

Issue No. : 1
Issue Date : November 2009
Project No. : 768

**JOINT USER COMPLEX AND
WHOLESALE FISH MARKET AT
AREA 44, TUEN MUN**

**FIFTH QUARTERLY
ENVIRONMENTAL MONITORING &
AUDIT REPORT
(AUGUST 2009 – OCTOBER 2009)**

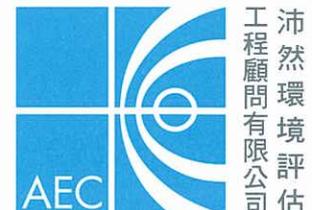
Prepared By:

ALLIED ENVIRONMENTAL CONSULTANTS LTD.

COMMERCIAL-IN-CONFIDENCE

Allied Environmental Consultants Limited
Acousticians & Environmental Engineers

19/F., Kwan Chart Tower, 6 Tonnochy Road, Wan Chai, Hong Kong
Tel: (852) 2815 7028 Fax: (852) 2815 5399 Email: info@aechk.com



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Author: 

Nic Lam
BSc(Hons)

Checked: 

Adi Lee
BEng(Hons) MEng MHKIEIA

Approved: 

Grace Kwok
BEng(Hons) MHKIEIA MHKIOA
MISWA MIAIA MRAPA LEED AP

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EXECUTIVE SUMMARY

Allied Environmental Consultants Limited (AEC) has been appointed to conduct an environmental monitoring and audit (EM&A) program for the proposed Joint User Complex and Wholesale Fish Market at Area 44, Tuen Mun. The construction works was commenced on 31st July 2008. This report is the fifth quarterly EM&A report, which summarizes the environmental monitoring and audit results recorded during the period from 1st August 2009 to 31st October 2009.

Based on the monitoring results, the air quality and construction noise level complied with the environmental requirements in EM&A Manual. There were no environmental complaints received in this quarter. No notification of summons or prosecution was received.

Construction activities undertaken from August 2009 to October 2009 included construction of superstructure from G/F to M/F, M/F to 1/F and 1/F to 2/F, installation of E&M services concealed conduit to wall and slab of superstructure and construction of underground E&M services. Potential environmental impacts include dust generation from stockpiles of dusty materials, the superstructure and the underground building services; noise from operation of the equipments; runoff from underground building services and the storage of various C&D and chemical wastes. The Contractor should properly implement the required environmental mitigation measures as per the implementation schedule in the EM&A manual to ensure no significant adverse environmental impacts to be arisen from the construction works. The Contractor was reminded to maintain good housekeeping throughout the construction phase.

1. PROJECT BACKGROUND

A Joint User Complex and Wholesale Fish Market (WFM Complex) at Area 44 in Tuen Mun is proposed to be designed and built by Architectural Services Department on behalf of Agriculture, Fisheries and Conservation Department, Marine Department, and Food and Environmental Hygiene Department of the Hong Kong SAR. The WFM Complex is to provide a permanent site for the relocation of the existing temporary wholesale fish market at Tuen Mun Area 27 and to accommodate a community hall and dragon boat racing spectator stand for public use. The proposed development is a 3-storey complex to accommodate the wholesale fish market at the ground floor, a community hall on the first and second floors, and an extensive landscaped deck on roof level. The proposed Wholesale Fish Market is categorized as a designated project under the Environmental Impact Assessment Ordinance (EIAO) and therefore a detailed Environmental Impact Assessment (EIA-085/2002) has been conducted in year 2002 and an Environmental Permit (EP-296/2007) was issued by Environmental Protection Department in December 2007.

The subject site is located at Castle Peak Bay of Tuen Mun given in Figure 1. The subject site is bounded to the north by a future local open space presently used as a temporary car park, to the east by Castle Peak Bay typhoon shelter, to the south by a future lorry park and to the west by Wu Shan Road. Yuet Wu Villa being the nearest residential establishment is located at around 85m from the site boundary.

1.1 Project Organization and Contact Personnel

Key personnel and contact particulars are summarized in Table 1.

Table 1 Contact Details of Key Personnel

Role	Department / Company	Names	Contact Number	Fax Number
Lead User Department	Agriculture, Fisheries, and Conservation Department	Mr. K.H. Chan Ms. Louise Li	2150 7092 2150 7104	2314 2866
Environmental Permit Holder	Architecture Services Department	Mr. S.W. Chow Ms. Susana Chan	2867 3716 2867 3706	2523 9622
Architect	P&T Architects and Engineers Ltd.	Ms. Sarah Ng Ms. Vivian Law	2835 3548 2832 3046	2891 3834
Main Contractor	W. Hing Construction Co. Ltd.	Mr. Andy Chan Mr. Jim Lee	9630 7404 6105 4076	8343 9188
Environmental Team Leader	Allied Environmental Consultants Ltd.	Ms. Grace Kwok	2815 7028	2815 5399
Independent Environmental Checker	Cinotech Consultants Ltd.	Dr. Priscilla Choy	2151 2089	3107 1388

2. SENSITIVE RECEIVERS

Air Sensitive Receivers (ASRs) within 500m include Yuet Wu Villa, Lawn Bowling Field, Tennis Court, which are less than 100m away from the subject site. Tuen Mun Wu Hong Clinic is located to the west at about 100m to the site boundary. Two secondary schools, namely Ka Chi Secondary School and South Tuen Mun Government Secondary School, are approximately 300m to the south of the site boundary.

