

to the remediation targets. Besides, findings from previous site investigation indicated that the urban area as a whole did not have a major contamination problem but for specific hotspots with localised land contamination.

**16.7.2** Decontamination works are now carrying out at the identified remediation areas within NAKTA using Soil Vapour Extraction / Air Sparging system and excavation with biopile treatment in accordance with the NAKTA Decommissioning EIA Report.

**16.7.3** Under the conditions of approval of the NAKTA Decommissioning EIA Report, the decontamination works at the NAKTA area should be carried out such that the remediation targets are fully met. Besides, environmental monitoring and audit should be carried out in accordance with the respective Environmental Monitoring and Audit Manual. Provided that the decontamination works could be completed satisfactorily to meet the remediation targets, residual impacts on the remediated site due to land contamination is not expected.

**16.7.4** However, there are sites within the Assessment Area which are not included in the NAKTA decommissioning project. Sites of potential land contamination include those chemical storage tanks (mainly fuel storage tanks) located within the disused Kai Tak Airport. It is recommended that when access to these sites is gained in future, land contamination assessment should be conducted taking into account all past and current land uses and site activities prior to the development of the sites.

**16.7.5** Additional investigation including review of site history and GFS hangar operation has been undertaken for the GFS Hangar site located at the south apron. There is a potential for the hangar operation to cause underground contamination although the impact is likely to be insignificant because of the short hangar operation period (5 years); non-polluting use (open area and temporary housing site) before the hangar; presence of concrete covering; absence of underground fuel hydrant pipeline; and the handling and disposal of chemical waste was undertaken by a registered chemical waste collector. In order to confirm the nature and extent of land contamination at the GFS hangar, if any, it is recommended that a land contamination assessment of the GFS hangar should be carried out before redevelopment of the area takes place.

## **16.8 Hazard to Life**

### **16.8.1 *Ma Tau Kok Gas Works***

16.8.1.1 In order to establish the acceptability of the proposed South East Kowloon Development, a quantified risk assessment of the risk from the Ma Tau Kok Gas Works to the surrounding population has been carried out.

16.8.1.2 The risk assessment has considered two cases, as follows:

- Base Case - current operation of MTK Gas Works with South East Kowloon Development population.
- Mitigated Case - current operation of MTK Gas Works (buried gas outlets) with South East Kowloon Development population.

16.8.1.3 The levels of individual risk for the current and mitigated current cases do not exceed the "Acceptable" limit ( $10^{-5}$  per year) of the Hong Kong Risk Guidelines and therefore no parts of the development lie within any unacceptable areas of individual risk.

16.8.1.4 The  $10^{-7}$  and  $10^{-8}$  individual risk contours around the works extend to cover areas including Site 3V and Wyler Garden (both residential).  $10^{-8}$  contour around the pigging station extends to cover areas including the district open space in Site 3Y2 and the community facilities in Site 3N5. Site 3Y3 (school) is on the fringe of the contour and is barely affected. The district open space acts as a buffer zone around the pigging facilities to minimise the risk.

- 16.8.1.5 The mitigation measure results in a smaller area covered by the individual risk contours and consequently a smaller area covering the new development. The influence of the gas export pipework near to the gas holder is reduced considerably and persons in the development are now barely affected by the risk from the works site. The contours around the pigging station remain unchanged. Since the areas around the pigging station are relatively low population, this layout is considered favourable from a risk point of view.
- 16.8.1.6 The proposed South East Kowloon Development for the mitigated case should be permitted to proceed, subject to the recommendations below:
- With the risk mitigation measure at the gas works, there is virtually no risk to the SEKD. However, it is unusual for a planning study to result in mitigation at a hazardous site, rather the development should accommodate the areas of risk in its layout. Hence, the Project must liaise with HKCG to ensure that the mitigation measure is implemented particularly before occupation of the residential blocks adjacent to the gas works. However, there is uncertainty regarding the timing of relocation of the MTK Gas Works. If before the South East Kowloon Development is complete when the works is closed or relocated no mitigation measures will be necessary.
  - Since the proposed naphtha jetty would be located very close to the marina (offshore population), a minimum safety distance of 100 m between the naphtha jetty and the marina population is recommended.
  - No further development resulting in population increases nearby the site should be permitted unless supported by a hazard assessment, to be submitted to relevant government departments for consultation.

