the identity of the technicians before they made a report to EPD. No other evidence could be found that EPD staff had disclosed the identities of the Complainants to SITA.

#### SITA Informed Before Inspection

17. Regarding the allegation that SITA had been informed of the inspection by EPD staff one day before the inspection on 28 Jan 2016, the Investigation Team found that there had been a telephone communication between the enforcement staff of RWG and the contract management staff of SLG at the site office of PPVRL before the inspection, in order to let the SLG site office get ready some relevant drawings to facilitate the inspection. The communication was part of the normal operation which complied with the operation guidelines. No other evidence could be found that SITA had been informed of the inspection beforehand. Nonetheless, all enforcement staff have been reminded of the importance of keeping enforcement plans and actions on a strictly confidential basis, in order not to jeopardise the effectiveness of the planned enforcement actions.

## Follow Up Actions

18. The Complainants were PPVRL technicians employed by SITA. They claimed that they had been instructed to operate the VGU below 1000°C, discharge substandard leachate to the foul sewer, as well as to enter false data in the daily log sheets. It was confirmed that the VGU had been operated below the required temperature for substantial amount of time in December 2015 as well as February and March 2016. There were many discrepancies in the VGU temperature reported in the Aftercare Monthly Report and recorded in the daily log sheets, and the low-temperature incidents had not been reported in the Aftercare Monthly Reports submitted to EPD. Further investigation of these matters might be beyond the scope of the pollution control laws and normal management of the PPVRL contract between EPD and SITA. The case had been referred to the Police for further investigation.

19. The wet season discharge standards came into effect on 1 June 2016. The effluent samples collected by RWG revealed that the Total Nitrogen of the discharges exceeded the wet season licence limit of 100 mg/L on 8 occasions (i.e. 1 June 2016, 22 and 24 August 2016, and 12, 14 and 25 September 2016, and 5 and 18 October 2016). Based on the reports from SITA, during the heavy rain period the quantities of effluent discharges from the plant also exceeded the daily flow limit of 894 m<sup>3</sup>/day permitted under the licence on 10 occasions (i.e. from 22 to 31 May 2016). SITA also failed to notify EPD within 24 hours upon the occurrence of discharge with daily flow rate exceeding the licence limit on 2 occasions (i.e. 26 and 28 May 2016). RWG had initiated prosecutions against SITA on the above incidents under the Water Pollution Control (General) Regulation, Cap. 358D.

20. The Environmental Infrastructure Division of EPD had taken immediate actions to enhance site monitoring, and had closely monitored SITA's follow-up actions. As at the end of April 2017, SITA has been deducted altogether a total sum of about \$5.5 million from the contract payment for the non-compliance of the VGU temperature, leachate treatment plant operation and discharge. SITA had taken actions to rectify the operation problem and the major leachate treatment plant refurbishment works have been substantially completed in January 2017.

- END -

## Abbreviations

ASP	Ammonia Stripping Plant
EPD	Environmental Protection Department
PPVRL	Pillar Point Valley Restored Landfill
RWG	Regional West Office, EPD
SLG	Special Waste and Landfill Restoration Group, EPD
SITA	SITA Waste Services Limited, the contractor of the Landfill Site
VGU	Vent Gas Unit

- END -