

**PENTA-OCEAN CONSTRUCTION COMPANY LIMITED**

REMAINING ENGINEERING  
INFRASTRUCTURE WORKS FOR  
PAK SHEK KOK DEVELOPMENT  
PACKAGE 1  
(CONTRACT NO.: TP 35/02)

QUARTERLY EM&A SUMMARY  
REPORT

(FROM JULY TO SEPTEMBER 2003)

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ENA 30501



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### EXECUTIVE SUMMARY

This report is the third quarterly EM&A summary report (No.3) and has been prepared to document the impact monitoring works conducted for the Contract of the Remaining Engineering Infrastructure Works for Pak Shek Kok Development Package 1 (Contract No: TP 35/02) during the reporting period from 01 July to 30 September 2003.

#### Construction Progress in this Quarter

The major construction works in this quarter are as below:

<u>Month</u>	<u>Major Activities</u>
July	Sheet piling works and excavation of Culvert C10 and PSK underpass extension, predrilling works of Pumping Station No.2, drainage works, re-commencement RE wall work in Zone F, subway SB1 construction work and footpath construction works in Zone N3, water main works in Area 8A, sewerage works in Area 1 and Area 15, modification of Headwall and preparation work for pipe jacking work in Zone L, formation of stockpile areas in Zone T and manhole construction and pile laying at pipe culvert C10.
August	Drainage works, earth work, forming/removal of earth mound, pre-drilling works for road Pumping Station No.2, cofferdam construction/sheet piling for Culvert C10, subway construction works in Zone N3, watermain installation works, erection of hoarding and signboard, construction of PSK underpass extension, demolition of existing steel bridge at Zone N, roadworks at Area 5 and Area 8A, Excavation/removal of surcharge mound S2, construction of Culvert C10, modification of Trapezoidal channel and Headwall at Zone L.
September	Excavation of Culvert C10 and underpass extension, construction of precast unit for Culvert C10 outfall, drainage work in area 1, area 2, area 9A, Area 7B, Zone S2 and Area 15, removal RE wall works in Zone F, subway SB1 construction work in Zone N2, watermain works in Area 8A and Zone A, sewerage works in Area 1, Area 15 and Area 6, preparation for the watermain works at Zone L, formation of stockpile areas in Zone T, modification of headwall and trapezoidal channel, manhole construction and pipe laying at Pipe Culvert C10, preparation for bored piling works for road D1 bridge and construction of underpass extension structures.

#### Environmental Monitoring Progress

The summary of the monitoring activities in this quarter is listed below:

- Noise Monitoring (Day-time): 14 Occasions at 3 designated locations;
- Noise Monitoring (Evening-time): 14 Occasions at 3 designated locations;
- Noise Monitoring (Holiday): 12 Occasions at 3 designated locations;
- 24-hour TSP Monitoring: 16 Occasions at 1 designated location;
- 1-hour TSP Monitoring: 40 Occasions at 2 designated locations;
- Weekly-site inspection: 13 Occasions.

#### Noise Monitoring

No exceedances of Action and Limit levels for noise monitoring were recorded in this quarter.

#### Air Monitoring

No 24-hour TSP monitoring was carried out at HKIB Staff Accommodation in the reporting period because the application for the permission to set up and providing power supply for the monitoring equipment (High Volume Sampler) is still under process. 24-hour TSP monitoring is pending approval by CUHK of access to monitoring location. Hence, only 1-hour TSP monitoring at HKIB Staff Accommodation was conducted to monitor the air quality in this reporting period.

No exceedances of Action and Limit levels were recorded for 24-hr TSP and 1-hr TSP monitoring in this quarter.

#### Environmental Complaints

No environmental complaints were received in this reporting period.



**Notification of summons and successful prosecutions**

No notification of summons and prosecutions with respect to environmental issues registered in this quarter.

The monitored environmental data indicated that no unacceptable environmental impacts arising from the Project had been caused to the surrounding sensitive receivers. The environmental measures had been effective in controlling potential impacts to within acceptable sensitive receivers. However, the Contractor had been recommended to introduce more effort on environmental mitigation measures to minimize the environmental impact from the Project.



## 1.0 INTRODUCTION

Penta-Ocean Construction Co., Ltd. (POC) appointed Environmental Team (ET) of ETS-Testconsult Limited (ETL) to undertake the Environmental Monitoring and Audit for Remaining Engineering Infrastructure Works for Pak Shek Kok Development Package 1 (Contract No.: TP 35/02).

Under the requirements of Section 10 of Environmental Permit to Construct and Operate a Designate Project (EP-108/2001/AEP-108/2001), EM&A programme as set out in the EM&A Manual is required to be implemented. In accordance with the EM&A manual, environmental monitoring of air quality and noise is required for the Project. The EM&A requirement for each parameter are described in details in subsequent sections, including:

- All monitoring parameters;
- Action and Limit levels for all environmental parameters;
- Event-Action Plans;
- Environmental mitigation measures, as recommended in the project EIA study report;
- Environmental requirements in contract documents.

This quarterly EM&A summary report summarizes the impact monitoring results and audit findings of the EM&A program during the reporting period from 01 July to 30 September 2003. It covers 3 monthly reports produced for July 2003, August 2003 and September 2003.

## 2.0 PROJECT INFORMATION

### 2.1 Background

Remaining Engineering Infrastructure Works for Pak Shek Kok Development Package 1 (Contract No.: TP 35/02) was planned and designed by the Territory Development Department (TDD).

