Ming Chun Construction Co., Ltd.

The Decommissioning of Underground Fuel Tanks at Tsuen Wan No. 1 Pumping Station Contact No. WSD/ST 456/02

Monthly Environmental Monitoring and Audit Report
August 2003

First Issue

Ming Chun Construction Co., Ltd.

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Environmental Monitoring and Audit

Monthly Environmental Monitoring and Audit Report – August 2003

September 2003

Ove Arup & Partners Hong Kong Ltd
Level 5, Festival Walk, 80 Tat Chee Avenue, Kowloon Tong, Kowloon, Hong Kong
Tel +852 2528 3031 Fax +852 2268 3950
www.arup.com

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		Name	Fredrick Leong	Sam Tsoi	Sam Tsoi
		Signature			
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			Prepared by	Checked by	Approved by
		Name			
		Signature			
		Filename			
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ABBREVIATIONS AND ACTONYMS

A/L	Action or Limit Levels
Arup	Ove Arup & Partners Hong Kong Limited
B&K	Brüel & Kjær
CNP	Construction Noise Permit
CT	Contractor
EA	Environmental Auditor
EIA	Environmental Impact Assessment
EM&A	Environmental Monitoring and Audit
EP	Environmental Permit
EPD	Environmental Protection Department
ER	Engineer / Engineer's Representative
ET	Environmental Team
HKPSG	Hong Kong Planning Standards and Guidelines
HKSAR	Hong Kong Special Administrative Region
NSR	Noise Sensitive Receiver

EXECUTIVE SUMMARY

This is the thirteenth monthly environmental monitoring and audit (EM&A) report summarising the EM&A works from 1 August 2003 to 31 August 2003.

Noise monitoring was conducted in $L_{eq(30min)}$ once per week during construction hours at 2 monitoring locations. A total of 4 sets of measurement were conducted at 2 monitoring locations during the reporting month. The lowest noise level was 65.5 dB(A) recorded at Fong Hon Chu Gifted Education Centre (NM2) on 15 August 2003, and the highest noise level was 69.0 dB(A) recorded at Caritas Adult Education Centre (NM1) on 7 August 2003. No exceedance on the Action and Limit (A/L) Levels was recorded during the monitoring period.

Weekly environmental site audits had been conducted on 5th, 13th, 20th and 28th August 2003. There was no significant noise, air and water quality impact identified from the construction activities in August 2003.

The total quantity of the disposed inert material to Public fill was 151.8 m^3 by common dump truck in August 2003. The total quantity of the disposed chemical waste to SENT Landfill was 4.16 tonnes August 2003.

No complaint on environmental issue was received in August 2003 or since the commencement of the Project.

1. INTRODUCTION

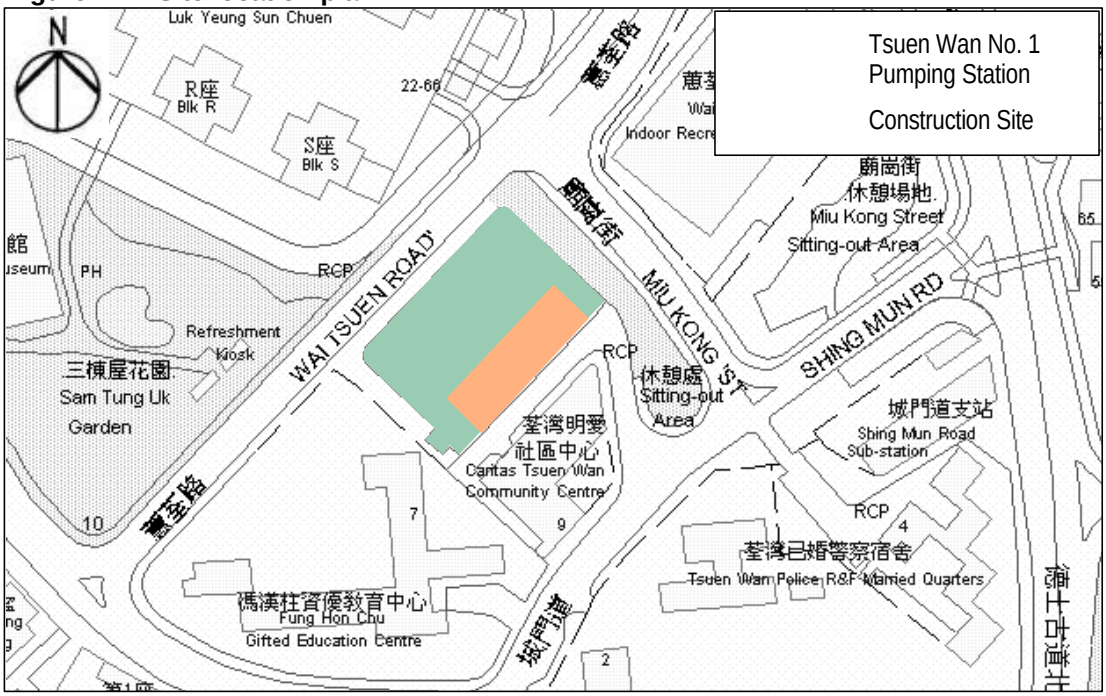
Ove Arup & Partners Hong Kong Limited (Arup) was appointed by Ming Chun Construction Co., Ltd. as the Environmental Team (ET) for *Contract No. WSD/ST 456/02 The Decommission of Underground Fuel Tanks at Tsuen Wan No. 1 Pumping Station* (hereafter called the "Project"). The construction noise was selected for impact monitoring during the decommissioning of underground fuel tanks. The construction period of the Project is re-scheduled to last for 10.5 months from mid August 2002 to September 2003.