Noise Sensitive Receivers (NSRs) within 300m are Yuet Wu Villa, Siu Hei Court, Yan Chai Hospital Low Chan Chor Si Primary School and Wu King Estate. The nearest NSR will be Block 15 of Yuet Wu Villa.

3. SUMMARY OF EM&A REQUIREMENT

For regular impact monitoring, the sampling frequency of at least once in every six-days, shall be strictly observed at the monitoring station for 24-hr TSP monitoring. For 1-hr TSP monitoring, the sampling frequency of at least three times in every six-days should be undertaken when the highest dust impact occurs. For noise monitoring, one set of measurement between 0700-1900 hours on normal weekdays. $Leq_{(30 \text{ min})}$ shall be used as the monitoring parameter.

From baseline monitoring results, the proposed Action and Limit Levels for air quality are summarized in Table 2. The average baseline 1-hr TSP value of $129\mu\text{g}/\text{m}^3$ and 24-hr TSP value of $65\mu\text{g}/\text{m}^3$ measured at Block 15, Yuet Wu Villa was used to determine the action and limit level for air quality impact monitoring. The proposed Action and Limit Levels for construction noise are summarized in Table 3.

Table 2 Action and Limit Level for Air Quality Impact Monitoring at Yuet Wu Villa

<i>Parameters</i>	<i>Baseline Level ($\mu\text{g}/\text{m}^3$)</i>	<i>Action Level ($\mu\text{g}/\text{m}^3$)</i>	<i>Limit Level ($\mu\text{g}/\text{m}^3$)</i>
24 Hour TSP Level	65	173	260
1 Hour TSP Level	129	334	500

Table 3 Action and Limit Levels for Construction Noise Impact Monitoring

Time Period	Action Level	Limit Level
Daytime (0700-1900 hours) on weekdays	When one documented compliant is received	Dwelling 75dB(A) ¹ School 70dB(A) ¹ (65dB(A) during examinations) ¹
1900-2300 on any day and 0700-2300 on Sunday and general holidays, for use of PME ²	When one documented compliant is received	65dB(A) ³
All days during the night-time (2300-0700 hours) ²	When one documented compliant is received	50dB(A) ³

Note: 1. Construction noise criteria stipulated in the TM-EIAO

2. A Construction Noise Permit (CNP) shall be required for the carrying out of the construction work during the restricted hours (1900-2300 on any day and 0700-2300 on Sunday and general holidays, for use of PME; and All days during the night-time (2300-0700 hours))

3. Area sensitivity rating of the monitoring location is "B".

Should non-compliance of the above Action and Limit levels occurs, the contractor shall undertake corresponding action in accordance with the proposed Event Action Plan given in EM&A Manual. A summarized general Event Action Plan is given in Table 4. Details should be referred to the Event Action Plan in the EM&A Manual.

Table4 Event Action Plan

Level	Step 1	Step 2	Step 3
Action	<ul style="list-style-type: none"> ● Identify source ● Check monitoring data and working methods 	<ul style="list-style-type: none"> ● Contact project manager to discuss and implement remedial action ● Rectify any unacceptable practice ● Amend working methods if appropriate ● If exceedance continues, commence additional monitoring 	<ul style="list-style-type: none"> ● Notify client/project manager following correct of the situation ● Cease additional monitoring if exceedance stops
Limit	<ul style="list-style-type: none"> ● Identify source ● Notify client/project manager ● Check monitoring data and working methods ● Repeat measurement to confirm finding ● Commence additional 	<ul style="list-style-type: none"> ● Take immediate action to avoid further exceedance ● Submit proposal for remedial actions to client/project manager within 3 working days ● Implement the agreed proposal 	<ul style="list-style-type: none"> ● Notify client/project manager following correction of the situation ● Cease additional monitoring if exceedance stops

	monitoring	<ul style="list-style-type: none"> If exceedance continues, amend and resubmit the proposal 	
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4. MONITORING METHODOLOGY

4.1 Monitoring Programme

Air quality monitoring and noise monitoring were conducted at Block 15, Yuet Wu Villa on 6th, 12th, 18th, 24th and 29th August, 4th, 10th, 16th, 22nd and 28th September, 2nd, 8th, 14th, 20th and 27th October 2009. Appendix A displayed the detail schedule of the monitoring programme. Air quality monitoring station was set up at the roof top of the residential block and noise monitoring was conducted at 1.2m above ground level in front of the residential block and at the junction of Wu Sau Street and Wu On Street as given in Figure 2 and 3. Figure 4 and 5 show photos taken during monitoring at the two locations.

A construction site for the proposed Junior Police Officers' Married Quarters is located at Wu Hong Street which is 110m northwest from the monitoring location, which is also a potential major source of the TSP generation. Figure 6 shows the photos of the construction site.

4.2 Air Quality Monitoring

1-hour and 24-hour TSP air quality monitoring was conducted at the designated air quality monitoring location using a High Volume TSP Sampler (Model No: Anderson GMWS-2310 ACCU-VOL) at the designated location. The Calibration Record of the High-Volume TSP Sampler is given in Appendix B. 24-hour TSP samples were taken every six days. 1-hour TSP samples were taken three times a day between 0700-1900 hours.

4.3 Noise Monitoring

Noise monitoring was conducted at the designated noise monitoring location between 0700-1900 hours using a sound level meter which complies with the International Electrotechnical Commission Publications 651:1979 (Type 1) and 804:1985 (Type 1). Noise instrumentation details are given in Table 5 and the Calibration Certificate for the sound level meter and calibrator is given in Appendix C.