As the main Contractor of the captioned project: contracted by, POC will follow the environmental monitoring recommendation stated at the EM&A Manual that was prepared with reference to the EIA Study for Feasibility Study on the Pak Shek Kok Development Area (PSKDA) Environmental Monitoring and Audit Manual under Agreement No. CE 90/96.

### 2.2 Site Description

Generally, the construction site is located at Pak Shek Kok development area. Surrounding the construction site, there are two air sensitive receivers: HKIB Staff Accommodation and Cheung Shue Tan Village and three noise sensitive receivers: HKIB Staff Accommodation, CUHK Residence No.10 and Cheung Shue Tan Village.

Figure 1 and 2 show the noise and air monitoring locations of this project.

### 2.3 Construction Programme

The details of construction programme (from December to June 2003) are shown in Appendix F.

### 2.4 Project Organization and Management Structure

The organization chart and lines of communication with respect to the on-site environmental management and monitoring program are shown in Appendix A.



## 2.5 Contact Details of Key Personnel

The key personnel contact names and telephone numbers, and construction programme are shown in table 2.1.

Table 2.1 Contact Details of Key Personnel

Organization	Project Role	Name of Key Staff	Tel. No.	Fax No.
TDD	Employer	Mr. H W Lau	2158 5629	---
Hyder	Engineer	Mr. Herman Fong	2911 2233	2805 5028
Hyder	Independent Environmental Checker	Mr. Coleman Ng	2911 2233	2827 2891
POC	Contractor	Mr. Roger Lau	9870 6390	2691 6012
ETL	Contractor's Environmental Team	Mr C L Lau (Environmental Team Leader)	2946 7792	2695 3944

## 3.0 CONSTRUCTION PROGRESS IN THIS QUARTER

The site area of this project is shown in Appendix G.

A summary of the major construction activities undertaken in this quarter is shown in Table 3.1.

Table 3.1 Major Construction Activities in this quarter

Location	Major Construction Activity
Area 1, Area 2, Area 9A, Zone N1 & N2, Zone P and Zone H	Drainage work
Area 1 and Area 15 and Area 6	Sewerage works
Pumping Station No.2, Pumping Station No.2	Pre-drilling works
Culvert C10	Manhole construction, pile laying and sheet piling, excavation, PSK underpass Extension, and Construction of precast unit for outfall
Zone F	Re-commencement and Removal RE wall works
S2, Zone C, Zone J and Zone E	Earth work and forming/removal of earth mound and surcharge mound
Zone N3	Subway SB1 construction works and footpath construction works
Zone L, Area 8A and Zone A	Watermain works
Zone T	Formation of stockpile areas
Zone L	Preparation work for Pipe jacking works and modification of Headwall
Area 5 and Area 8A	Road works
Culvert C10	Construction works and cofferdam construction / sheet piling
Zone H	Demolition of Existing Steel Bridge
Zone L	Modification of Trapezoidal channel and Headwall
Zone N2 and Zone N3	Subway SE1 construction works
Road D1 bridge	Preparation for bored piling works
Zone T	Formation of stockpile areas
---	Erection of hoarding and signboard
---	Construction of PSK underpass Extension
---	Modification of Headwall and trapezoidal channel

## 4.0 AIR QUALITY MONITORING

### 4.1 Monitoring Locations

1-hour and 24-hour TSP monitoring are required to be conducted to monitor the air quality, at designated monitoring locations:





- HKIB Staff Accommodation (on ground floor near the entrance facing south-east) for 1-hr TSP monitoring;
- Cheung Shue Tan Village (near the outer building, temple) for 1-hr TSP monitoring;
- Cheung Shue Tan Village (in front of Man Kee Store) for 24-hr TSP monitoring.

No 24-hour TSP monitoring was carried out at HKIB Staff Accommodation in the reporting period because the application for the permission to set up and providing power supply for the monitoring equipment (High Volume Sampler) is still under process. 24-hour TSP monitoring is pending approval by CUHK of access to monitoring location. Hence, only 1-hour TSP monitoring was conducted to monitor the air quality in this reporting period.

#### 4.2 Monitoring Parameters, Frequency, Duration and Schedule

Table 4.1 summarizes the monitoring parameters, monitoring duration and frequencies of air quality monitoring. The air quality monitoring schedule for 24-hr and 1-hr TSP monitoring at designated monitoring locations in this quarter is summarized in table 4.2.

Table 4.1 Monitoring parameters, duration and frequency of impact air quality monitoring

Parameter	Duration	Frequency
24-hr TSP	24 hr (0000-2400)	Once every six days
1-hr TSP	1 hr (0700-1900)	Three times every six days