1.1 Project Background

The Pumping Station has been in operation since 1955. All pumpsets, associated power supply, and control equipment are now approaching the end of their serviceable lives. To improve the operation of the Pumping Station, the existing manned equipment including pumpsets, electrical switchgears, and piping and valving systems will have to be replaced. The seven electrical motor driven and three diesel engine driven pumpsets currently in use are to be replaced by eight electrical pumpsets.

With the phasing out of the three diesel engine driven pumpsets, the four underground diesel fuel storage tanks at the Pumping Station, each with a capacity of 64,000 litres will be decommissioned, dismantled, and removed. The location of the site is shown in Figure 1-1.

Figure 1-1 Site location plan



1.2 Impact EM&A Requirements

The impact environmental monitoring and audit includes noise monitoring and environmental audit.

1.3 Purpose of the Report

The purpose of the monthly environmental monitoring and audit report is to present the progress on noise monitoring and environmental audit for the Project on a monthly basis.

This is the thirteenth monthly EM&A report prepared by Arup for the submission to Ming Chun Construction Co., Ltd. summarising the monitoring methodology, locations, periods, frequencies, results and any observation from the noise monitoring and environmental audit from 1 August 2003 to 31 August 2003.

2. ENVIRONMENTAL STATUS

2.1 Construction Programme

The Project is re-scheduled to last for 10.5 months from mid August 2002 to September 2003. An updated construction programme is given in the Monthly EM&A Report – January 2003[1].

2.2 Construction Activities of the Month

The major construction activity carried out by the Contractor (CT) in August 2003 was mainly the demolition of the diesel fuel tank chamber by using one hand held rock breaker and erection of temporary formwork inside the fuel tank chamber.

3. SUMMARY OF EM&A REQUIREMENTS

Noise is the significant environmental impact identified for the construction period of the Project. In accordance with the EM&A Manual[2] of the Project, noise impact monitoring, shall be performed by an ET at all specified monitoring locations during the construction stages. The monitoring schedule for August 2003 and the tentative schedule for September 2003 are attached in Appendix A.

3.1 Construction Noise Monitoring

3.1.1 Monitoring Parameters

Construction noise monitoring was measured in terms of the A-weighted equivalent continuous sound pressure level (L_{eq}). L_{10} and L_{90} shall also be recorded as supplementary reference information for data auditing.

3.1.2 Monitoring Frequency

Construction noise measurements were required to be conducted on a weekly basis according to the EM&A Manual. The monitoring time periods, monitoring parameters and frequency are specified in Table 3-1.

Table 3-1 Construction noise monitoring parameters and frequency

Time Period (when construction activity is found)	Parameters	Monitoring Frequency	No. of Measurements for Each Monitoring
Between 0700-1900 hours on normal weekdays	$L_{eq(30\ min)}$	Once per week	1
Between 1900-2300 hours on normal weekdays	$L_{eq(5\ min)}$*		3 (consecutive)
Between 2300-0700 hours of next day			
Between 0700-1900 hours on holidays			

Remarks: * The $L_{eq(5\ min)}$ will only be measured if construction activities are conducted in holidays and between the period of 1900 and 0700 hours during normal weekdays.

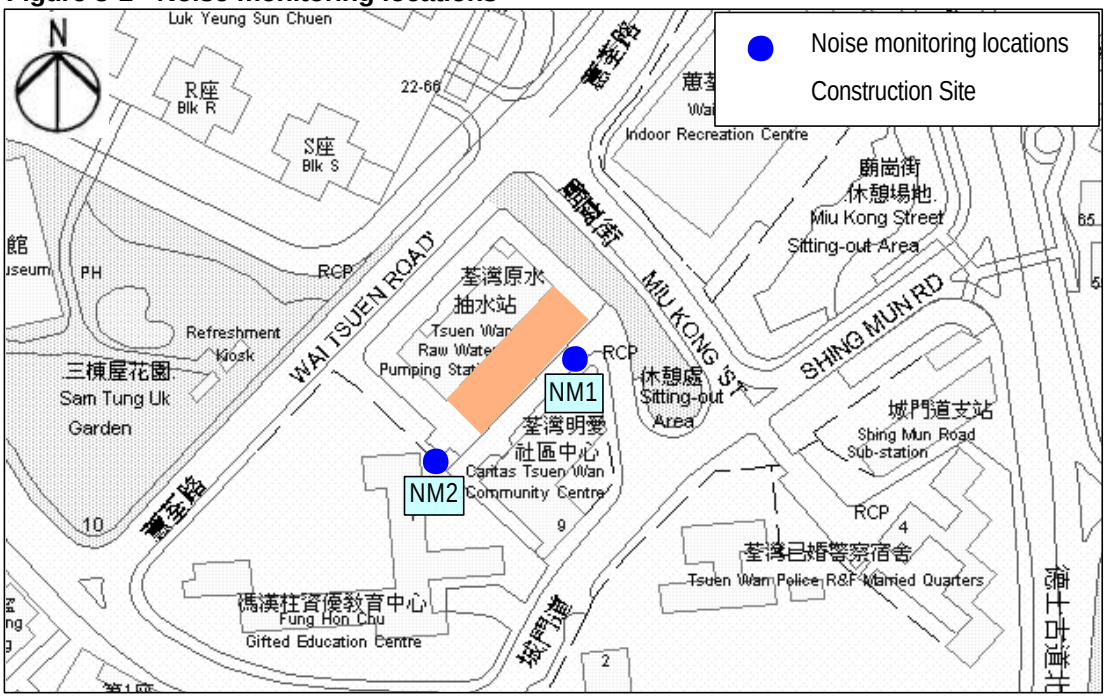
3.1.3 Monitoring Locations

A total of 2 noise monitoring locations were specified. They are given in Table 3-4 and shown in Figure 3-1. The measurements were taken at a position 1m from the exterior of building façade and at a position of 1.2m above ground.