Table 5 Noise Monitoring Equipment

Manufacturer	Type/Model No.	Equipment
RION	Model NL 31	Precision Sound Level Analyzer with windshield
RION	Model NC 73	Calibrator

Noise levels measurements were recorded in terms of thirty minutes A-weighted equivalent continuous sound pressure level ($L_{eq(30min)}$) on a weekly basis. The sound level meter was calibrated immediately prior to and following each noise measurement. The meter was mounted on a tripod at a height of 1.2m and the microphone was positioned at 1m away the building façade of the noise monitoring station facing the construction site.

Noise measurements were not made in the presence of fog, rain, and wind with a steady speed exceeding 5m/s or wind with gusts exceeding 10m/s. The wind speed was checked with a portable anemometer capable of measuring the wind speed in m/s.

5. RESULTS

5.1. Air Quality

No exceedance was recorded in this quarter. Summary and graphical plots of air quality monitoring record of 1-hour TSP levels and 24-hour TSP levels are provided in Appendices D and E. The weighing of the filter paper used in the monitoring will be undertaken by ASL Laboratory Group Environmental Division.

5.2. Noise

Noise monitoring results in terms of $L_{eq(30min)}$, $L_{10(30min)}$ $L_{90(30min)}$ were measured at the designated noise monitoring location. L_{10} and L_{90} represent sound levels that are exceeded 10% and 90% of the time respectively. Normally, L_{10} measurements can be considered as the average peak levels, whilst L_{90} levels can be considered as the average background noise levels.

No exceedance was recorded in this quarter. Summary of noise monitoring record is provided in Appendix F.

5.3. Weather Conditions

Weather data of the monitoring station were obtained from the nearest Hong Kong Observatory (HKO) Tuen Mun automatic weather station located at Tuen Mun Town Park (63 mPD). Table 6 summarizes the wind data during the monitoring dates. Wind record from HKO is shown in Appendix G.

Table 6 Summary of Weather Conditions during the Monitoring Period

Date	Weather	Prevailing Wind Direction	Daily Average Wind Speed (m/s)
6 Aug 2009	Cloudy	SE	3.81
12 Aug 2009	Cloudy	S	1.60
18 Aug 2009	Fine	Maintenance	Maintenance
24 Aug 2009	Sunny	SE	1.93
29 Aug 2009	Sunny	S	1.78
4 Sep 2009	Sunny	SE	2.56
10 Sep 2009	Fine	NE	2.79
16 Sep 2009	Cloudy	SE	3.55
22 Sep 2009	Sunny	NE	3.36
28 Sep 2009	Cloudy	NE	3.18
2 Oct 2009	Sunny	N	1.98
8 Oct 2009	Sunny	SE	2.24
14 Oct 2009	Rainy	NE	2.14
20 Oct 2009	Cloudy	NE	2.01
27 Oct 2009	Sunny	SE	3.21

6. SITE INSPECTION & AUDIT

Weekly site inspections were carried out by representatives of the ET. Thirteen site inspections were conducted on 6th, 12th, 18th, 24th and 29th August 2009, 4th, 10th, 16th, 22nd and 28th September 2009, 2nd, 8th, 14th, 20th and 27th October 2009. Key findings are summarized in Table 7.

The mitigation measures undertaken by the Contractor are effective in minimizing the environmental impact; however, the Contractor should implement these mitigation measures more effectively in order to prevent causing any adverse environmental impact.

Table 7 Summary of Site Inspections

Date	Observations	Action taken by contractor	Outcome
7/8/2009	No observations during inspection.	Contractor was required to keep up with the mitigation measures.	
14/8/2009	No observations during inspection.	Contractor was required to keep up with the mitigation measures.	
21/8/2009	Haul road appeared dry.	Contractor was requested to increase the frequency of watering.	The situation was rectified immediately.
28/8/2009	No observations during inspection.	Contractor was required to keep up with the	

		mitigation measures.	
18/6/2009	Haul road appeared dry.	Contractor was requested to increase the frequency of watering.	The situation was rectified immediately.
4/9/2009	Haul road appeared dry.	Contractor was requested to increase the frequency of watering.	The situation was rectified immediately.
10/9/2009	No observations during inspection.	Contractor was required to keep up with the mitigation measures.	
17/9/2009	No observations during inspection.	Contractor was required to keep up with the mitigation measures.	
25/9/2009	Haul road appeared dry.	Contractor was requested to increase the frequency of watering.	The situation was rectified immediately.
2/10/2009	Haul road appeared dry.	Contractor was requested to increase the frequency of watering.	The situation was rectified immediately.
9/10/2009	No observations during inspection.	Contractor was required to keep up with the mitigation measures.	
16/10/2009	Haul road appeared dry.	Contractor was requested to increase the frequency of watering.	The situation was rectified immediately.
23/10/2009	No observations during inspection.	Contractor was required to keep up with the mitigation measures.	
30/10/2009	No observations during inspection.	Contractor was required to keep up with the mitigation measures.	

During site inspections in this quarter, no non-conformance of implementation of environmental mitigation measures was identified. All environmental mitigation measures for construction stages stated in the approved EIA Report, EM&A Manual and Environmental Permit shall be carried out throughout the whole construction period as shown in Appendix H.

7. NON-COMPLIANCE, COMPLAINTS, NOTIFICATIONS OF SUMMONS AND SUCCESSFUL PROSECUTIONS

In this quarter, no complaints, inspection notices, and notifications of summons or prosecution were received.