Table 4.2 Monitoring Schedule for the air quality monitoring stations

Air quality monitoring stations	Location	Monitoring Period						
		24-hr TSP				1-hr TSP		
		Start		Finish		Date	Start	Finish
		Date	Time	Date	Time			
AM1	HKIB Staff Accommodation					02/07/2003	14:30	15:30
						03/07/2003	08:45	09:45
						05/07/2003	09:58	10:58
						08/07/2003	09:30	10:30
						10/07/2003	15:38	16:38
						12/07/2003	09:08	10:08
						15/07/2003	10:09	11:09
						17/07/2003	09:58	10:58
						19/07/2003	10:34	11:34
						22/07/2003	13:02	14:02
						24/07/2003	13:04	14:04
						26/07/2003	10:52	11:52
						29/07/2003	13:08	14:08
						31/07/2003	10:54	11:54
						02/08/2003	13:00	14:00
						05/08/2003	09:46	10:46
						07/08/2003	15:03	16:03
						09/08/2003	13:04	14:04
						12/08/2003	10:42	11:42
						14/08/2003	10:23	11:23
						16/08/2003	10:07	11:07
						19/08/2003	13:00	14:00
						21/08/2003	16:45	17:45
						23/08/2003	09:15	10:15
						26/08/2003	13:08	14:08
						28/08/2003	13:28	14:28
						30/08/2003	14:18	15:18
						02/09/2003	10:22	11:22
						04/09/2003	08:45	09:45
						06/09/2003	13:24	14:24
						09/09/2003	13:30	14:30
						11/09/2003	10:02	11:02
						13/09/2003	14:49	15:49
				16/09/2003	10:41	11:41		
				18/09/2003	16:54	17:54		
				20/09/2003	10:28	11:28		
				23/09/2003	10:30	11:30		
				25/09/2003	13:47	14:47		
				27/09/2003	14:00	15:00		
				30/09/2003	10:18	11:18		



Air quality monitoring stations	Location	Monitoring Period						
		24-hr TSP				1-hr TSP		
		Start		Finish		Date	Start	Finish
		Date	Time	Date	Time			
AM3	Cheung Shue Tan Village (near the outer building, temple)					02/07/2003	15:45	16:45
						03/07/2003	10:15	11:15
						05/07/2003	14:15	15:15
						08/07/2003	15:00	16:00
						10/07/2003	10:14	11:14
						12/07/2003	13:20	14:20
						15/07/2003	14:45	15:45
						17/07/2003	13:00	14:00
						19/07/2003	13:09	14:09
						22/07/2003	15:33	16:33
						24/07/2003	14:36	15:36
						26/07/2003	13:11	14:11
						29/07/2003	15:20	16:20
						31/07/2003	15:23	16:23
						02/08/2003	14:20	15:20
						05/08/2003	14:20	15:20
						07/08/2003	16:24	17:24
						09/08/2003	14:27	15:27
						12/08/2003	15:36	16:36
						14/08/2003	15:29	16:29
						16/08/2003	13:02	14:02
						19/08/2003	14:15	15:15
						21/08/2003	15:24	16:24
						23/08/2003	10:24	11:24
						26/08/2003	16:11	17:11
						28/08/2003	16:31	17:31
						30/08/2003	15:39	16:39
						02/09/2003	13:00	14:00
						04/09/2003	10:00	11:00
						06/09/2003	10:41	11:41
				09/09/2003	14:58	15:58		
				11/09/2003	14:53	15:53		
				13/09/2003	16:08	17:08		
				16/09/2003	16:12	17:12		
				18/09/2003	13:02	14:02		
				20/09/2003	15:41	16:41		
				23/09/2003	13:30	14:30		
				25/09/2003	15:06	16:06		
				27/09/2003	10:45	11:45		
				30/09/2003	13:03	14:03		
AM3A	Cheung Shue Tan (in front of Man Kee Store)	04/07/03	09:06	05/07/03	09:06			
		10/07/03	10:27	11/07/03	10:27			
		16/07/03	10:35	17/07/03	10:35			
		22/07/03	16:35	23/07/03	16:35			
		28/07/03	10:27	29/07/03	10:27			
		02/08/03	14:33	03/08/03	14:33			
		08/08/03	14:15	09/08/03	14:15			
		14/08/03	15:25	15/08/03	15:25			
		20/08/03	14:20	21/08/03	14:20			
		26/08/03	09:46	27/08/03	09:46			
		01/09/03	18:20	02/09/03	18:20			
		05/09/03	13:06	06/09/03	13:06			
		11/09/03	15:04	12/09/03	15:04			
		17/09/03	12:15	18/09/03	12:15			
		23/09/03	13:15	24/09/03	13:15			
29/09/03	14:48	30/09/03	14:48					

#### 4.3 Wind Data Monitoring

Wind data (wind speed and wind direction) were directly extracted from Sha Tin Station (located at Sha Tin Race Course) of Hong Kong Observatory. All wind data during this reporting period are shown in Appendix D.

#### 4.4 Action and Limit Levels

Action and Limit levels for 24-hr TSP and 1-hr TSP derived as illustrated in Table 4.3.

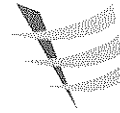


Table 4.3 Action and Limit Levels for 24-hr TSP and 1-hr TSP

Monitoring Location	24-hr TSP ( $\mu\text{g}/\text{m}^3$ )		1-hr TSP ( $\mu\text{g}/\text{m}^3$ )	
	Action Level	Limit Level	Action Level	Limit Level
AM1	164 *	260 *	325 *	500 *
AM3	---	---	306	500
AM3A	183	260	---	---

\* = Reference to the information contained in the Baseline Monitoring Report submitted under the "Advance Engineering Infrastructure Works for Pak Shek Kok Development – Southern Access Road and Sewage Pumping Station No.3

#### 4.5 Event-Action Plans

Please refer to Appendix E for details.