Table 3-2 Construction noise monitoring locations

Noise Monitoring Station No.	Location
NM1	Caritas Adult Education Centre
NM2	Fong Hon Chu Gifted Education Centre

Figure 3-1 Noise monitoring locations



3.2 Performance Limits and Event-Action Plans

The monitoring results shall be checked against appropriate standards and requirements. A two-tier system performance limits was established in the Project specific EM&A Manual. The "Action Level" and the "Limit Level" are established according to the EPD requirements. Corresponding actions will be taken by ET, ER and CT in accordance with the Event-Action Plan if the monitoring results exceed the performance limits.

3.2.1 Construction Noise Impact

The Action and Limit (A/L) levels for the construction noise extracted from the Baseline Monitoring Report[3] are tabulated in Table 3-3.

Table 3-3 Action and Limit Levels for construction noise

Time Period	Action	Limit
0700 – 1900 hours on any day not being a Sunday or public holiday	When one documented complaint is received	70dB(A) (1) (2)

Remarks: (1) As NM1 and NM2 are both considered educational establishments, limit level is corrected to 70dB(A) instead of the conventional 75dB(A).

(2) For educational establishments, the limit level shall be reduced to 65dB(A) during examination periods.

Table 3-4 details the actions required to be carried out by different parties in the case of an exceedance of performance limits being detected.

Table 3-4 Event/Action plan for construction noise

Event	Action	
	ET Leader or ER	Contractor
Action Level	1. Notify Contractor 2. Analyse investigation 3. Require Contractor to propose measures for the analysed noise problem 4. Increase monitoring frequency to check mitigation effectiveness	1. Submit noise mitigation proposals to Environmental Team Leader/Engineer's Representative 2. Implement noise mitigation proposals
Limit Level	1. Notify Contractor 2. Notify EPD 3. Require contractor to implement mitigation measures 4. Increase monitoring frequency to check mitigation effectiveness	1. Implement mitigation measures 2. Prove to Environmental Team Leader/ER effectiveness of measures applied

3.3 Site Inspection and Environmental Complaint Handling

3.3.1 Site Inspection Frequency and Areas Covered

Regular site inspections shall be carried out on a weekly basis. The areas of inspection cover the different environmental impacts, such as air, noise, water and waste, and their pollution controls and mitigation measures for both within and outside the site area.

Ad hoc site inspection will be carried out if significant environmental non-compliance is identified. Inspections may also be carried out subsequent to receipt of any environmental complaints, or as part of the investigation work, as specified in the Event-Action Plans.

3.3.2 Site Inspection Procedures

a) The CT and/or ER will advise the Environmental Auditor (EA) for all information on any environmental related aspects.

b) The EA will conduct discussion with the CT and/or ER to sort out and forecast any potential environmental impact.

c) The EA will conduct a site walk with the CT and/or ER, particularly the areas with extensive construction works.

d) The EA will conduct inspection for the main environmental facilities and measures such as the wheel washing facilities located at the site exits, water spraying truck, temporary noise barrier, and the internal noise-reducing measures of the heavy equipment etc, to ensure that these environmental facilities operate normally and effectively.

e) The EA will fill up a site inspection checklist during the site inspection for recording of any special observations.

f) The EA will conduct post-discussion with the CT and/or ER for the establishment of additional/special measures if any non-conformance is found. The completion date for such additional measures will be confirmed during the post-discussion.

g) The EA will propose a reasonable timeframe together with the CT and/or ER, for the preparation of the proposal for the remediation of environmental non-compliance.

h) The completed site inspection checklist will be signed by the EA, the CT and/or ER, for reference and for taking actions in accordance with the agreed procedures, reporting systems and time frame.

3.3.3 Environmental Complaints

In accordance with the EM&A Manual, environmental complaints will be referred to the ET for initiation of the complaint investigation procedures. The ET will undertake the following procedures upon receipt of the complaints:

a) The ET will record the details of the complaint and the date of receipt onto the complaint database, and inform ER immediately.

b) The ET will perform compliant investigation to determine its validity, and to assess whether the source of the problem is due to work activities.

c) The ER will instruct the CT to identify mitigation measures in consultation with the ET, if the compliant is valid and due to works.

d) The ET will liaise with the CT on their mitigation measure proposals and implementation, if required.

e) The ET will conduct review of the CT' s response on the identified mitigation measures, and of the updated situation.

f) The ET will submit interim report to EPD if the complaint is received via EPD. The interim report will clearly state the status of the complaint investigation and the follow-up action within the time frame assigned by EPD.

g) The ET will undertake additional monitoring and audit to verify the situation if necessary, and ensure that any valid reason for complaint does not recur.

