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**(ACE 7/95)**  
**for information**

**Environmental Project Office (ENPO) - West Kowloon Project Area**  
**Quarterly Report: July to September 1994**

**1. Project Data and Project Organisation:**

The 334 hectare West Kowloon Project Area (WKPA) has been divided into a number of operational ACP contracts for the construction of the West Kowloon Reclamation, West Kowloon Expressway and the Western Harbour Crossing Tunnel approach. In addition, certain sections of the Airport Railway have already been entrusted to the two West Kowloon Expressway contracts. The construction is being carried out by consortia of large construction companies with dredging, heavy marine, foundation and infrastructure expertise.

The Environmental Project Office for the WKPA was set up by EPD to carry out environmental monitoring and audit based on a routine assessment of the cumulative construction impacts for all the ACP contracts within the WKPA. The ENPO service is provided by consultants, managed by the Environmental Protection Department. The project office has an interactive liaison role between EPD, the works departments, engineers, contractors and the community. Site visits are made frequently to maintain a proactive approach to identifying construction-related environmental problems before compliance limits set on the project are breached.

ENPO reports on a monthly basis to a steering group formed by EPD, NAPCO, PM/KDevO, HyD and CED. Issues which cannot be resolved at this level will be referred to the Secretary for Works and the Secretary for Planning, Environment and Lands for resolution. The main ENPO commenced on 27th August 1992 for a period of two years. A further three month extension was granted to the ENPO joint venture in August 1994. This terminates at the end of November 1994. A stage II ENPO commences 1st December 1994 for a further period of two years.

**2. Monitoring Requirement:**

Air, noise and water quality are monitored together with related meteorological information. ENPO monitoring locations and main residential sensitive receivers are shown in Figure A1.

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 the areas most likely to be impacted by fugitive dust from the site.

At least one set of daytime, evening and night-time noise monitoring is carried out each month. Each set consists of three consecutive 5 minute readings at each of the seven noise monitoring stations. Additional monitoring is frequently called up to focus on specific exceedances or complaints.

Five permanent water stations and two control stations, to determine background water quality in the harbour, were initially established. Further supplementary stations have been added to provide data for specific operations. Monitoring is carried out two to three times a week. Parameters include dissolved oxygen (DO and DOS), suspended solids (SS), turbidity and temperature.

An additional program of *E.coli* monitoring in the embayment south of Ferry Point commenced on April 21st in order to monitor and safeguard the quality of seawater abstracted by WSD for flushing purposes. A sump has been constructed around the intake to abstract water either directly from the Government Dockyard or from a temporary pump at south of the reclamation to compensate for the declining quality of the water body at south of Ferry Point, which is currently subject to pollution loading from storm drains discharging to the southern end of the old typhoon shelter.

### 3. Monitoring Results: Compliance with Action/Target levels

Monitoring results in the form of exceedances for the period July to September 1994 are included in Table A1.

**Table A1 - Exceedances of the ENPO Action and Target Levels**

Environmental Parameters	July 1994			August 1994			September 1994		
	Total*	A	T	Total*	A	T	Total*	A	T
Air	39	0	1	45	0	0	49	0	0
Noise	21	-	4(0)	21	-	5(0)	28	-	8(0)
Water DO Surface	63	0	6	63	1	6	91	2	12(2)
Water DO Bottom	63	2	3	63	1	3	91	2	11(3)
Water SS	63	2	3	63	0	1	91	0	0
Water Turbidity	63	1	2	63	0	1	91	0	0

- \* Total no. of monitoring events undertaken
- A No. of monitoring events with results exceeding the Action Level
- T No. of monitoring events with results exceeding the Target Level
- ( ) No. of exceedances which are thought to have been construction related

**Air:** During the reporting period there was one Target Level exceedance (in July) at the Tai Kok Tsui station.

**Noise:** There were 16 overnight and 1 evening Target exceedances in the reporting period. None of the exceedances were observed to be related to construction works within the WKPA.

**Water:** DO levels at all the permanent monitoring stations except the one inside the new Yau Ma Tei typhoon shelter reacted to high ambient algal bloom activity in the harbour in July, with DO peaks of 9 mg/l recorded in the Stonecutters embayment on two occasions. A gradual decline in DO was witnessed in August and September. Monitoring stations adjacent to Stonecutters experienced Action Level exceedances at the end of September. A significant reduction in SS exceedances was noted in August and September.

E. coli results outside the temporary impermeable sump have been above WSD's stipulated maximum tolerance level for 60% of the quarter with a peak of 1.6 M c.f.u/100 ml recorded at the end of July. Pumping of water from the southern end of the reclamation to the sump was implemented on August 28th following a deterioration in the water quality in the Government Dockyard. To date, E. coli levels in the sump have exceeded WSD's tolerance level on only one monitoring occasion.

There have been no indications of problems associated with the on-site generation of either sewage or waste oil.

#### **4. Audit Results: Implications of Non-compliance; Advice on the Implementation Status of EIA Mitigation Measures**

Environmental mitigation measures recommended in the project EIA reports for the West Kowloon Reclamation and the West Kowloon Expressway to control dust include the deployment of water bowsers on haul roads, the restriction of vehicles to designated haul roads, the introduction of wheel washing bays at exits from the site and the paving of major haul roads. Noise control measures suggested locating dredging and sandfilling activities at least 500m or more away from sensitive receivers or, the use of silenced equipment or quiet working methods when operating closer to the shoreline at night. Under the Noise Control Ordinance, all site operations after 1900 hrs. must have a Construction Noise Permit.