#### 4.6 Air Quality Monitoring Results

##### 4.6.1 24-hour TSP Monitoring

Only 24-hour TSP monitoring was carried out at monitoring station, AM3A in the reporting period. 24-hour TSP monitoring at monitoring station, AM1 was not

carried out in this reporting period because the permission for setting up the monitoring equipment, High Volume Sampler, at HKIB Staff Accommodation is still under processing. Graphical presentation of 24-hour TSP monitoring results for these reporting months is shown in Appendix B.

No exceedances of Action and Limit Level of 24-hour TSP monitoring results were recorded during the reporting period.

##### 4.6.2 1-hour TSP Monitoring

1-hour TSP monitoring was carried out at monitoring stations, AM1 and AM3 in the reporting period. Graphical presentation of 1-hour TSP monitoring results for these reporting months is shown in Appendix B.

No exceedances of Action and Limit Level of 1-hour TSP monitoring results were recorded during the reporting period.

#### 5.0 Noise Monitoring

##### 5.1 Monitoring Locations

As the requirement in EM&A Manual, noise monitoring was conducted at designated monitoring locations:

- HKIB Staff Accommodation (on ground floor near the entrance facing south-east);
- Cheung Shue Tan Village (near the outer building, temple);
- CUHK Residence No.10.

##### 5.2 Monitoring Parameters, duration, Frequency and Schedule

Noise monitoring for the A-weighted levels Leq, L10 and L90 were recorded. The following guide on the regular monitoring frequency for each monitoring station on a per week basis when noise generating activities are underway:



- One set of measurements between 0700-1900 hours on normal weekdays (6 consecutive  $L_{eq}(5\text{-min})$ );
- One set of measurements between 1900-2300 hours (3 consecutive  $L_{eq}(5\text{-min})$ )\*;
- One set of measurements between 2300-0700 hours of next day (3 consecutive  $L_{eq}(5\text{-min})$ )\*;
- One set of measurements between 0700-1900 hours on holidays (3 consecutive  $L_{eq}(5\text{-min})$ )\*.

(\*): Noise monitoring to be conducted only when there is construction work.

Duration, frequencies and parameters of noise measurement are presented in Table 5.1.

Table 5.1 Duration, Frequencies and Parameters of Noise Monitoring

Time period	Duration/min	Parameters	Frequency
Day-time: 0700-1900 hrs on normal weekday	30	$L_{eq}$ , $L_{10}$ , $L_{90}$	Once per week
Evening-time: 1900-2300 hrs	15	$L_{eq}$ , $L_{10}$ , $L_{90}$	Once per week
Night-time: 2300-0700 hrs of next day	15	$L_{eq}$ , $L_{10}$ , $L_{90}$	Once per week
Holiday: 0700-1900 hrs	15	$L_{eq}$ , $L_{10}$ , $L_{90}$	Once per week

The noise monitoring programme of monitoring locations (Day-time, Evening-time, Holiday and Night-time) is summarized in Table 5.2.

Table 5.2 Monitoring Schedule for noise monitoring stations

Noise monitoring stations	Monitoring Period							
	Day-time		Evening-time		Holiday		Night-time	
NM1	03/07/03	14:40	03/07/03	20:10	06/07/03	14:23	---	---
	08/07/03	16:20	08/07/03	19:17	13/07/03	14:55	---	---
	15/07/03	10:08	15/07/03	20:20	20/07/03	15:10	---	---
	22/07/03	13:07	22/07/03	19:04	27/07/03	15:09	---	---
	29/07/03	13:05	29/07/03	19:00	---	---	---	---
	05/08/03	09:48	05/08/03	19:26	03/08/03	14:35	---	---
	12/08/03	10:44	12/08/03	19:04	10/08/03	13:50	---	---
	19/08/03	16:30	19/08/03	19:02	17/08/03	14:21	---	---
	26/08/03	13:08	26/08/03	19:14	24/08/03*	---	---	---
	---	---	---	---	31/08/03	14:49	---	---
	02/09/03	10:28	04/09/03	19:52	07/09/03	18:02	---	---
	09/09/03	13:34	09/09/03	19:00	14/09/03	14:16	---	---
	16/09/03	10:44	16/09/03	19:04	21/09/03	10:08	---	---
	23/09/03	10:33	23/09/03	19:50	28/09/03	10:36	---	---
	30/09/03	10:19	30/09/03	20:02	---	---	---	---
NM2	03/07/03	15:22	03/07/03	19:32	06/07/03	15:08	---	---
	08/07/03	17:05	08/07/03	19:48	13/07/03	15:35	---	---
	15/07/03	11:23	15/07/03	19:40	20/07/03	14:30	---	---
	22/07/03	14:43	22/07/03	19:38	27/07/03	15:41	---	---
	29/07/03	14:28	29/07/03	19:30	---	---	---	---
	05/08/03	16:12	05/08/03	19:58	03/08/03	15:17	---	---
	12/08/03	14:35	12/08/03	19:41	10/08/03	14:27	---	---
	19/08/03	11:42	19/08/03	19:29	17/08/03	14:52	---	---
	26/08/03	11:23	26/08/03	19:53	24/08/03*	---	---	---
	---	---	---	---	31/08/03	15:28	---	---
	04/09/03	14:00	04/09/03	20:16	07/09/03	17:38	---	---
	09/09/03	16:11	09/09/03	19:41	14/09/03	14:43	---	---
	16/09/03	13:50	16/09/03	19:33	21/09/03	10:33	---	---
	23/09/03	15:30	23/09/03	20:16	28/09/03	10:36	---	---
	30/09/03	15:54	30/09/03	19:02	---	---	---	---

Remark: (\*) indicated that the noise monitoring was cancelled due to the rain.