8. OTHERS

1581.63 tonnes of inert C&D waste was disposed at public fill. 94.8 tonnes of waste was disposed to landfill. No chemical waste was transported off site in this quarter.

9. RECOMMENDATIONS AND CONCLUSIONS

9.1. Recommendations

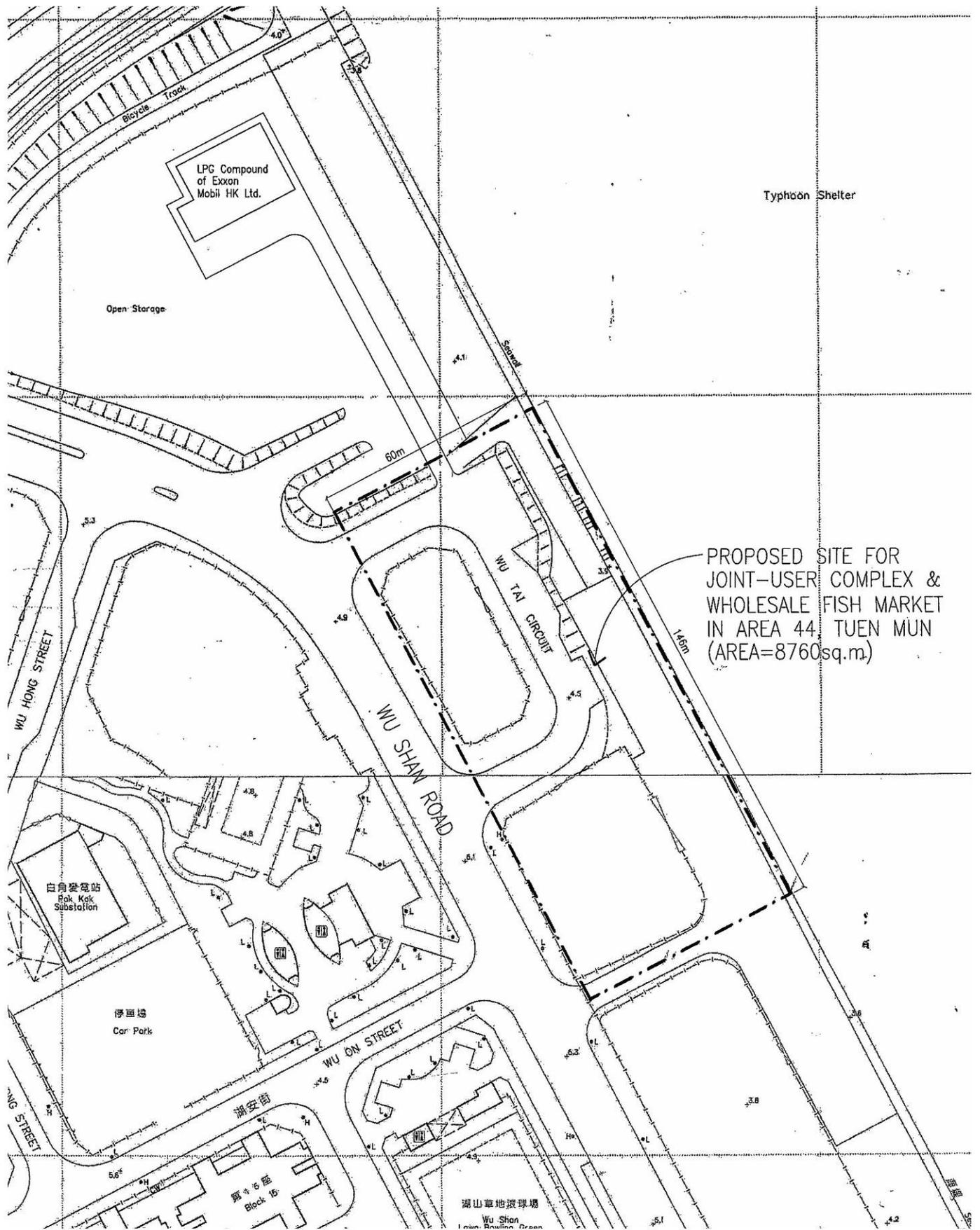
In accordance with the environmental site audits undertaken during the reporting quarter, the following recommendations are made:

- Increase the frequency of watering when the haul road appeared dry.

The ET will keep track on the EM&A programme to ensure compliance of environmental requirements and proper implementation of all necessary mitigation measures.

9.2. Conclusions

Environmental monitoring has been carried out for the proposed Joint User Complex and Wholesale Fish Market at Area 44, Tuen Mun. 1-hour and 24-hour TSP air quality monitoring and noise monitoring was conducted at Block 15, Yuet Wu Villa during the period from 1st August 2009 to 31st October 2009, in accordance with EM&A Manual and the requirement under Environmental Permit (No. EP-296/2007). All monitoring results were checked and reviewed. 45 sets of 1-hour TSP level monitoring, 15 sets of 24-hour TSP level monitoring, and 15 sets of noise monitoring were carried out during the reporting quarter. No exceedance of any of the monitoring data was recorded. No environmental complaints and notification of summons or prosecution were received during the second quarter.



**JOINT USER COMPLEX AND WHOLESALE FISH MARKET AT AREA 44,
TUEN MUN
SITE LOCATION PLAN**

Figure No.

