

Quarterly Report (July-September 1993) on Environmental Monitoring
Environmental Project Office (ENPO) - West Kowloon Project Area

Project Data and Project Organisation:

The ENPO is a joint venture between the firms: Consultants in Environmental Sciences (Asia) Ltd (CES) and Binnie Consultants Ltd (BCL). The project office is managed by the Environmental Protection Department. ENPO conducts the environmental monitoring and audit of the WKPA and reports on a monthly basis to a steering group formed by EPD, NAPCO, PM/UA, HyD and CED. Issues which cannot be resolved at this level will be referred to the Secretaries for Works and Planning, Environment and Lands for resolution. The ENPO commenced on 27 August 1992 and the current consultancy will run initially for two years under the present arrangements. The ENPO will be needed throughout the period of major ACP construction work in the area.

Monitoring Requirement:

Air, noise and water quality are monitored together with related meteorological and tidal information. Ten permanent air monitoring stations are programmed to collect 24 hour dust samples. These are sampled on a weekly basis with ad hoc hourly sampling being implemented when it is necessary to focus on specific works operations. Two wind speed and direction monitoring stations have been commissioned to determine prevailing wind direction to determine the areas most likely to be impacted by fugitive dust from the site.

Seven noise monitoring stations provide three consecutive 5 minute readings on a weekly basis. Initially, baseline monitoring frequencies were higher in order to establish background conditions. Five permanent water stations and two control stations, to determine background water quality in the harbour, were initially established. A further eight supplementary stations have been added to provide data for specific operations so as to ensure that their consequences adequately dissipate within the confines of the site limits. Daily monitoring during the baseline has since reduced to 3 days per week and parameters include: dissolved oxygen (DO % and mg/l), suspended solids (SS), turbidity and temperature.

Flexible monitoring arrangements are built into the agreement to cope with unforeseen incidents. Additional stations can be added and frequency increased to closely monitor changing situations, such as sudden water quality deterioration.

Monitoring Results: Compliance with Action/Target levels

Monitoring results in the form of exceedances for the period July to August 1993 are included in Table A1.

Air: Stations at Mei Foo and Fat Tseung Street showed evidence of enhanced dust levels throughout most of September as a direct result of site activity. The Air Quality Objective has been exceeded for the first time, twice at Mei Foo and

once near Fat Tseung Street and an action plan was issued on 16 September. Substantial site filling activity adjacent to Mei Foo, using trucks rather than hydraulic fill, was eventually accompanied by adequate watering. The exceedance at Mei Foo may have been exacerbated by uncontrolled vehicle movements along a temporary access route immediately in front of the promenade. A substantial physical barrier has effectively closed this route. General site vehicular movements in the area of Fat Tseung Street were considered the most likely cause of the elevated dust levels which led to the exceedance at the adjacent monitoring station. PM(UA) has given instructions for up to 3 water bowsers to be continuously deployed in the northern area.

Trigger, action and target levels had been set at 220, 240 & 260 $\mu\text{g}/\text{m}^3/\text{day}$, the target level equating to Hong Kong's Air Quality Objective for total suspended particulates (TSP). However, as a result of a review of ENPO's first year of operation, it has been agreed to reduce the trigger and action levels to 180 and 220 $\mu\text{g}/\text{m}^3/\text{day}$ in order to increase sensitivity.

Noise: Night-time noise levels have exceeded the ANL on a large number of occasions, but these are again mainly attributable to high background levels associated with traffic. Some marginal contravention of EPD construction permits have occurred at night but there has been no evidence of widespread violations.

Water: In comparison with the previous quarter, exceedances of action and target levels have shown significant increases as predicted. However, throughout the first three weeks of July, monitoring indicated a regional upward trend in water quality. Dissolved oxygen levels then dropped by typically 50% between 19 and 23 July. Therefore, an action plan was issued on 26 July in order to reflect the increased sensitivity of the water body to the local effects of dredging and filling work. The plan closely monitored water quality as surface DO dropped to less than 2 mg/l on 31 July. Aeration of the water at Stonecutters Island was undertaken in order to try and avoid a possible recurrence of the 1992 fish kill. This emergency plan was finalised on 4 August and remains available to cope with any future events of similar nature. However, dropping sea temperature together with rainfall assisted in a recovery and the action plan was closed on 16 August. The continued discharge of highly polluted water to the former typhoon shelter at Yau Ma Tei via expedient connections to the storm drains still remains a cause for concern. As a result, an action plan was raised on 4 August in order to focus attention on sudden declines in DO at the Ferry Point (Man Cheong Street) area. ENPO continues to pursue this issue. In addition, high suspended solids associated with infilling of the shelter created new problems with the Water Supplies Department saltwater intake, located on the outer wall of the Government Dockyard. Following discussions between ENPO, resident site staff and contractors, the dedicated silt screen at the intake has been renewed.