Noise monitoring stations	Monitoring Period							
	Day-time		Evening-time		Holiday		Night-time	
NM3	03/07/03	10:30	03/07/03	19:00	06/07/03	15:39	---	---
	08/07/03	15:10	08/07/03	20:13	13/07/03	14:15	---	---
	15/07/03	14:40	15/07/03	19:00	20/07/03	14:02	---	---
	22/07/03	15:37	22/07/03	20:18	27/07/03	17:08	---	---
	29/07/03	15:26	29/07/03	20:10	---	---	---	---
	05/08/03	15:31	05/08/03	20:35	03/08/03	15:55	---	---
	12/08/03	15:42	12/08/03	20:12	10/08/03	14:48	---	---
	19/08/03	14:25	19/08/03	19:58	17/08/03	15:49	---	---
	26/08/03	16:19	26/08/03	20:27	24/08/03*	---	---	---
	---	---	---	---	31/08/03	15:55	---	---
	02/09/2003	13:07	04/09/03	20:38	07/09/03	17:04	---	---
	09/09/2003	15:07	09/09/03	20:14	14/09/03	15:14	---	---
	16/09/2003	16:19	16/09/03	20:00	21/09/03	11:10	---	---
	23/09/2003	13:27	23/09/03	20:42	28/09/03	11:41	---	---
	30/09/2003	13:07	30/09/03	19:33	---	---	---	---

Remark: (\*) indicated that the noise monitoring was cancelled due to the rain.

### 5.3 Action and Limit Levels

The Action and Limit levels for noise levels derived as illustrated in Table 5.3.

Table 5.3 Action and Limit Levels for noise monitoring

Time Period	Time Period	Action	Limit
Normal hours	0700-1900 hrs on normal weekdays	When one documented complaint is received	75 dB(A) *
Holiday	0700-1900 hrs on holidays		70 dB(A) **
Evening-time	1900-2300 hrs on all other days		55 dB(A) **
Night-time	2300-0700 hrs of next day		

\* = Reduce to 70 dB(A) for schools and 65 dB(A) during school examination periods.

\*\* = Area Sensitivity Rating (ASR) C is selected from the "Technical Memorandum on Noise from Construction Work Other Than Percussive Piling".

### 5.4 Event-Action Plans

Please refer to the Appendix E for details.

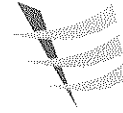
### 5.5 Noise Monitoring Results

Day-time, Evening-time and Holiday noise monitoring were carried out at monitoring stations, NM1, NM2 and NM3 in this reporting period. No night-time noise monitoring were required since no construction works were processed during the night-time period. Graphical presentation of the monitoring results for these reporting months are shown in Appendix C.

No day-time, evening-time and holiday noise monitoring results at all monitoring stations exceeded the Action Level since no documented complaints were received in this reporting period. Besides, no exceedances in Limit Level were recorded according to the results from day-time, evening-time and holiday noise monitoring.

## 6.0 WASTEWATER MONITORING

6.1 According to the Discharge of Industrial Trade Effluent Licence (Licence No.: 2946), POC is required to carry out wastewater monitoring of suspended solids quarterly at all effluent discharge points within the site.



6.2 POC appointed ET of ETL to sampling the wastewater samples at the effluent discharge points. The collected sample will be transport to the Environmental Laboratory of ETL for suspended solids content analysis. The Environmental Laboratory of ETL is HOKLAS accredited and the test method used for suspended solids analysis is also HOKLAS accredited in accordance with the 2540D of Standard Methods for the Examination of Water and Wastewater (APHA 19<sup>th</sup> edition).

6.3 Under the Wastewater Discharge Licence (No.: 2946), the discharge limit of Suspended Solids content of the effluent at this site should be 30mg/L. It means that the suspended solids of wastewater discharged should be less than 30mg/L or otherwise no wastewater can be discharged under this Licence.

6.4 During this quarter, two wastewater monitoring were carried out.

At July 2003, drainage of wastewater to Tolo Harbour was found At Zone R and Zone SB1. Hence, the wastewater monitoring was carried out by ET at 10 July 2003 under the supervision of the RE and POC at two discharges points. During this monitoring, two wastewater samples were collected from these two effluent discharge points and transport to ETL immediately for analysis. The results of suspended solids content of these two wastewater samples were found below 30mg/L and within the discharge limit of the Discharge Licence.

During September 2003, the wastewater monitoring was carried out by ET at 27 and 30 September 2003 at five discharges points. The locations of these discharge points were shown in the figures at Appendix G. During this monitoring, five wastewater samples were collected from these five effluent discharge points and transport to ETL immediately for analysis. The results of suspended solids content of these five wastewater samples were found below 30mg/L and within the discharge limit of the Discharge Licence.

6.5 The test reports for these two wastewater monitoring were attached in Appendix I.

## 7.0 Review of the Reasons for and the implications of Non-compliance

According to the summary of environmental monitoring results, no exceedances of noise and air quality monitoring were recorded in this quarter. Hence, no further mitigation measures and action were required.