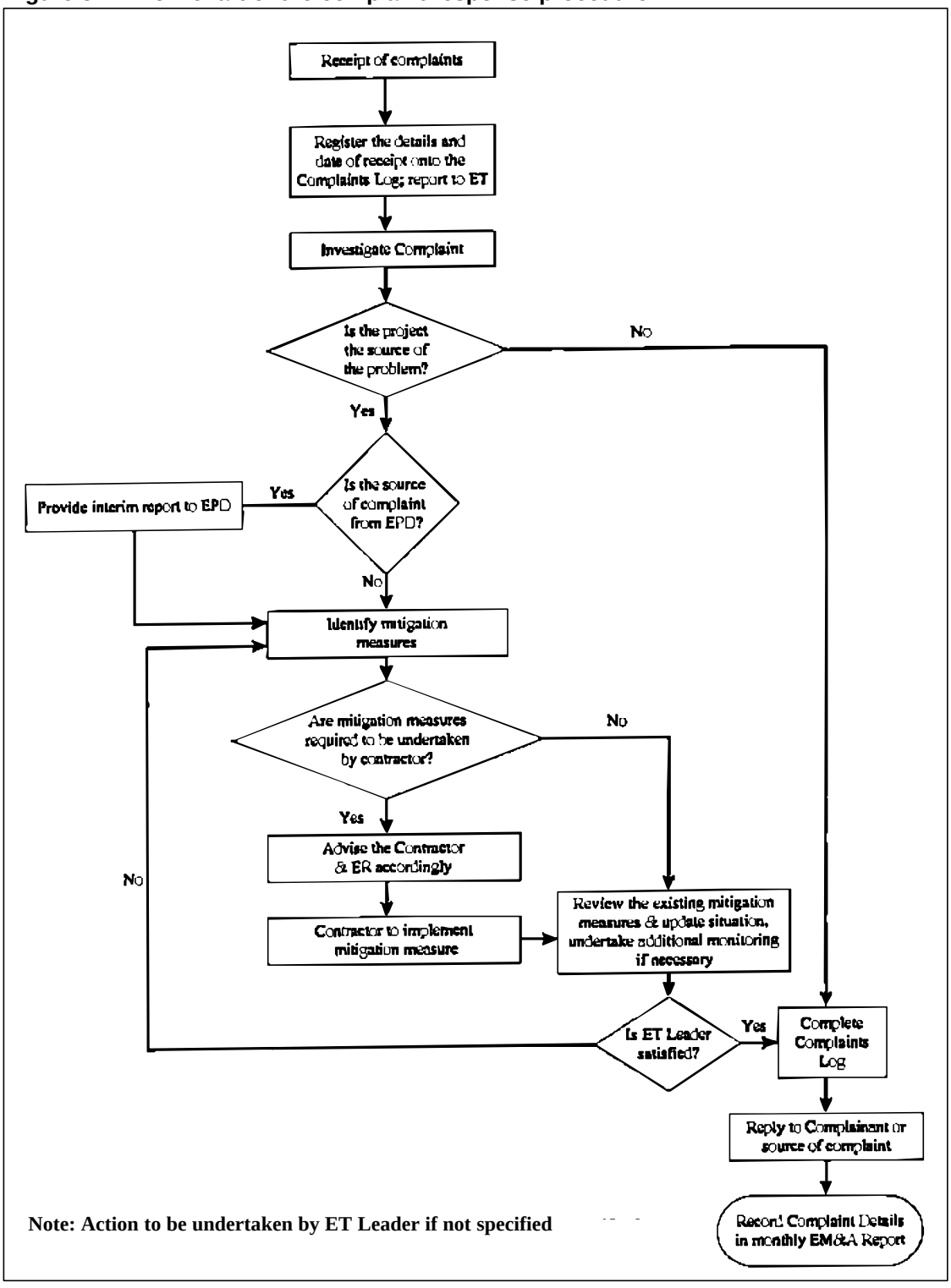
h) The ET will report on the investigation results and the subsequent actions to the source of complaint for responding to the complainant (If the source of complaint is via EPD, the results will be reported within the time frame assigned by EPD).

i) The ET will record the details of the complaint, investigation, subsequent actions and results in the monthly EM&A reports.

During the complaint investigation work undertaken by the ET, the CT and ER shall cooperate with the ET on providing all the necessary information and assistance for completion of the investigation. If mitigation measures are identified as necessary after the investigation, the CT shall promptly carry out the required mitigation to the satisfaction of ET. The ER shall ensure that the CT has carried out such identified measures.

A flow chart of the complaint response procedures is shown in Figure 3-2 for reference.

Figure 3-2 Flow chart of the complaint response procedure



4. NOISE

4.1 Monitoring Equipment

An integrating sound level meter was used for the noise monitoring. The sound level meter complies with the International Electrotechnical Commission Publications (IEC) 651:1979 (Type 1) and 804:1985 (Type 1) specifications. An acoustical calibrator in compliance with IEC 942:1988 (Type 1) was used to calibrate the sound level meter before and after each set of measurements to confirm that the data drift was less than 1dB(A). The detailed descriptions of the noise equipment are listed in Table 4-1.

Table 4-1 Equipment list for construction noise monitoring

Equipment	Manufacturer & Model No.	Precision Grade	Qty.
Integrating sound level meter	Brüel & Kjær 2238	IEC 651 Type 1	1
Windshield	Brüel & Kjær UA0237	IEC 804 Type 1	1
Acoustical calibrator	Brüel & Kjær 4226	IEC 942 Type 1	1
	Brüel & Kjær 4231		
LCD wind speed indicator	Kestrel Vane Anemometer	--	1

4.2 Methodology

4.2.1 Field Measurement

- The sound level meter and the battery were checked to ensure that they were in proper condition.
- The sound level meter was set on a tripod at 1.2m above ground and at 1m from the exterior of the building façade.
- Before conducting the measurement, the sound level meter was calibrated by an acoustical calibrator.
- The measurement parameter was set to A-weighted sound pressure level. The time weighting was set in fast response and the time period of measurement at 30 minutes.
- The wind speed was checked during noise monitoring to ensure the steady wind speed did not exceed 5m/s, or wind with gusts did not exceed 10m/s.

- Any abnormal conditions that generated intrusive noise during the measurement were recorded on the field record sheet.
- After each measurement, the equivalent continuous sound pressure level (L_{eq}), L_{10} and L_{90} were recorded on the field record sheet.
- The sound level meter was re-calibrated by the acoustical calibrator to confirm that there was no significant drift of reading.

4.2.2 Equipment Maintenance and Calibration

The sound level meter complies with the standards of IEC 651 (Fast, Slow, Impulse rms detector tests) and IEC 804 (L_{eq} functions). The acoustical calibrator model no. 4231 is in compliance with IEC 942. Both equipment are calibrated annually in-house using Brüel & Kjær (B&K) calibrator model no. 4226.