## **16.8.2 Relocation of DG Vehicular Ferry Pier**

- 16.8.2.1 The additional risk for the relocated DG ferry pier for LPG and hydrocarbons transport has been assessed using SAFETI Expert. Both individual and societal risks to residents, third party workers, road users and any other exposed people have been assessed for the present usage and location of the ferry pier (2001) and the proposed location and predicted usage for the year 2012.
- 16.8.2.2 The proposed location of the relocated DG ferry pier would be more than 100m from nearby high rise residential buildings. The route to the relocated DG ferry pier would follow the same road to the existing DG ferry pier and then an additional 0.7km on a new waterfront road through the Hoi Bun Road Extension, with limited population adjacent to this road. This route is consider optimal for the proposed location but has not been assessed in detail since it is beyond the scope of this study.

### ***Individual Risk (IR)***

- 16.8.2.3 For the current (2001) and future (2012) case, the maximum level of individual risk is less than the "Acceptable Limit of the HK Risk Guidelines for individual risk ( $1 \times 10^{-5}$  per year).
- 16.8.2.4 The IR is less than  $10^{-5}$  per year and so is considered acceptable.

### ***F-N Results***

- 16.8.2.5 The FN curves for all materials and the combined trade lie in the acceptable region of the HKRG. Therefore the societal risk is acceptable.

### ***Potential Loss of Life***

- 16.8.2.6 The PLL results show an increase from  $8.1 \times 10^{-7}$  for the existing location to  $7.3 \times 10^{-6}$  and  $7.9 \times 10^{-6}$  per year for the proposed location for the year 2001 and year 2012 cases respectively.

Whilst this is roughly an order of magnitude increase in risk it is not significant since the level of societal risk is acceptable.

### ***Risk Mitigation***

16.8.2.7 Since the societal risk for the proposed DG ferry pier lies in the acceptable region of the HK RG and the individual risk does not exceed the acceptable limit, no mitigation is necessary and the proposed relocation should be permitted to proceed.

### **16.8.3 Chlorine Unloading Point**

16.8.4 In order to formulate a more compatible and environmental friendly theme, the current scheme has recommended the relocation of two existing users that may pose potential hazard to human life. These two users are namely the Chlorine Loading/Unloading Point and the Kerry Dangerous Goods Godown, both located at the Kowloon Bay waterfront.

16.8.5 Government Supplies Department is planning to relocate the chlorine unloading point outside the SEKD area permanently to River Trade Terminal in Tuen Mun. Confirmation with Government Supplies Department that permanent relocation of the chlorine loading/unloading point outside SEKD will be made prior to population intake of the SEKD. As such, risk associated with the co-existence of the interim chlorine unloading point and the SEKD population will no longer exist.

### **16.8.6 DG Godown**

16.8.7 The area where the Kerry DG Godown is located is being planned to be zoned as CDA, or mainly residential. From the planned uses point of view, the DG Godown will no longer exist within the SEKD.

## **16.9 Ecological Impact**

### **16.9.1 Aquatic Ecology**

16.9.1.1 Baseline conditions of the assessment area which covered 3 WCZs were established through literature reviews and field surveys. Information indicate that marine habitats, both intertidal and subtidal, within the Southeast Kowloon New Development Area are of low ecological value. Based on the results of the benthic survey, which indicate the abiotic conditions of KTAC and Kwun Tong Typhoon Shelter and the highly disturbed nature of the benthic environment in the Kowloon Bay area, no sensitive marine species or marine habitats are identified in the New Development Area of SEKD. 127 hectares of seabed will be reclaimed, and 3.6 km of vertical seawalls will be lost after the complete of the project. Potential impacts of the project on aquatic ecology are considered minor. No mitigation is required. Monitoring and audit activities for water quality will serve to protect against unacceptable impacts to aquatic ecological environment. No monitoring programme specific for aquatic ecology would be required. Overall potential residual impacts on aquatic ecology would be within acceptable levels. There would be no insurmountable ecological impacts to the environment due to the SEKD development.

### **16.9.2 Terrestrial Ecology**

16.9.2.1 Due to the highly disturbed / urbanised nature of the site and absence of flora of conservation interest, no ecological sensitive receivers are identified in terms of terrestrial habitats and vegetation and fauna. Potential impacts of the project on terrestrial ecology include loss of 151.2 ha of urbanised area and 16.5 ha of grass (planted). Impacts to loss of habitat and