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(Attn: Ms. Dora WAI)

9 December 2003

Dear Sir/Madam,

**The Director of Audit's Report on the  
Results of value for money audits (Report No. 41)**

**Chapter 8 : The acquisition and clearance of shipyard sites**

I refer to your letter of 3 December 2003 and advise below.

In mid 2001 during the initial phase of detailed site investigation carried out after the surrender of the Penny's Bay shipyard site to Government, our project consultants (Consultant B as referred in the Audit Report) revealed that there were burnt chlorinated wastes buried in the southern portion of the site. The Consultant B considered that soils in these burnt pits might have been contaminated by chlorinated substances and pollutants such as dioxins and testing of dioxins was needed. At that time, we did not receive any comments from the local green groups and environmentalists on detailed site investigation and testing at the Penny's Bay shipyard site. The Consultant B, however, conducted a general review of relevant reports published at the time in the web sites of various green groups as well as relevant discussions in some international environmental forums. A summary is attached at **Annex A**.

The general concerns of the green groups and environmentalists were that there was a strong association of dioxin emissions with uncontrolled open burning of plastic waste, such as Polyvinyl Chloride (PVC). There was also a worldwide concern of the harmful effect of persistent organic pollutants including

dioxins to the environment. International initiatives to implement measures to reduce or eliminate releases of persistent organic pollutants including dioxins into the environment was urged.

After the reveal of the burnt chlorinated wastes and the review of the environmental concerns as described in paragraph 2, the Consultants B decided to take soil samples from these burnt pits at the Penny's Bay shipyard site for dioxin testing. We agreed to Consultant B's prudent decision to complete a full appraisal of the contamination of the Penny's Bay shipyard site and devise the most appropriate remedial measures to address the contamination problem.

Yours faithfully,



( T K Tsao )

Director of Civil Engineering

c.c. Director of Audit

**Summary of environmental concerns at the time when Consultant B was carrying out the detailed site investigation at the Penny's Bay Shipyard site**

<b>Green Groups/ Environmentalists</b>	<b>Concerns</b>
Greenpeace	<p>Greenpeace reported that waste combustion would release toxic substances, including cancer-causing dioxins. Greenpeace stated that dioxins would be created when Polyvinyl Chloride (PVC) plastic was burnt.</p> <p>Greenpeace also gave examples of soil and sediments contaminated with dioxins at the sites, which received the discharges of PVC industries. In Venice, Greenpeace had analysed sediment from the Porto Marghera. It clearly showed contamination of the lagoon with dioxin near the Enichem Plant, where Vinyl Chlorinated Monomer (VCM) was among the chlorinated chemicals manufactured.</p>
Friends of the Earth	<p>Friends of the Earth reported that incinerator ash from Edmonton incinerator in North London containing dioxins had been used to make aggregates for road building in the London borough of Haringey. They were concerned dioxins and heavy metal contents in the mixture of ashes were never analysed.</p>
United Nations Environment Programme (UNEP)	<p>The Stockholm Convention on Persistent Organic Pollutants (POPs) which include dioxins was adopted in Stockholm on 22 May 2001. Stockholm is an international scientific community under the auspices of the United Nations Environment Programme (UNEP). The Convention requires each Convention Party to implement measures to reduce or eliminate releases from intentional and unintentional production and use of POPs.</p>
United States Environmental Protection Agency (USEPA)	<p>USEPA's Science Advisory Board posted its Draft Reassessment Report on Dioxin on the Agency's website. The report presented the emerging scientific knowledge of dioxins toxicity, potential for carcinogenic health effects of dioxin on people, human exposure pathway, and the adverse effects on the environment. The report highlighted the risk of dioxins was higher than previously thought.</p>

Edward Alperin and Kevin Sullivan (IT Corporation)	In the 4 <sup>th</sup> International Workshop on Geo-Environmental Restoration, in Jan 2001, Tokyo Japan, a paper was presented on "Remediation of Dioxin Contaminated Soils in the United States". The authors pointed out combustion of organic and/or chlorinated wastes could result in the formation of dioxins in the process off-gas. They suggested detailed site information such as contaminant type should be available to develop a specific treatment process for dioxins.
US Army Corps of Engineers	The first stage of treatment of Dioxin Contaminated Soil at the Coleman-Evans Wood Preserving Site in Florida USA was being implemented. It was shown that the US government took a conservative approach towards to the dioxin clean up criteria. It also demonstrated complex technology was required for clean up.
Waterways Authority, New South Wales, Australia and the Federal Government of Australia	Due to public concern of the extensive dioxins contamination found in Homebush Bay, the Australia Government signed up to the Stockholm Convention and announced major funding of the National Dioxins Programme. The State government also conducted various studies and pilot programme for the removal and treatment of dioxins soil.
Richard Spiers, Carlisle DC	In the Chartered Institute of Environmental Health Conference 2001, the author presented a talk on the poor disposal practices of agricultural wastes. He stated some farmers in the UK were burning farm waste as an alternative to disinfection, resulting in potentially high dioxin levels.
Arnold Schechter, University of Texas	Dr Schechter reported on the dioxins seepage into soil and river beds and becoming concentrated in fish and water in Bien Hoa, south Vietnam. Schechter found dioxins levels to be 135 times higher than those in samples taken from people in Hanoi.