(ACE Paper 20/2003)
For advice

Report on the 79th Environmental Impact Assessment Subcommittee Meeting

Introduction

At its meeting held on 2 July 2003, the Environmental Impact Assessment (EIA) Subcommittee considered the following report and paper-

(a) Kai Tak Airport North Apron Decommissioning – Report on the Final Soil Quality of the Previously Contaminated Areas; and

(b) South East Kowloon Development – Kai Tak Approach Channel Reclamation- Remediation of Contaminated Sediment.

Advice Sought

2. Members are requested to note the points raised by Members at the meeting.

Views of the EIA Subcommittee

Kai Tak Airport North Apron Decommissioning – Report on the Final Soil Quality of the Previously Contaminated Areas
(ACE-EIA Paper 4/2003)

3. In 1998, the Advisory Council on the Environment endorsed the EIA report on "Kai Tak Airport North Apron Decommissioning" with a condition among others that a report on the final soil quality of the previously contaminated areas should be submitted to the EIA Subcommittee before commencement of the proposed housing developments. In June 2002, the project proponent submitted an advance report on final soil quality to the EIA Subcommittee before commencement of the housing development at sites 1A and 1B which were not part of the hotspot areas. The Subcommittee had no objection to the Housing Department proceeding with housing

development at the two sites. The project proponent now submits the final soil quality report to the EIA Subcommittee.

4. According to the report, all contaminated hotspots within the Kai Tak North Apron Area were decontaminated to the remediation targets specified in the approved EIA report or standards specified by the Director of Environmental Protection. Post remediation monitoring for checking any rebound of ground contamination at all localized hotspots except Hotspot A and B was completed. No sign of rebound has been observed at these hotspots. Post remediation monitoring at Hotspots A and B will continue till July and December 2003 respectively.

Views and recommendations of EIA Subcommittee

5. Members' discussion at the meeting focused on the authority for the certification of decontaminated soil and whether there was an independent body in vetting the result of the decontamination work; remediation programme for the Passenger Terminal Building; the reason why post remediation monitoring was necessary; the details of post remediation monitoring and the cost effectiveness of the project.

Certification of decontaminated soil

6. On the certification of decontaminated soil, the project proponent team pointed out that all decontamination works were done in accordance with the targets set out in the approved EIA report or standards specified by the Director of Environmental protection (DEP). Upon completion of the decontamination work, samples of decontaminated soil were obtained from the sites concerned and sent to accredited laboratories for testing and certification. EPD also obtained soil samples from the sites separately to verify the test result. The relevant statistics were then included in the Report of the Final Soil Quality for endorsement by EPD.

Decontamination programme for the Passenger Terminal Building

7. On the decontamination programme for the Passenger Terminal Building, the project proponent explained that after the vacation of the Passenger Terminal Building, they would draw up a contamination assessment plan (CAP) and submit it to EPD for endorsement. Based on the CAP, decontamination assessment would be made and a report would be complied for review by EPD. If land contamination were confirmed, a remediation action plan (RAP) would be prepared for approval by EPD and remediation would then be undertaken in accordance with the RAP. The

procedures to be adopted would be the same as other contaminated sites in the Kai Tak Airport North Apron. Having regard to the use of the building in the past, the site of the Passenger Building was not expected to be contaminated.

Why post remediation was necessary and details of the monitoring programme

8. On the reason why post remediation monitoring was necessary, the project proponent clarified that the monitoring was to ensure that there was no migration of contaminants to the site concerned after the decontamination work. It was a double guarantee measure. The project proponent further explained that post remediation monitoring included monitoring of the underground water and soil to check the level of benzene and total petroleum hydrocarbon present in the groundwater and soil respectively. They had obtained both soil samples and water samples for monitoring purpose and according to the monitoring undertaken in the past 18 months, no rebound was found which indicated that the decontamination work conducted was effective and appropriate. The treated soil was being stockpiled in the runway and ready to be used as fill materials by the Civil Engineering Department.

Cost effectiveness

9. On cost matter, the project proponent explained that the objective of the project was to remove contamination of the sites concerned so that they would be suitable for future development. Hence, the effectiveness and the reliability of the decontamination work were the primary concerns. Having regard to the time taken and the result, the decontamination work was considered cost effective.

Conclusion

10. The Subcommittee noted the content of the report.

South East Kowloon Development - Kai Tak Approach Channel Reclamation - Remediation of Contaminated Sediment
(ACE-EIA Paper 5/2003)

11. One of the key objectives of the South East Kowloon Development is to develop the sites of the Kai Tak Approach Channel (KTAC) in a way that will safely address the 1 million m^3 of contaminated sediment which contains heavy metal, organic micro-pollutants, petroleum hydrocarbons and high total organic carbon (TOC) concentrations potentially leading to the generation of methane biogas. The average thickness of the sediment is 3 m and the greatest thickness occurs near the mouth of the

Kai Tak Nullah, where the concentration of contaminants and TOC are also the highest.

