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for information

Review of Contaminated Mud Disposal at East Sha Chau: An Update

Purpose

To inform members about the follow-up activities and work progress on implementing the recommendations presented in the overview report on the disposal of contaminated mud at the East Sha Chau disposal pits.

Background

2. At the ACE meeting on 17 October 1994, ACE members considered the report prepared by the Civil Engineering Department's (CED) consultants, EVS Environment Consultants of Canada, on their review of contaminated mud disposal at East Sha Chau.
3. ACE members accepted the report and stressed the importance of timely implementation of the report's recommendations.

Follow-up Activities

4. Following on from the ACE meeting, CED has initiated the following actions:
 - i) The Consultants EVS have been asked to prepare a detailed brief for developing an integrated quality assurance/quality control (QA/QC) document.
 - ii) The Consultants EVS have been asked to undertake retrospective statistical analyses of existing environmental monitoring data and from these analyses to recommend refinements to the sampling and testing programme.
 - iii) The Consultants EVS have been asked to carry out an assessment of comparative risk between the East Sha Chau and West Kowloon/Harbour areas. An ecological risk assessment for the Chinese White Dolphin has been included.
 - iv) The Consultants EVS have been asked to provide the requirements for further work on organic chemical contaminants and sediment toxicity.
 - v) CED is planning a monitoring exercise to attempt to measure directly the amount of sediment released into the water column during dumping. In addition, testing of contaminated mud samples taken from barges prior to dumping is being initiated.
 - vi) CED will continue to keep up to date with international practice and technological advances related to the disposal of contaminated mud.

Work Progress

5. The following summarizes the progress made in respect of these six follow-up activities:

i) Integrated QA/QC document:

The work started on 31 October 1994. A full review of procedures relating to field equipment preparation, sample collection and handling, sediment and tissue analyses, analytical QA/QC, data management, and data verification is in progress. A detailed brief is due in early December 1994 after which it will be passed to the consultants presently carrying the environmental monitoring at East Sha Chau.

ii) Retrospective Statistical Analysis:

Analysis of the available data for each component of the monitoring programme (sediment quality, biota monitoring, contaminant loading and ecotoxicology) started on 21 October 1994. Various statistical techniques are being used to identify the adequacy of the control stations, the appropriate number of monitoring stations and samples, the level of spatial and temporal variation, and the linkage between the biological community and heavy metal levels.

Preliminary results indicate that the control stations do not serve their specified purpose because they have similar background (anthropogenic activities and natural characteristics) levels to the monitoring stations. A draft report with recommendations for refinements of the existing environmental monitoring is due in December 1994.

iii) Risk Assessment:

a) Because of the time which will be required to collect the basic chemical and biological data for the comparative assessment of public health risk between West Kowloon/Harbour and East Sha Chau, results are not expected to be available until mid-1995.

b) An ecological risk calculation for the Chinese White Dolphin was initiated on 7 November 1994. The approach uses data on dolphin foraging provided by the University of Hong Kong, augmented by surrogate species data obtained from elsewhere. Results of the calculation of the hazard quotients and hazard indexes for the White Dolphin with respect to certain organic compounds and heavy metals, primarily from an exposure route of ingestion, will be available in early December 1994.

iv) Information on Organic Compounds & Sediment Toxicity:

The requirements for further work will be prepared by EVS Consultants by December 1994. Thereafter the Environmental Protection Department will consider the feasibility of implementation.

v) Fate of Contaminants:

- a) A scheme has been devised for the collection of samples of dredged source material from barges as they arrive at East Sha Chau. The logistics of sample collection have been worked out and the sampling will be implemented as soon as the necessary special equipment has been procured.
- b) A survey to determine the suspended sediment loss during dumping has been scheduled, weather permitting, for December 1994. The survey will employ acoustic doppler current profiler, high range siltmeter, and rosette water sampler.

vi) International Practices:

This task has been on-going and will continue.

Next Report to ACE

6. With respect to activities 5(i) and 5(ii), the Consultants will be asked to undertake a six month review of the disposal arrangements, and the monitoring programme and results. It is therefore planned to report to ACE again in June 1995.

Geotechnical Engineering Office
Civil Engineering Department
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