**Air:** Despite over two metres of rain being recorded during the monitoring period, dust has been a problem during the interim dry periods. Truck movements on unwatered haul roads adjacent to the Mei Foo Estate have raised substantial dust plumes. ENPO have repeatedly requested that the bower dedicated to the buffer zone be deployed continuously. The Target exceedance recorded in July at Tai Kok Tsui followed two days of dry weather. Strong easterly winds were recorded during the two day monitoring period. It is likely that the bulldozing of marine sand within 100m of the monitoring station contributed to the exceedance. A dedicated bower was deployed to this area in August following a request by ENPO and the RSS for UA 9/91. A new dust policy was implemented on the WKE(S) site at the end of September to include the continuous use of two bowsers and the sweeping of all paved site haul roads. Hand watering at the majority of site exits is now being carried out routinely. Wheel washing bays are however, not being utilised. Site traffic has, in the main, been restricted to designated haul roads.

**Noise:** The overnight exceedances were all related to high background levels associated with traffic or container terminal noise. The noise monitoring team observed overnight bulldozing work on the Tai Kok Tsui surcharge mound on one occasion during the quarter. The Resident Site Staff were immediately informed of the incident as the CNP for the operation restricted work to between 0700 and 2300 hrs. Noise levels recorded were, however, below 55dB(A) on this occasion.

**Water:** The majority of the DO exceedances given in Table A1 occurred at monitoring station located at the northeastern corner of the typhoon shelter which is strongly influenced by sewage polluted flows from the hinterland drainage.

The further deterioration in water quality within the northern half of the new West Kowloon typhoon shelter has been attributed to high ambient water temperatures and the extremely poor quality of dry weather flow from the hinterland drainage outfalls. This problem is currently being pursued by TDD/NAPCO.

Two periods of high algal activity led to a substantial amount of additional emergency DO monitoring being called up in July. The high DO levels recorded across the harbour were a result of eutrophication, whereby the active growth of algae generates oxygen during photosynthesis, thus raising the ambient DO levels and leading to overall supersaturation (algal bloom scenario). Standby aeration measures were arranged with TDD for the Stonecutters embayment to entrain oxygen into the water body in the event of an algal bloom collapse situation (whereby DO levels may drop rapidly to below 1 mg/l). The emergency mitigation measures were not required in this instance as in both cases levels gradually returned to normal.

Aeration has been undertaken for one day at the end of September as DO levels at the permanent monitoring stations in North Kowloon fell to Action level in response to a period of particularly poor tidal flushing and sustained high ambient water temperatures. Additional day time monitoring was ordered during the period. Although DO levels at Stonecutters fell to below Target level in this instance, tidal flushing improved in early October to return levels to above 3 mg/l.

There are currently no construction activities in North Kowloon which would have an influence on water quality in this area. The ambient water quality problems experienced to date in ENPO have been entirely in line with the effluent flow and landform configuration impacts highlighted in the West Kowloon Reclamation EIA..

#### 5. Proposals for Remedial Measures: Solutions to Problems

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

- recommending increased deployment and more effective operation of existing bowsers on site through the use of a pumped water supply or header tank to reduce the time taken to fill the bowsers.
- watering and sweeping of public road crossing points at each site.
- increasing RSS overnight presence as works move towards the foreshore (to ensure that the Contractors comply with CNPs). ENPO have supplied sites with a list of updated CNPs.
- increasing site security to prevent opportunist parking on the southern tip of the reclamation.
- recommending that pumping from the southern tip of the reclamation to the WSD Sump be implemented to secure the water quality at the WSD intake.

#### 6. Follow-up Actions: By Contractors and Engineers etc

The majority of the above suggested remedial or proactive solutions have been taken up by the Engineers through written correspondence with their contractors. However, follow-up action by the contractors is such that mitigation measures may not be implemented for a number of weeks after the problem is first highlighted by ENPO, despite frequent encouragement through site meetings and further correspondence. One contractor has failed to provide a pumped water supply or header tank for the bowsers despite numerous requests from ENPO. This issue has now been raised for six months.

#### 7. Complaints: From the Public

Only three EPD 'Hotline' complaints (2 noise and 1 air) have been received by ENPO relating to construction activities on the WKPA during the last quarter (Table A2). All complaints have been investigated and complainants contacted by telephone. The Engineers were contacted in all instances in order to discuss remedial measures. These have subsequently been implemented. A report on each complaint has subsequently been submitted to EPD. In addition, 2 complaints on odour at Ferry Point were recorded. ASD also complained in July about the quality of the water abstracted at the Man Cheong Street ASD intake. These two issues are being pursued by TDD/NAPCO.

**Table A2: Monthly Distribution of Complaints Received**

Environmental Parameters	Cumulative No. Brought Forward	No. of Complaints			Cumulative No.
		Jul 94	Aug 94	Sep 94	
Air	37	2	0	1	40
Noise	29	0	1	1	31
Water	4	2	0	0	6
Waste	-	-	-	-	-
<b>Total</b>	<b>70</b>	<b>4</b>	<b>1</b>	<b>2</b>	<b>77</b>

Note - All July complaints were by direct referral (i.e. not through the EPD Hotline)

### 8. Liaison: Meetings and Representations to the Public

ENPO has made presentations to the Yau Tsim, Sham Shui Po and Mong Kok District Boards' Environmental Committees this quarter.

### 9. Summary and Conclusions

Although the resources to suppress dust are generally available on the site, problems have been encountered when these resources have not been utilised effectively. An improvement in bowser deployment is still required on the UA 9/91 Contract. ENPO have suggested methods by which this can be achieved but this has yet to be taken up by the UA 9/91 Contractor whose surcharge rehandling and landscaping operations affect sensitive receivers when watering is not in place. Occasional violations of CNPs have occurred during the quarter.

Environmental Protection Department  
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