1

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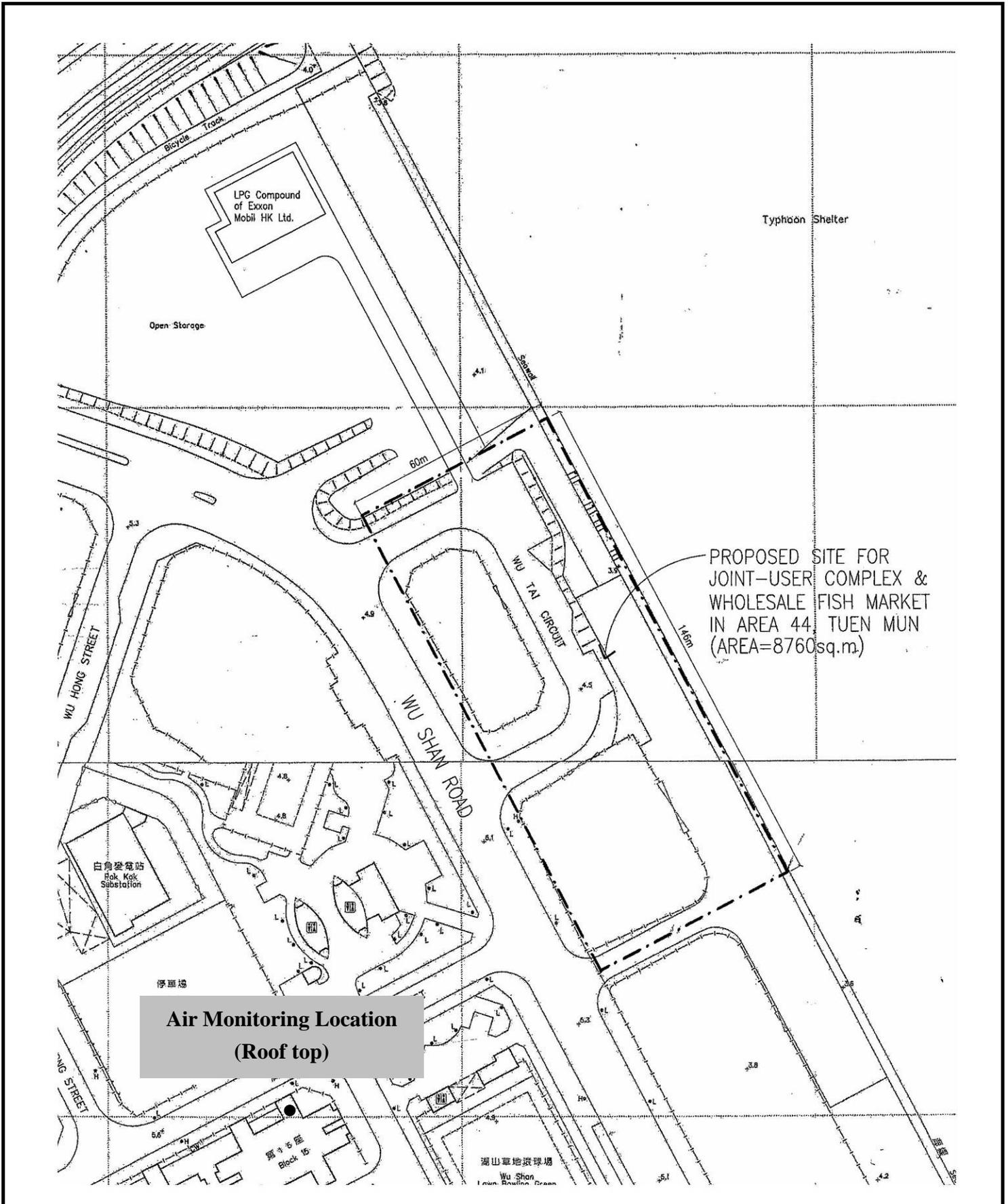
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Date