The National Physical Laboratory in Teddington, London, which is accredited by National Measurement accreditation Service (NAMAS), annually calibrates the B&K calibrator model no. 4226. All in-house calibrations that are undertaken can be traced back to the National Physical Laboratory. The calibration certificate of the equipment is given in Appendix B. Table 4-2 summarizes the calibration date of the sound level meter used for this project.

Table 4-2 Summary of calibration dates of noise monitoring equipment

Sound level meter	Serial number	Last calibration date	Next calibration date (on or before)
B&K 2238	2320696	19 August 2002	18 September 2003

4.3 Results and Observations

4.3.1 Weather Conditions and Other Factors

Weather condition was sunny and fine during the monitoring period. The major noise source was the operational noise of the pumping station and the hand held rock breaker.

4.3.2 Summary Results

The noise monitoring results are summarised in Table 4-3 for the daytime periods, and the details are attached in Appendix C.

Table 4-3 Daytime noise monitoring results (0700 – 1900 hours on normal weekdays)

Date of Monitoring	Monitoring Parameters	Monitoring Results, dB(A) (30 min)	
		NM1	NM2
07/08/03 (Thu)	L_{eq}	69.0	67.5
	L_{10}	74.5	71.5
	L_{90}	62.5	62.0
15/08/03 (Fri)	L_{eq}	67.0	65.5
	L_{10}	70.0	69.0
	L_{90}	62.5	60.5
22/08/03 (Fri)	L_{eq}	67.0	66.5
	L_{10}	72.5	70.0
	L_{90}	61.5	62.0
26/08/03 (Tue)	L_{eq}	67.0	68.5
	L_{10}	70.5	73.0
	L_{90}	62.0	61.5

5. SITE INSPECTION, ENVIRONMENTAL COMPLAINTS, ENVIRONMENTAL LICENSES AND NON-COMPLIANCE RECORDS

5.1 Site Audit Results

Weekly environmental site audits had been conducted on 5th, 13th, 20th and 28th August 2003. The audit findings are summarised in the following sub-sections.

5.1.1 Air Quality

- Water spraying was maintained during the operation of the hand held rock breaker and no significant dust impact was identified.

5.1.2 Noise

- A movable noise barrier lined with sound absorption material was continually provided for the hand held rock breaker. No significant noise impact was identified.

5.1.3 Water Quality

- No significant water quality impact was identified from the construction activities in August 2003.

5.1.4 Waste Management

- No significant waste impact was identified from the construction activities in August 2003.

5.2 Waste Disposal

The total quantity of the disposed inert material to Public fill was 151.8 m^3 by common dump truck in August 2003. The total quantity of the disposed chemical waste to SENT Landfill was 4.16 tonnes August 2003. The detail is given in Appendix D.

5.3 Complaint Record

No complaint on environmental issue was received in August 2003 or since the commencement of the Project.

5.4 Non-compliances

No non-compliance on environmental issue was recorded in August 2003.

5.5 Environmental Licenses

No environmental license or permit was granted by EPD in August 2003. Copies of Environmental Licenses/ Permits are attached in Monthly EM&A Report – August 2002.

6. REFERENCES

[1] Ove Arup & Partners Hong Kong Limited. February 2003. The Decommissioning of Underground Fuel Tanks at Tsuen Wan No.1 Pumping Station, Monthly Environmental Monitoring and Audit Report – January 2003.

[2] Ove Arup & Partners Hong Kong Limited. December 2001 The Decommissioning of Underground Fuel Tanks at Tsuen Wan No.1 Pumping Station, Environmental Monitoring & Audit Manual.

[3] Ove Arup & Partners Hong Kong Limited. August 2002. The Decommissioning of Underground Fuel Tanks at Tsuen Wan No.1 Pumping Station, Environmental Baseline Monitoring Report.

[4] Ove Arup & Partners Hong Kong Limited. September 2002. The Decommissioning of Underground Fuel Tanks at Tsuen Wan No.1 Pumping Station, Monthly Environmental Monitoring and Audit Report – August 2002.

APPENDIX A

Monitoring schedule for August 2003 and September 2003

Environmental Monitoring and Audit Programme - August 2003

Note 1: L30 denotes $L_{eq(30\ min)}$
Note 2: TSP denotes Total Suspended Particulate
Note 3: LFG denotes Landfill Gas

Aug-2003						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
3	4	5 Site inspection	6	7 L30 monitoring	8	9
10	11	12	13 Site inspection	14	15 L30 monitoring	16
17	18	19	20 Site inspection	21	22 L30 monitoring	23
24	25	26 L30 monitoring	27	28 Site inspection	29	30
31						

Tentative Environmental Monitoring and Audit Schedule - September 2003

Note 1: **L30** denotes $L_{eq(30\ min)}$
Note 2: **TSP** denotes Total Suspended Particulate

Sep-2003						
Sunday	**Monday**	**Tuesday**	**Wednesday**	**Thursday**	**Friday**	**Saturday**
31	1	2 Site inspection L30 monitoring	3	4	5	6
7	8 L30 monitoring	9 Site inspection	10	11	12	13
14	15	16 Site inspection	17	18 L30 monitoring	19	20
21	22	23 Site inspection	24	25 L30 monitoring	26	27
28	29	30 Site inspection				

APPENDIX B

Calibration Certificates of Sound Level Maters and Acoustic Calibrators

Arup Acoustics (HK)
Level 5 Festival Walk
80 Tat Chee Avenue
Kowloon Tong, Kowloon
HONG KONG
Tel: 2268 3216
Fax: 2268 3950

AAc Certificate No. *2003001*

CERTIFICATE OF CONFORMITY

Description of Test Instrument	Type No.	Serial No.
Bruel & Kjaer 4230 Acoustic Calibrator	*4230*	*1233887*

Date of Test: *18 August 2003*

Carried out by: *Steven Wong* Approved by: *William Ng*

Signature: Signature:

Ambient Conditions During Test:	
Atmospheric Pressure:	1KPa
Air Temperature:	22°C
Relative Humidity:	60%

This document is to certify that the above Test Instrumentation did conform to the manufacturer's original specification on the date of the test. Any adjustments that were required to bring the instrumentation back into specification are duly noted in this document.
The tests were carried out using the reference calibrator described below.