## 8.0 Summary of Environmental Complaints

No environmental complaints on this Project were received in this quarter. A statistical summary of environmental complaints is presented in Table 8.1.

Table 8.1 Statistical Summary of Environmental Complaints

Reporting Month	Complaints Statistics		
	Frequency	Cumulative	Complaint Nature
July 2003	0	0	N/A
August 2003	0	0	N/A
September 2003	0	0	N/A

## 9.0 Environmental Summons

There were no notification of summons respect to environmental issues registered in this quarter. Cumulative log of Notification of Summons and Prosecution is tabulated in Table 9.1.



Table 9.1 Cumulative Log of Notification of Summons and Prosecution

Date	Detail of Notice of Summons or Prosecution	Action Taken	Environmental Outcome
16 Oct 2002	The site main haul road was neither paved with any one of concrete, bituminous materials, hard core or metal plates, nor had the entire road surface maintained wet by the spraying of water or dust suppression chemical.	<ul style="list-style-type: none"> <li>POC paved the site main haul road with concrete and bituminous materials;</li> <li>The road surface was wet by the spraying of water regularly by POC.</li> </ul>	It was observed that the problem of dust emission from the site main haul road has been improved. No further complaint or ticket was received until September 2003.

## 10.0 Status of Environmental Licensing and Permitting

All permits/licenses obtained in this quarter are summarises in Table 10.1.

Table 10.1 Summary of environmental licensing and permit status

Description	Permit No.	Valid Period		Section
		From	To	
Environmental	EP-108/2001	05/11/02	---	Whole work site
Construction Noise Permit	GW-TN0083-2003	28/03/03	27/09/03	<p><u>Group A:</u></p> <ul style="list-style-type: none"> <li>2 Dump trucks (CNP 067)</li> <li>2 Excavator, tracked (CNP 081)</li> <li>1 Generator, super silenced, 70dB(A) at 7m (CNP 103)</li> <li>1 Lorry (CNP 141)</li> </ul> <p><u>Group B:</u></p> <ul style="list-style-type: none"> <li>1 Dump trucks (CNP 067)</li> <li>2 Excavator, tracked (CNP 081)</li> <li>1 Generator, super silenced, 70dB(A) at 7m (CNP 103)</li> <li>1 Water pump (electric) (CNP 141)</li> </ul> <p><u>Group C:</u></p> <ul style="list-style-type: none"> <li>1 Dump trucks (CNP 067)</li> <li>2 Excavator, tracked (CNP 081)</li> <li>1 Generator, super silenced, 70dB(A) at 7m (CNP 103)</li> <li>1 Water pump (electric) (CNP 141)</li> <li>1 Crane, mobile (diesel) (CNP 048)</li> </ul>
Construction Noise Permit	GW-TN0299-2003	27/08/03	26/02/04	<p><u>Group A:</u></p> <ul style="list-style-type: none"> <li>2 Dump trucks (CNP 067)</li> <li>2 Excavator, tracked (CNP 081)</li> <li>1 Generator, super silenced, 70dB(A) at 7m (CNP 103)</li> <li>1 Bulldozer (CNP 030)</li> </ul> <p><u>Group B:</u></p> <ul style="list-style-type: none"> <li>1 Dump trucks (CNP 067)</li> <li>2 Excavator, tracked (CNP 081)</li> <li>1 Generator, super silenced, 70dB(A) at 7m (CNP 103)</li> <li>1 Water pump (electric) (CNP 281)</li> </ul> <p><u>Group C:</u></p> <ul style="list-style-type: none"> <li>1 Dump trucks (CNP 067)</li> <li>2 Excavator, tracked (CNP 081)</li> <li>1 Generator, super silenced, 70dB(A) at 7m (CNP 103)</li> <li>1 Crane, mobile (diesel) (CNP 048)</li> </ul> <p><u>Group D:</u></p> <ul style="list-style-type: none"> <li>2 Poker, vibratory, hand-held (CNP 170)</li> <li>1 Concrete pump, lorry mounted (CNP 047)</li> <li>2 Concrete lorry mixer (CNP 044)</li> </ul>



Description	Permit No.	Valid Period		Section
		From	To	
Construction Noise Permit	GW-TN0299-2003	27/08/03	26/02/04	<p><u>Group E:</u></p> <ul style="list-style-type: none"> <li>• 2 Concrete lorry mixer (CNP 044)</li> <li>• 1 Crane, mobile (CNP 048)</li> <li>• 1 Piling, large diameter bored, oscillator (CNP 165)</li> </ul> <p><u>Group F:</u></p> <ul style="list-style-type: none"> <li>• 1 Air compressor, with noise emission label, Sound Power Level &lt; 102 dB(A)</li> <li>• 1 Crane, mobile (diesel) (CNP 048)</li> <li>• 1 Generator, silenced, 75 dB(A) at 7m (CNP 102)</li> <li>• 1 Piling, large diameter bored, reverse circulation drill (CNP 166)</li> </ul> <p><u>Group G:</u></p> <ul style="list-style-type: none"> <li>• 2 Excavator, tracked (CNP 081)</li> </ul> <p>1 Generator, super silenced, 70 dB(A) at 7m (CNP 103)</p>
Construction Noise Permit	GW-TN0151-2003	27/05/03	26/11/03	<ul style="list-style-type: none"> <li>• 2 Excavators, tracked</li> <li>• 2 Generators, 1 Lorry (CNP 141)</li> <li>• 1 Crane, mobile (diesel)</li> <li>• 1 Vibration hammer</li> </ul>
Construction Noise Permit	GW-TN0022-2003	16/05/03	15/11/03	<ul style="list-style-type: none"> <li>• 2 Drop hammer driving steel sheet pile; or</li> <li>• 1 hydraulic hammer driving steel sheet pile.</li> </ul>
Waste Producer	5213 729 P2800 11	03/10/02	---	Generating waste at the work site
Wastewater Discharge License	No. 2946	18/12/02	18/12/07	Discharge of trade Effluent, surface run-off and all other wastewater arising from the construction site and sedimentation tank