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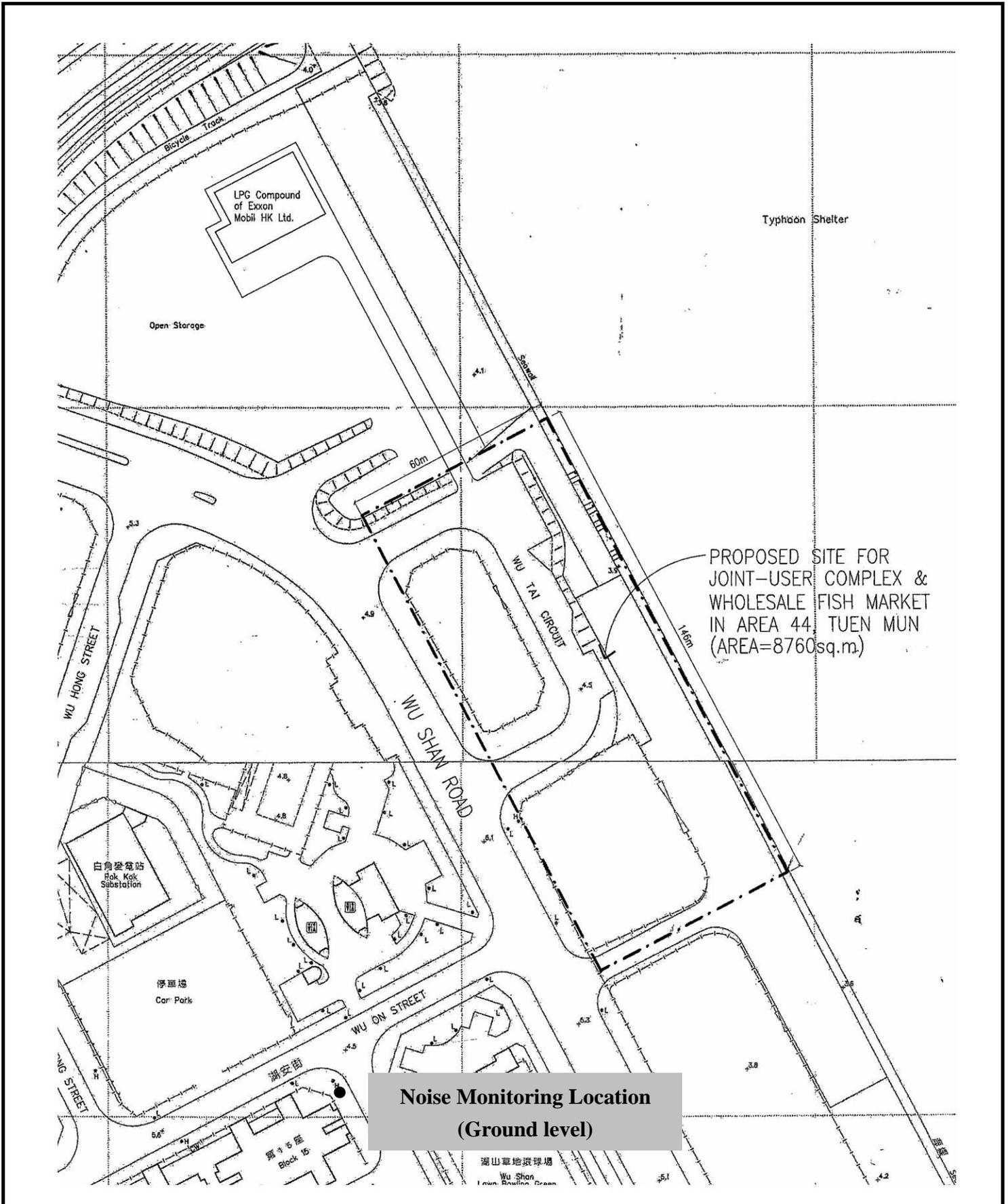


**JOINT USER COMPLEX AND WHOLESALE FISH MARKET AT AREA 44,
TUEN MUN**

LOCATION OF AIR QUALITY MONITORING STATION

Figure No.	Rev.:
2	0
Scale	Date
NTS	11/09





**JOINT USER COMPLEX AND WHOLESALE FISH MARKET AT AREA 44,
TUEN MUN
LOCATION OF NOISE MONITORING STATION**

Figure No.	3	Rev.:	0
Scale	NTS	Date	11/09





Roof top of Block 15, Yuet Wu Villa



High-Volume Dust Sampler

**JOINT USER COMPLEX AND WHOLESALE FISH MARKET AT AREA 44,
TUEN MUN
PHOTOS OF AIR QUALITY MONITORING STATION**

Figure No.

4

Rev.:

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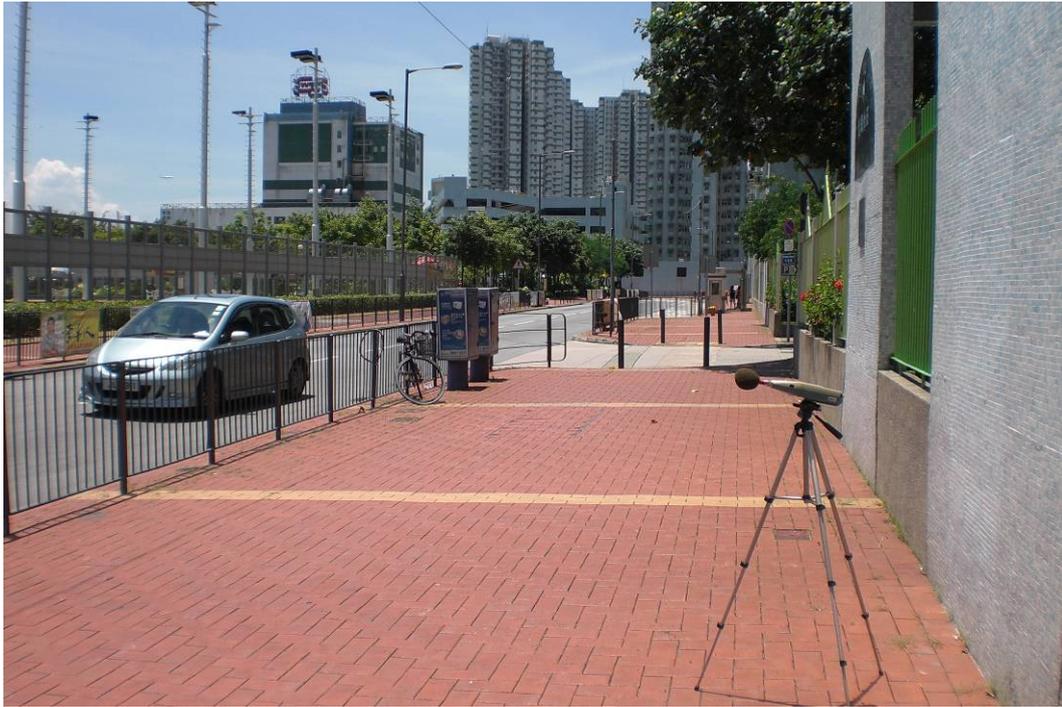
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Date

11/09





Noise monitoring station



View from the noise monitoring station

**JOINT USER COMPLEX AND WHOLESALE FISH MARKET AT AREA 44,
TUEN MUN
PHOTOS OF NOISE MONITORING STATION**

Figure No.