Description of Reference Calibrator	Type No.	Serial No.
Bruel & Kjaer Multi Frequency Calibrator	*4226*	*1531372*

Certificate of Calibration No. *11449*
By Bruel & Kjaer (A Division of Spectris (UK) Ltd) Calibration Date: *20 Mar 2003*

The reference calibrator, type 4226 has traceable calibrator back to National Measurement Standards. As such it is used as Arup Acoustics own 'Primary Standard' and is used only for controlled laboratory calibration tests on all sound measuring equipment owned by Arup Acoustics.

Footnote

Arup Acoustics (HK) is not a registered HOKLAS accredited calibration laboratory. This certificate is for internal use only (unless otherwise authorised) and is part of Arup Acoustics (HK) development and commitment to QC and QA procedures.

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Arup Acoustics (HK)
Level 5 Festival Walk
80 Tat Chee Avenue
Kowloon Tong, Kowloon
HONG KONG
Tel: 2268 3216
Fax: 2268 3950

AAc Certificate No. *2003002*

CERTIFICATE OF CONFORMITY

Description of Test Instrument	Type No.	Serial No.
Bruel & Kjaer 4231 Acoustic Calibrator	*4231*	*2314016*

Date of Test: *18 August 2003*

Carried out by: *Steven Wong*

Approved by: *William Ng*

Signature:

Signature:

Ambient Conditions During Test:	
Atmospheric Pressure:	1KPa
Air Temperature:	22°C
Relative Humidity:	60%

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Level 5 Festival Walk
80 Tat Chee Avenue
Kowloon Tong, Kowloon
HONG KONG
Tel: 2268 3216
Fax: 2268 3950

AAc Certificate No. *2003003*

CERTIFICATE OF CONFORMITY

Description of Test Instrument	Type No.	Serial No.
Bruel & Kjaer Sound Level Meter Kit 1	*2231*	*1294630*
Bruel & Kjaer ½" Microphone Kit 1	*4188*	*2179478*

Date of Test: *18 August 2003*

Carried out by: *Steven Wong*

Approved by: *William Ng*

Signature: Steven

Signature: William NG

Ambient Conditions During Test:	
Atmospheric Pressure:	1KPa
Air Temperature:	22°C
Relative Humidity:	60%

This document is to certify that the above Test Instrumentation did conform to the manufacturer's original specification on the date of the test. Any adjustments that were required to bring the instrumentation back into specification are duly noted in this document.
The tests were carried out using the reference calibrator described below.

Description of Reference Calibrator	Type No.	Serial No.
Bruel & Kjaer Multi Frequency Calibrator	*4226*	*1531372*

Certificate of Calibration No. *11449*
By Bruel & Kjaer (A Division of Spectris (UK) Ltd) Calibration Date: *20 Mar 2003*

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Arup Acoustics (HK)
Level 5 Festival Walk
80 Tat Chee Avenue
Kowloon Tong, Kowloon
HONG KONG
Tel: 2268 3216
Fax: 2268 3950

AAc Certificate No. *2003004*

CERTIFICATE OF CONFORMITY

Description of Test Instrument	Type No.	Serial No.
Bruel & Kjaer Sound Level Meter Kit 2	*2231*	*1709184*
Bruel & Kjaer ½" Microphone Kit 2	*4188*	*2179476*

Date of Test: *18 August 2003*

Carried out by: *Steven Wong* Approved by: *William Ng*

Signature: Steven Signature: William Ng

Ambient Conditions During Test:	
Atmospheric Pressure:	1KPa
Air Temperature:	22°C
Relative Humidity:	60%

This document is to certify that the above Test Instrumentation did conform to the manufacturer's original specification on the date of the test. Any adjustments that were required to bring the instrumentation back into specification are duly noted in this document.
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Certificate of Calibration No. *11449*
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Level 5 Festival Walk
80 Tat Chee Avenue
Kowloon Tong, Kowloon
HONG KONG
Tel: 2268 3216
Fax: 2268 3950

AAc Certificate No. *2003005*

CERTIFICATE OF CONFORMITY

Description of Test Instrument	Type No.	Serial No.
Bruel & Kjaer Sound Level Meter	*2238*	*2320707*
Bruel & Kjaer ½" Microphone	*4188*	*2179479*

Date of Test: *18 August 2003*

Carried out by: *Steven Wong*

Approved by: *William Ng*

Signature: Steven

Signature: William - Ng

Ambient Conditions During Test:	
Atmospheric Pressure:	1KPa
Air Temperature:	22°C
Relative Humidity:	60%

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Footnote

Arup Acoustics (HK) is not a registered HOKLAS accredited calibration laboratory. This certificate is for internal use only (unless otherwise authorised) and is part of Arup Acoustics (HK) development and commitment to QC and QA procedures.

ARUP

Arup Acoustics (HK)
Level 5 Festival Walk
80 Tat Chee Avenue
Kowloon Tong, Kowloon
HONG KONG
Tel: 2268 3216
Fax: 2268 3950

AAc Certificate No. *2003006*

CERTIFICATE OF CONFORMITY

Description of Test Instrument	Type No.	Serial No.
Bruel & Kjaer Sound Level Meter	*2238*	*2320694*
Bruel & Kjaer ½" Microphone	*4188*	*2274284*

Date of Test: *18 August 2003*

Carried out by: *Steven Wong*

Approved by: *William Ng*

Signature: Steven

Signature: William Ng

Ambient Conditions During Test:	
Atmospheric Pressure:	1KPa
Air Temperature:	22°C
Relative Humidity:	60%

This document is to certify that the above Test Instrumentation did conform to the manufacturer's original specification on the date of the test. Any adjustments that were required to bring the instrumentation back into specification are duly noted in this document.
The tests were carried out using the reference calibrator described below.