12. The strategy of the remediation of KTAC sediment was set out in the EIA report approved under the EIA Ordinance in September 2001. The strategy envisages three remediation methods, i.e. in-situ treatment, ex-situ treatment and fall-back option (now re-named as "encapsulation"). Based on the laboratory bench-scale tests of the in-situ and ex-situ treatment methods completed in 2002 and the incubation tests conducted by academics of the University of Hong Kong, three potential sediment remediation options, namely encapsulation, ex-situ treatment and marine disposal, were considered by the project proponent. The incubation test conducted by academics of the University of Hong Kong on the encapsulation option indicated that KTAC had a low risk of methane emission. It is suggested that the encapsulation option should be further assessed through field trial and subject to the outcome of the trial, the project proponent may determine the way forward for the remediation work. The project proponent is open-minded at this stage and does not rule out any option. A hybrid option might also be considered.

Views and recommendations of EIA Subcommittee

13. Members' discussion at the meeting focused on the sampling of sediment for the incubation test; the encapsulation treatment method; the amount of sand and fill material required for the encapsulation option; the duration of the field trial of the encapsulation method; the feasibility of adopting a hybrid option; trial of the ex-situ treatment option; safety precautions for housing development above the KTAC reclamation site; and whether there would be any restrictions in the construction of underground facilities at the KTAC site in adopting the encapsulation option.

Sampling of sediment for the incubation test

14. On the sampling of sediment selected for the incubation test, the project proponent team explained that a total of 42 samples were taken from six locations in the KTAC. The samples included sediment taken from areas where the layer of anthropogenic mud was the thickest, areas with average level of TOC content and areas where the TOC content level was the highest.

Encapsulation option

15. On the understanding that the TOC emission rate was not high and that the housing development programme was more relaxed, a Member supported the encapsulation method because it would have the least environmental impact compared

with other method such as marine disposal which would have secondary environmental problems in dealing with the waste water, sludge, etc.

16. Another Member asked if the encapsulation method was preferred due to its relatively lower cost compared with the other two options. The project proponent team pointed out very clearly that safety and environmental acceptability of the treatment method were the first priorities and only when those two criteria were comparable then the cost effectiveness of the option would come into play.

Amount of sand and fill material required for the encapsulation option

17. A Member expressed concern about the quantity of sand and fill materials required for the encapsulation method and considered that it would give rise to other environmental impact in itself. The project proponent team explained that the sand blanket layer and fill material layer would be required for the reclamation of KTAC irrespective of the remediation option to be adopted.

Duration of the field trial of the encapsulation method

18. On the duration of the field trial, the project proponent said that it would last for about five months initially. Result would be available around early 2004 and a report would be made to the EIA Subcommittee at the time.

Hybrid option

19. On the feasibility of adopting a hybrid option, the project proponent emphasized that they would not rule out the possibilities of combining the remediation options. However, since the findings of the laboratory incubation test on the encapsulation method indicated low risk of methane emission, they would like to further assess the encapsulation method through on-site methane production measurement. The field trial would give more information on the effectiveness of the encapsulation method in terms of safety and environmental acceptability. The result of the field trial would be reported to the EIA Subcommittee in early 2004. At present, the project proponent was open-minded and would not rule out any of the three remediation options (i.e. encapsulation, ex-situ treatment and marine disposal) including a hybrid option.

Trial of the ex-situ treatment option

20. On whether it was possible to do the trial for the ex-situ treatment method

and the encapsulation method in parallel, the project proponent explained that the main reason for deferring the field trial of the ex-situ method was because there was a more relaxed time frame for the housing progarmme at KTAC. On the other hand, they wanted to really test out the encapsulation method which had more advantages than the ex-situ treatment method. If the encapsulation method were proved to be effective and desirable, the Administration could save money for the trial of the ex-situ method.

Safety precautions for housing development above the KTAC reclamation site

21. On the issue of precautionary measures for future housing development at the KTAC site, the project proponent team explained that the extent of precautions would depend on the actual methane generation rates occurring after reclamation. Typical precaution measures for future housing development included the installation of gas collection layer in the reclamation, provision of a membrane with low gas permeability underneath buildings, and installation of vent pipes to vent off the collected methane gas. The project proponent team said the aim was to provide a site that is safe for development.

Underground facilities

22. A Member expressed concern on whether the use of the encapsulation method would restrict the construction of future underground facilities such as underground car park. The project proponent team explained that the degree of concentration and the emission rate of methane in the cofferdam during the field trial period would give a good indication of what would happen if we go ahead with the reclamation. Much would depend on the requirements of individual facilities to be constructed and the findings of site investigation conducted before any development work. The project proponent stressed that they would aim to produce a site of low risk which could be safely developed as other similar sites in the world.

Conclusion

23. The project proponent noted Members' comments and would report to the Subcommittee in early 2004 on initial results of the encapsulation field trial.

EIA Subcommittee Secretariat
July 2003