## 11.0 WASTE MANAGEMENT

### 11.1 Summary of Waste Quantities

The summary of waste generated at the site in the reporting period is summarized in Table 11.1.

Table 11.1 Summary of Quantities of Waste generated at this reporting period

Type of Waste	Quantity	Disposal Location
C&D Material (Inert) (m <sup>3</sup> )	0	N/A
C&D material (Non-inert) (m <sup>3</sup> )	0	Disposed of at SENT landfills
	0	Disposed of at NENT landfills
General Refuse (m <sup>3</sup> )	70	Disposed of at SENT and NENT landfills
Chemical Waste (L)	800	Collected by licensed waste haulier

## 12.0 SITE INSPECTION / AUDIT

### 12.1 Summary of Weekly Site Inspection and Monthly Joint Site Audit Findings

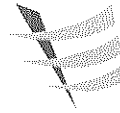
Weekly site inspection was carried out by the ET. A total 13 weekly site inspections were undertaken in this quarter. Monthly joint site audit was carried out by the RE, the IEC, POC and ET at 30 July, 21 August and 25 September 2003 in this quarter. The summary of weekly site inspection and monthly joint site audit findings from this quarter is shown in Table 12.1.





Table 12.1 Summary of Weekly Site Inspection and Monthly Joint Site Audit Findings

July 2003				
Item	IEC/ET	Aspects	Findings	Mitigation Measures Taken / Proposed
1	IEC/ET	Air	Open stockpile of sand was observed on the haul road near the Southern Site entrance.	<ul style="list-style-type: none"> <li>The stockpile should be covered or removed from the area.</li> </ul>
2	IEC/ET	Air	Dust emission caused by vehicular movement was observed at several sections of the site area.	<ul style="list-style-type: none"> <li>Haul road watering should be carried out more frequently.</li> </ul>
3	IEC/ET	Water	The capacity of the desilting tank treating wastewater at Area 10A seems not enough.	<ul style="list-style-type: none"> <li>Larger desilting tank should be used.</li> </ul>
4	IEC/ET	Waste	About 40 nos of 25L containers of Hydrochloric Acid and other chemical were deposited on bare ground in Zone J. The Contractor indicated that the chemicals were not belonged to them.	<ul style="list-style-type: none"> <li>The Contractor was advised to provide a proper place for temporary storage of these chemicals and arrange of disposal.</li> </ul>
5	IEC/ET	Water	The wastewater collection pit at Zone J was damaged and full of sediment.	<ul style="list-style-type: none"> <li>The Contractor was reminded to maintain the pit properly and regularly.</li> </ul>
6	IEC/ET	Air	Black smoke emitted from a backhoe was observed at Zone J.	<ul style="list-style-type: none"> <li>Plant equipment should be maintained properly to prevent adverse environmental impact to the public.</li> </ul>
7	IEC/ET	Air	The roundabout at outside the Northern Site exit was dusty.	<ul style="list-style-type: none"> <li>The Contractor was reminded to clean up the area more frequently;</li> <li>The wheel washing facilities should be maintained more properly to ensure all vehicles had been washed before leaving the site.</li> </ul>
August 2003				
Item	IEC/ET	Aspects	Findings	Mitigation Measures Taken / Proposed
1	IEC/ET	Water	The water used for wheel washing at Northern site exit was silty.	<ul style="list-style-type: none"> <li>The wheel washing bay should be clean up and maintain more frequently.</li> </ul>
2	IEC/ET	Water	The capacity of the desilting tank treating wastewater at Area S1 seems not enough.	<ul style="list-style-type: none"> <li>Larger desilting tank should be used.</li> </ul>
3	IEC/ET	Waste	General refuse were deposited on bare ground outsides the chemical storage area.	<ul style="list-style-type: none"> <li>A rubbish receptacle with cover should be provided at this area.</li> </ul>
4	IEC/ET	Chemical	Two drums were found inside drip tray at Zone S1 but without proper labeling.	<ul style="list-style-type: none"> <li>Appropriate labels should be stick on the drums.</li> </ul>
5	IEC/ET	Water	The wetsep at the nullah was started to operate for treating the surface runoff collected from the surface channel along the stockpiling area. The Contractor was reminded to handle the bottom sludge at the wetsep properly.	<ul style="list-style-type: none"> <li>The bottom sludge at the wetsep should be cleaned up regularly and disposed properly.</li> </ul>
September 2003				
Item	IEC/ET	Aspects	Findings	Mitigation Measures Taken / Proposed
1	IEC/ET	Air	The access road just outside the Southern wheel washing area was silty, although both automatic and manual wheel washing facilities have been provided.	<ul style="list-style-type: none"> <li>POC was remained to cleanup the access road more frequency;</li> <li>The wheel washing facilities should be maintained more frequently.</li> </ul>
2	IEC/ET	Water	The U-channel along the Southern wheel washing area and the access road was full of sediment.	<ul style="list-style-type: none"> <li>POC was reminded to cleanup the U-channel and the access road regularly.</li> </ul>