Description of Reference Calibrator	Type No.	Serial No.
Bruel & Kjaer Multi Frequency Calibrator	*4226*	*1531372*

Certificate of Calibration No. *11449*
By Bruel & Kjaer (A Division of Spectris (UK) Ltd) Calibration Date: *20 Mar 2003*

The reference calibrator, type 4226 has traceable calibrator back to National Measurement Standards. As such it is used as Arup Acoustics own 'Primary Standard' and is used only for controlled laboratory calibration tests on all sound measuring equipment owned by Arup Acoustics.

Footnote

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ARUP

Arup Acoustics (HK)
Level 5 Festival Walk
80 Tat Chee Avenue
Kowloon Tong, Kowloon
HONG KONG
Tel: 2268 3216
Fax: 2268 3950

AAc Certificate No. *2003007*

CERTIFICATE OF CONFORMITY

Description of Test Instrument	Type No.	Serial No.
Bruel & Kjaer Sound Level Meter	*2238*	*2320696*
Bruel & Kjaer ½" Microphone	*4188*	*2274206*

Date of Test: *18 August 2003*

Carried out by: *Steven Wong* Approved by: *William Ng*

Signature: Signature:

Ambient Conditions During Test:	
Atmospheric Pressure:	1KPa
Air Temperature:	22°C
Relative Humidity:	60%

This document is to certify that the above Test Instrumentation did conform to the manufacturer's original specification on the date of the test. Any adjustments that were required to bring the instrumentation back into specification are duly noted in this document.
The tests were carried out using the reference calibrator described below.

Description of Reference Calibrator	Type No.	Serial No.
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APPENDIX C

Detailed noise monitoring results for August 2003

Details of Noise Impact Monitoring

Date	NSR No.	Time periods		Weather condition	Avg. wind speed (m/s)	Noise Level dB(A)			Influencing factors/ Site condition
		Start	Finish			L_{eq}	L_{10}	L_{90}	
07-Aug-03	NM1	13:00	13:30	Sunny	0.5	69.0	74.5	62.5	Normal Operation
07-Aug-03	NM2	13:00	13:30	Sunny	0.5	67.5	71.5	62.0	Normal Operation
15-Aug-03	NM1	11:20	11:50	Sunny	0.5	67.0	70.0	62.5	Normal Operation
15-Aug-03	NM2	11:25	11:55	Sunny	0.6	65.5	69.0	60.5	Normal Operation
22-Aug-03	NM1	13:00	13:30	Fine	0.4	67.0	72.5	61.5	Normal Operation
22-Aug-03	NM2	13:00	13:30	Fine	0.5	66.5	70.0	62.0	Normal Operation
26-Aug-03	NM1	13:10	13:40	Sunny	0.7	67.0	70.5	62.0	Normal Operation
26-Aug-03	NM2	13:50	14:20	Sunny	0.6	68.5	73.0	61.5	Normal Operation

APPENDIX D

Trip ticket of chemical waste disposal

For Item 3

Environmental Protection Department
Disposal of Special Waste at Landfill
Admission Ticket

Serial No. **4309**

(for official Use)

A. WASTE PRODUCER 甲、廢物產生者

Company Name: Ming Chun Construction Co. Ltd.
Address: Tsuen Wan No.1 Pumping station (Between Wai Tsuen Rd & Mlu Kong St.) Tsuen Wan
Contact Person: Mr. Ho Lam Sum
Capacity: Project Manager
Tel. No.: 2728 3613
Previous Admission No.:

Authorized Signature for Sections A & B
Signed: [signature]
Name: Ho Lam Sum
Company chop: [stamp]
Date: 4 AUG 2003

B. WASTE COLLECTOR 乙、廢物收集者

Company Name: Kam Ming E.P. Engineering Co. Ltd.
Address: Rm. 09-10, 12/F. Fortune Comm. Bldg, 362 Sha Tsui Rd., Tsuen Wan
Contact Person: Chan Lai Sheung
Capacity: Manageress
Tel. No.: 2407 3377
Proposed disposal site: Sent Landfill

Signed: [signature]
Name: Chan Lai Sheung
Company chop: [stamp]
Date: 4 AUG 2003

C. DETAIL OF WASTE 丙、廢物資料

Waste type (please tick one box only):

- [x] Sludge with ...
- [ ] ... liquid content ...
- [ ] Treated ...
- [ ] Contaminated goods with high ... content
- [ ] Others
- [ ] Abattoir waste
- [ ] Experimental waste
- [ ] Animal carcasses
- [ ] Tyres

Description: Unwanted contaminated soil

Location of waste: Tsuen Wan
Quantity: 2600 kg Tonnes/cu m (* total per day/ per week/ per month)

(*Delete as not applicable)

D. ADMISSION NOTICE NO. 丁、 S01/912/4309 Validity Period 有效期 12.8.03-11.9.03

Allowable Disposal site: WENT [ ] NENT [ ] SENT [✓]
Date: 12.8.03
Maximum quantity: 3 tonnes total
Delivery time: 8 am - 8 pm (3 days advance booking is not necessary)
Disposal method: Tipping Face

Advance booking for disposal of waste (at least 3 working days before disposal) is / is not necessary.
SENT Landfill Tel 2706 8888
Waste Type: 2L
Follow the instructions provided by landfill site staff and attached the guideline.
Waste Origin: 32
Please arrange for the presence of your authorised personnel to witness/ supervise the disposal of waste if necessary.
Complete section E and submit the Admission Ticket to weighbridge operator upon arrival at landfills.

