

## 8. LAND CONTAMINATION IMPACT

### 8.1 Legislation, Policies, Plans, Standards and Criteria

8.1.1.1 Relevant to this land contamination impact assessment is the Environmental Impact Assessment Ordinance Cap. 499 that covers the requirement for and approach to environmental impact assessment. The guidance for land contamination assessment is given in Section 3 Potential Contaminated Land Issues of Annex 19 Guidelines for Assessment of Impact on Sites of Cultural Heritage and Other Impacts of the Technical Memorandum on Environmental Impact Assessment Process. The historical land uses of the site should be considered and reviewed for the potential to cause or to have caused land contamination. Once suspected land uses are found, a Contamination Assessment Plan (CAP) is required for DEP endorsement before conducting a contamination assessment. Results will be compiled in a Contamination Assessment Report (CAR). If land contamination is confirmed, a Remediation Action Plan (RAP) is to be prepared. Any contaminated site should be cleaned up according to the approved RAP prior to any development or redevelopment.

8.1.1.2 The Practice Note for Professional Persons ProPECC PN3/94 Contaminated Land Assessment and Remediation issued by the Environmental Protection Department (EPD) provides the technical guidance on the preparation of CAP, CAR, and RAP. It sets out the requirements for proper site assessment and management of contaminated sites, the guidelines on site assessments and outlines of the practical remedial measures. This ProPECC Note also makes reference to criteria used for soil and groundwater in the Netherlands for contaminated land "Dutch List".

### 8.2 Previous Findings and Description of Environment

8.2.1.1 Two environmental studies were carried out recently which are highly relevant to this study with respect to land contamination impact assessment. The two studies are the Environmental Impact Assessment for the Feasibility Study for South East Kowloon Development (SEKDFS EIA) and the EIA for Kai Tak Airport North Apron Decommissioning (NAKTA Decommissioning EIA). Land contamination impact assessments were carried out as part of both studies in accordance with Section 3 of the *EIAO-TM* and *ProPECC Note PN3/94* described in Section 8.1 above.

#### 8.2.2 SEKDFS EIA

8.2.2.1 The SEKDFS Final EIA Report was completed in November 1998 and was administratively endorsed by the Environmental Study Management Group of SEKDFS. However, the application for approval of the SEKDFS Final EIA Report under the EIA Ordinance was withdrawn on 17 March 1999 before public inspection of the report. The SEKDFS Final EIA Report is therefore not in the EIA Ordinance Register.

8.2.2.2 Regarding the land contamination impact assessment, the assessment area of the SEKDFS EIA covered an area larger than and included the entire Assessment Area (New Development Area in **Drawing No. 22936/EN/150**) for this EIA Study. The land contamination impact assessment was started with preliminary investigation by site visits, questionnaire survey and information review. A clear and detailed account of the present land use and the relevant land use history in relation to possible land contamination were presented in the report.

8.2.2.3 Based on the findings of the preliminary investigation, a number of land uses within the urban area with the potential to have caused land contamination were identified and documented. These land uses include vehicle repair workshops, petrol stations, gas works, power sub-

station, EMSD workshop, bus terminals, light industries, and ferry terminals. A site investigation (SI) was carried out in February 1997 to obtain and review the general baseline conditions for future development. The SI involved intrusive soil and ground water sampling from nine boreholes and ten trial pits inside the urban area in Kowloon City, Ma Tau Wai, Ma Tau Kok, and Hung Hom. It was concluded that the urban area as a whole did not have a major contamination problem but for specific hotspots with localised land contamination. It was recommended to carry out focused land contamination assessment for local potential industries / installations (such as oil filling stations, gas works and car repairing workshops), on a case by case basis where redevelopment is proposed. For the NAKTA area, reference was made to the NAKTA Decommissioning EIA. Regarding the Kai Tak Airport Runway, potential land contamination problem is not anticipated.

### **8.2.3 NAKTA Decommissioning EIA**

8.2.3.1 The NAKTA Decommissioning EIA Report was completed in April 1998 and approved under the EIA Ordinance in September 1998. The reference of the approved report in the EIA Ordinance Register is AEIAR-002/1998.

8.2.3.2 The land contamination impact assessment of the NAKTA Decommissioning EIA covered the vicinity of the NAKTA area. The assessment was started with a review of the Kai Tak Airport site history including records of historical leakage from the hydrant fuel system within the airport apron. A range of land uses with land contamination potential was also identified.

8.2.3.3 A detailed site investigation within the Kai Tak Airport had been undertaken to ascertain the nature, scale and extent of possible ground contamination resulted from known leaks of aviation fuels. The investigation was carried in two phases. Phase 1 of the investigation characterised soil gas conditions in 195 boreholes to assess indirectly the likely subsurface soil contamination levels. The survey established the extent of the aviation fuel contamination and identified some "hotspots" coinciding approximately with the locations of historical leaks of aviation fuel and also with other sources. Elevated levels of methane and anaerobic conditions were found in some areas. Phase 2 assessment included the installation of 77 groundwater wells and the collection of soil and groundwater samples for chemical analysis to confirm the extent and nature of contamination so as to formulate feasible and site-specific remediation options.

8.2.3.4 Results from Phase 2 of the investigation indicated that remediation is required at some areas within the Kai Tak Airport. Decontamination works are now carrying out at the identified areas with Soil Vapour Extraction / Air Sparing system. Under the conditions of approval of the NAKTA Decommissioning EIA Report, the decontamination works shall be carried out such that the remediation targets are fully met.

## **8.3 Further Assessment**

### **8.3.1 Assessment Methodology**

8.3.1.1 As discussed in Section 8.2 above, the Assessment Area of the land contamination impact assessment for this EIA Study is completely covered in the previous SEKDFS EIA study. Area of major concern, namely the NAKTA area, was also examined in details in the NAKTA Decommissioning EIA Study and a remediation program is now carrying out at identified areas within NAKTA.

8.3.1.2 In accordance with Section 1.8 of the EIA Study Brief, best use may be made of relevant environmental findings in the previous studies conducted for the SEKD or any other previously approved EIA reports on the EIA Ordinance Register, provided that the findings of such studies can be shown to be still valid and applicable. The land contamination impact