September 2003				
Item	IEC/ET	Aspects	Findings	Mitigation Measures Taken / Proposed
3	IEC/ ET	Water	Silty water was occasionally spilling from a desilting tank at Area C10 to the adjacent outfall. Besides, the surrounding area of the outfall was muddy and muddy water entered into the outfall when site vehicle passing through this area. POC indicated that the desilting tank was used by another contractor and the muddy water on the ground may due to water leakage from the piping of the water pumps.	<ul style="list-style-type: none"> <li>POC should rectify the situation immediately.</li> </ul>
4	IEC/ ET	Air	The roundabout and the access road just outside the Northern wheel washing area was silty.	<ul style="list-style-type: none"> <li>POC was reminded to carry out public road cleaning as necessary.</li> </ul>
5	IEC/ ET	Water	Stagnant water was found beside the Northern wheel washing bay.	<ul style="list-style-type: none"> <li>POC was reminded to drain the stagnant water away to prevent mosquito breeding.</li> </ul>
6	IEC/ ET	Air	The haul road to the stockpile area was dry and dusty.	<ul style="list-style-type: none"> <li>POC was reminded to wet the road to prevent dust generation.</li> </ul>
7	ET	Air	Some stockpiles / slopes were not covered.	<ul style="list-style-type: none"> <li>To cover by using clean tarpaulin sheets and hydroseed stockpiles and slope area;</li> <li>Watering applied to stockpile and exposed loose soil surface of site works;</li> <li>To perform more frequent water spraying activities after hydro seeding to enhance the effectiveness for the grass growth.</li> </ul>

### 13.0 IMPLEMENTATION STATUS

#### 13.1 Implementation Status of Environmental Mitigation Measures

POC has been implementing the required environmental mitigation measures according to Implementation of Mitigation Measures (clause 4.2, 5.2 and 6.2) in Environmental Management Plan for Contract No. TP 35/02 Remaining Engineering Infrastructure Works for PaK Shek Kok Development Package 1 (Revision 2). A summary of the implementation schedule of the mitigation measures is presented in Appendix H.

##### Air Quality

Only partial stockpiles were covered by using tarpaulin sheets and hydroseeded. The Contractor was reminded to water, hydro-seed or cover all the stockpiles by using clean tarpaulin sheets. The Contractor was also reminded to cleanup the access road regularly to avoid dust emission.

##### Noise

All mitigation measures stated in Appendix H were implemented properly in this reporting period.

##### Water Quality

The Contractor was reminded to provide more effort to implement mitigation measures, such as diverting site runoff to suitable treatment processes before discharge, proper maintenance of sedimentation system and drainage facilities (e.g. sedimentation tank and U-channels), and remove the sand/rubbish accumulated in the drain/channel and sedimentation tanks regularly.



#### Waste Management

POC has been implementing most mitigation measures on waste management. However, rubbish was observed at the site and no skips or bins were provided for collecting rubbish at site. The Contractor was remained to provide more manpower to clean up of rubbish accumulated at the site and provide rubbish bin/skips for collected the rubbish.

### **13.2 Implementation Status of Event and Action Plan**

There were no exceedances in air quality and noise monitoring parameters recorded in this quarter. Hence, no further mitigation measures were required.

### **13.3 Implementation Status of Environmental Complaint Handling**

No complaints had been received during this quarter.

## **14.0 Conclusions and Recommendations**

All 1-hr TSP and 24-hr TSP levels in air quality monitoring were recorded below the Action and Limit levels in this quarter. At the same time, no noise monitoring exceedances were recorded and no complaints were received in this quarter. Therefore, no further mitigation measures and actions were required.

The monitored environmental data indicated that no unacceptable environmental impacts arising from the Project had been caused to the surrounding sensitive receivers. The environmental measures had been effective in controlling potential impacts to within acceptable sensitive receivers. However, the Contractor had been recommended to introduce more effort on environmental mitigation measures to minimize the environmental impact from the Project.

Based on the site inspections and audit findings during the reporting period, the following recommendation for further improvement of the current conditions are as below:

- All stockpiles with a volume of greater than 50m<sup>3</sup> should be covered with clean tarpaulin sheets, watering or hydro-seeding to avoid wind and water erosion;
- Providing more manpower to clean up of rubbish accumulated at the site;
- Providing rubbish bin/skips for collected the rubbish;
- Site inspection and maintenance of all sedimentation system and drainage facilities by the contractor's site staff should be conducted regularly to ensure proper and efficient operation all the times;
- Draining the stagnant water out from the idle sedimentation tank and u-channel to prevent mosquito breeding;
- Diverting silty runoff to sedimentation system before discharge;
- Placing enough sand bags or other protection should be applied to prevent the silty surface runoff onto the drains system;
- Removing the sand/rubbish accumulated in the drain/channel regularly;
- Removing the oil in the drip tray and treat as chemical waste regularly;
- Checking and maintaining all the site machines to prevent oil leakage regularly;
- Providing briefing to the concerned site staff on remedial actions in case of oil spillage, such as handling method of chemical waste;
- Maintain good waste management at the site.