5

Rev.:

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NTS

Date

11/09





**JOINT USER COMPLEX AND WHOLESALE FISH MARKET AT AREA 44,
TUEN MUN**

PHOTO OF CONSTRUCTION SITE FOR JUNIOR POLICE OFFICERS' MARRIED QUARTERS

Figure No.

6

Rev.:

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Scale

NTS

Date

11/09



Appendix A

Detail Schedule of Monitoring Programme

Schedule for air and noise monitoring programme of Tuen Mun Wholesale Fish Market

Monitoring schedule for the reporting month

Date	Start Time
6 th August 2009	08:40
12 th August 2009	08:40
18 th August 2009	08:40
24 th August 2009	13:00
29 th August 2009	08:40
4 th September 2009	13:00
10 th September 2009	08:40
16 th September 2009	08:40
22 nd September 2009	13:00
28 th September 2009	08:40
2 nd October 2009	08:40
8 th October 2009	08:40
14 th October 2009	08:50
20 th October 2009	08:40
27 th October 2009	08:40

Monitoring schedule of the coming month

Date	Time
2 nd November 2009	To be confirmed
7 th November 2009	To be confirmed
13 th November 2009	To be confirmed
19 th November 2009	To be confirmed
25 th November 2009	To be confirmed

Appendix B

Calibration Record of High-Volume TSP Sampler

High-Volume TSP Sampler
5-Point Calibration Record

Location : A1, Yuet Wu Villa
Calibrated by : P.F.Yeung
Date : 5/07/09

Sampler

Model : GMWS-2310 ACCU-VOL
Serial Number : S/N 0890

Calibration Orifice and Standard Calibration Relationship

Serial Number : CM-AIR-43
Service Date : 10 July 2008
Slope (m) : 0.056389
Intercept (b) : -0.025123
Correlation Coefficient(r) : 0.999909

Standard Condition

Pstd (hpa) : 1013
Tstd (K) : 298.18

Calibration Condition

Pa (hpa) : 1012
Ta(K) : 303

Zero Error of Sampler Flow Rate Indication

IO : 0.0

Resistance Plate	dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC (indicated flow)	Y
1 18 holes	12.5	3.560	1.719	62	62.4
2 13 holes	9.8	3.152	1.595	52	52.4
3 10 holes	7.8	2.812	1.428	44	44.3
4 7 holes	4.8	2.206	1.123	30	30.2
5 5 holes	3.0	1.744	0.892	18	18.1

Sampler Calibration Relationship

Slope(m): 48.427 Intercept(b): -24.712 Correlation Coefficient(r): 0.9998

Checked by: Magnum Fan

Date: 6/07/09

To: Allied
Recd: Mr. Lam

High-Volume TSP Sampler
1-Point Calibration Record

Location : A1
Calibrated by : P.F. Yeung
Date : 4/9/09

Sampler

Model : GMWS-2310 ACCU-VOL
Serial Number : S/N 0890

Calibration Office and Standard Calibration Relationship

Serial Number : CM-AIR-52
Service Date : 15 Dec 2008
Slope (m) : 0.057423
Intercept (b) : -0.026110
Correlation Coefficient(r) : 0.999909

Standard Condition

Pstd (hpa) : 1013
Tstd (K) : 298.18

Calibration Condition

Pa (hpa) : 1010
Ta(K) : 303

IC (Indicated flow) : 36 cfm

Actual flow : 1.25 m³/min

Checked by: Magnum Fan

Date: 12/09/09

Appendix C

*Calibration Certification of the Sound Level Meter
and Calibrator*



輝創工程有限公司

Sun Creation Engineering Limited Calibration and Testing Laboratory

Certificate No. : C092284

Certificate of Calibration

This is to certify that the equipment

Description : Sound Level Meter

Manufacturer : Rion

Model No. : NL-31

Serial No. : 00410224

has been calibrated for the specific items and ranges.

The results are shown in the Calibration Report No. C092284.

The equipment is supplied by

Co. Name : Envirotech Services Co.

*Address : Shop 6, G/F., Casio Mansion, 209 Shauketwan Road,
Hong Kong*

Date of Issue : 8 May 2009

Certified by :

K. Q. Lee

The test equipment used for calibration are traceable to the National Standards as specified in this report.
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Calibration and Testing Laboratory of Sun Creation Engineering Limited

ew. 4/F, Tsing Shan Wan Exchange Building, 1 Hong On Lane, Tuen Mun, New Territories, Hong Kong
Tel: 2927 2606 Fax: 2741 8986 E-mail: enfilab@suncreation.com Website: www.suncreation.com



輝創工程有限公司

Sun Creation Engineering Limited Calibration and Testing Laboratory

Certificate No. : C093598

Certificate of Calibration

This is to certify that the equipment

Description : Sound Level Calibrator

Manufacturer : Rion

Model No. : NC-73

Serial No. : 10786708

*has been calibrated for the specific items and ranges.
The results are shown in the Calibration Report No. C093598.*

The equipment is supplied by

C.O. NAME : Envirotech Services Co.