[signature]
(Philip Y. C. Tang)
for Director of Environmental Protection
環境保護署署長（鄧日初代行）

ENVIRONMENTAL PROTECTION DEPARTMENT FMG

Note:-
Your application has been assessed based on the information submitted at time of application. Should you have any difficulty in following all the conditions in disposing of your waste, you may write or fax to EPD at the Facilities Management Group, Environmental Protection Dept, 4/F., West Wing, 88 Victoria Road, Kennedy Town, Hong Kong. (Fax No. 2872 0501.)

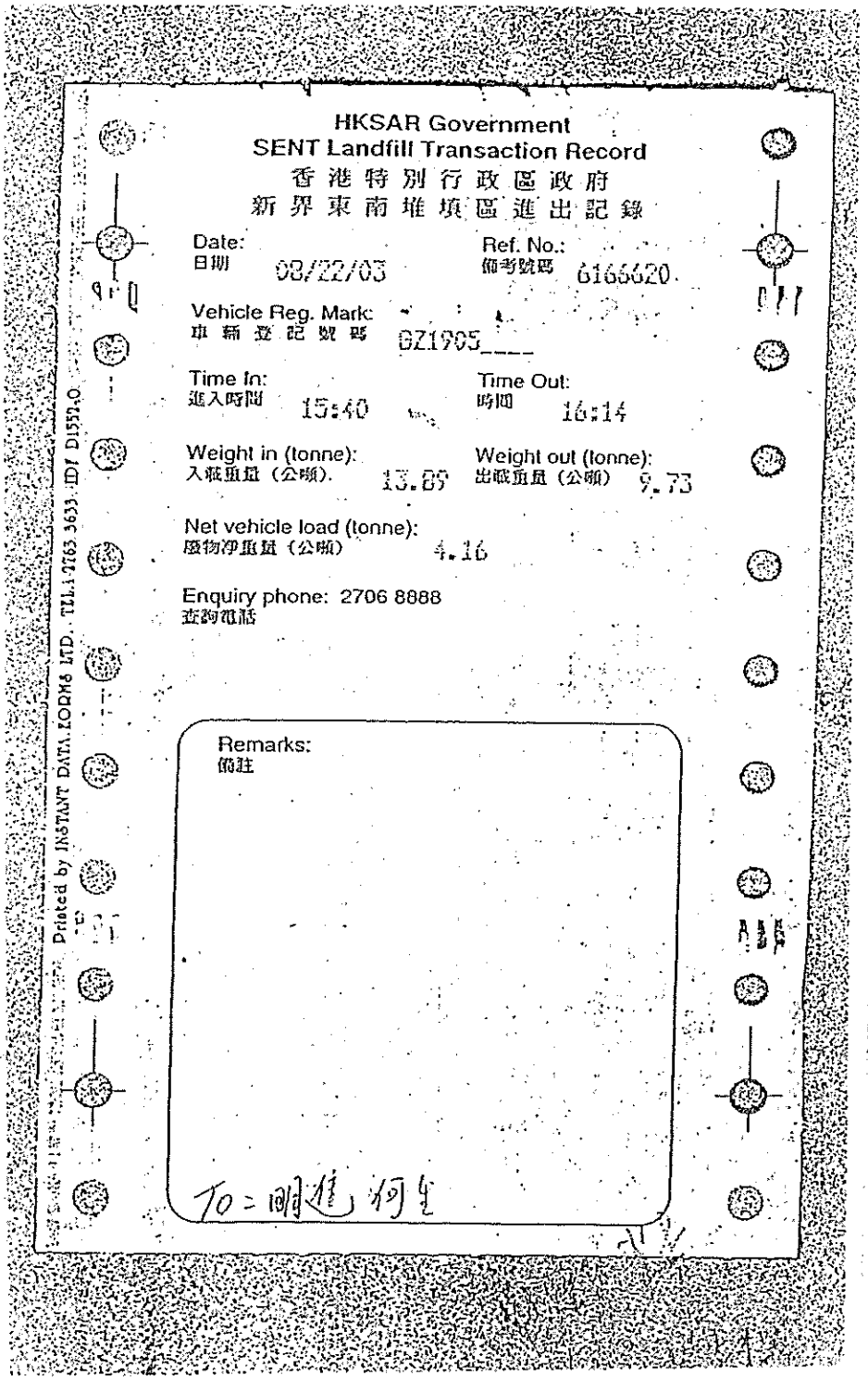
E. ADMISSION TICKET 戊、 TO : WENT 新界西 [ ] NENT 新界東北 [ ] SENT 新界東南 [ ] Landfill 堆填區

Date of disposal: 22-8-03
Vehicle No.: GZ1905
Waste type:
Quantity: 2600 KG.
Liquid content (if applicable): —
Location & depth of Waste: 荃灣

Signature: [signature]
Name: L.S. Ho.
Rank: Project Manager
Tel. No.: 27283613

Company chop of Waste Producer: [stamp]

For Item 3



HKSAR Government
SENT Landfill Transaction Record
香港特別行政區政府
新界東南堆填區進出記錄

Date:
日期 08/22/03

Ref. No.:
備考號碼 6166620

Vehicle Reg. Mark:
車輛登記號碼 GZ1905____

Time In:
進入時間 15:40

Time Out:
時間 16:14

Weight in (tonne):
入廠重量（公噸） 13.89

Weight out (tonne):
出廠重量（公噸） 9.73

Net vehicle load (tonne):
廢物淨重量（公噸） 4.16

Enquiry phone: 2706 8888
查詢電話

Remarks:
備註

To = 明進 物業

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