Thus far, there have been no indications of problems associated with the on-site generation of either sewage or waste oil.

Table A1 - Exceedances of the ENPO Action and Target Levels

Parameters for Monitoring and Audit	Number of Days with Exceedance					
	July		August		September	
	A	T	A	T	A	T
Air	0	0	0	0	0	3
Noise	0	6	0	12	0	5
Water DO Surface	0	0	3	5	4	6
Water DO Bottom	1	0	3	7	3	6
Water SS	1	0	3	1	0	0
Water Turbidity	0	0	1	1	0	0

A=Action T=Target

Action levels are defined as the levels beyond which appropriate remedial actions may be necessary to prevent the environmental quality from going beyond the Target limits, which would be unacceptable.

Target levels are defined as the levels stipulated in relevant pollution control ordinances, or Hong Kong Planning Standards and Guidelines, or established by EPD for a particular project, beyond which the works should not proceed without appropriate remedial action, including a critical review of plant and work methods].

Action Plans are reports raised by the ENPO as a result of complaints by the general public, adverse monitoring results or information relating to site inspections which show progressive deterioration of environmental conditions according to predetermined limits. On-site monitoring is consequently intensified and recommendations on mitigation measures are immediately forwarded to both EPD and the Engineer for action].

Audit Results: Implications of Non-compliance

Air: Three exceedances were reported during this quarter, all in early September. The Air Quality Objective was exceeded twice at Mei Foo and once at Fat Tseung Street. However, effective action was taken. Without continued vigilance by all concerned, dust emissions will result in complaints from the public, particularly as the nature of the works change from reclamation to infrastructure development.

Noise: As in the previous quarter, most of the exceedances were not caused by site activities but by background noise associated with traffic. However, any continued non-compliance with permits will result in complaints and legal action against the

contractors involved. Increase in daytime noise levels will also result in complaints from the public.

Water: Continued non-compliance resulting from factors originating outside the site and its control may result in deteriorating water quality and the possibility of foul odour and public health implications. This is of particular concern at the Ferry Point area and has been actively pursued by ENPO.

Proposals for Remedial Measures: Solutions to Problems

ENPO has made a number of proposals; these include:-

- ◆ early commissioning of dry weather flow interceptors and drainage culverts,
- ◆ installation of temporary pumps, effluent detouring, creating greater tidal circulation to flush out stagnant water and redirection of polluted inflows to sewer,
- ◆ dust suppression and good site housekeeping to minimize fugitive dust emissions. These include: reducing sand surcharge piles, demarcating and watering of site haul-roads, creating of wind-rows on exposed areas of sand, placing a tack-coat layer on elevated surcharge piles, and erection of barriers to prevent abuse of site access roads,
- ◆ modifications to the method of sand placement from dredgers to reduce SS in local waters,
- ◆ fast-tracking of contaminated mud dredging to take advantage of locally improved water quality,
- ◆ marine disposal (at East Sha Chau) of non-floatable contaminated solids dredged up from within the old typhoon shelter,
- ◆ an emergency plan to aerate the water at Stonecutters Island in order to improve poor water quality.

Follow-up Actions: By Contractors and Engineers etc

Some of the above suggested remedial or proactive solutions have been taken up by the Engineers and implemented by their contractors. Despite ENPO's advice to the Engineer on dust suppression measures, dust problem remains a concern and the actual implementation of these measures is not yet totally satisfactory. More vigilance is required by all with respect to effective dust suppression measures.

Complaints: From the Public

A number of complaints were received through the EPD Pollution Complaints Hotline and passed on to ENPO for investigation, these are as shown in Table 2. Complainants were generally contacted by letter and some also by telephone. The Engineers were contacted in all complaint cases and various remedial actions were taken. Improvements in site housekeeping including watering of haul roads still falls short of requirements.

Table A2: Monthly Distribution of Complaints Received

	July	August	September
Air	7	3	7
Noise	0	0	2
Water	0	0	0

Liaison: Meetings and Representations to the Public

A presentation was given to the Airport Consultative Committee (ACC) during the report period.