*Address : Shop 6, G/F., Casio Mansion, 209 Shaukeiwan Road,
Hong Kong*

Date of Issue : 10 July 2009

*Certified by : 
H.C. Chan*

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Appendix D

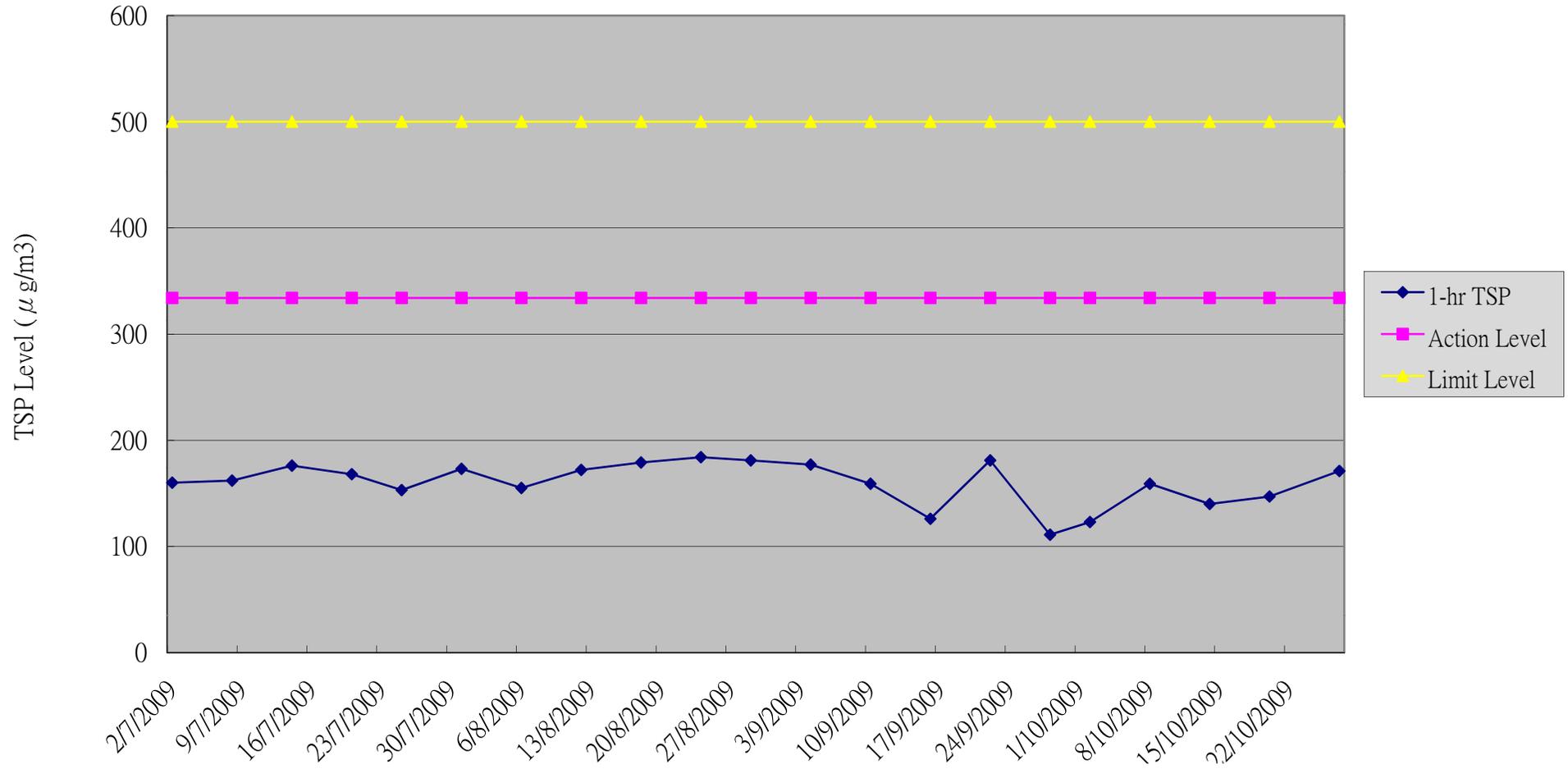
*Summary and Graphical Plot of 1-Hour TSP
Monitoring Record*

Impact Monitoring for Fish Market Project in Tuen Mun**Air Quality Monitoring: 1-hour TSP****Quarter: August 2009 - October 2009**

Date	Time	1-hr TSP ($\mu\text{g}/\text{m}^3$)	Average
6-Aug-09	08:40 - 09:40	140	155
	09:40 - 10:40	165	
	10:40 - 11:40	159	
12-Aug-09	08:40 - 09:40	168	172
	09:40 - 10:40	169	
	10:40 - 11:40	180	
18-Aug-09	08:40 - 09:40	167	179
	09:40 - 10:40	180	
	10:40 - 11:40	189	
24-Aug-09	13:00 - 14:00	176	184
	14:00 - 15:00	171	
	15:00 - 16:00	204	
29-Aug-09	08:40 - 09:40	165	181
	09:40 - 10:40	185	
	10:40 - 11:40	192	
4-Sep-09	13:00 - 14:00	172	177
	14:00 - 15:00	184	
	15:00 - 16:00	175	
10-Sep-09	08:40 - 09:40	152	159
	09:40 - 10:40	157	
	10:40 - 11:40	167	
16-Sep-09	08:40 - 09:40	121	126
	09:40 - 10:40	121	
	10:40 - 11:40	137	
22-Sep-09	13:00 - 14:00	175	181
	14:00 - 15:00	175	
	15:00 - 16:00	193	
28-Sep-09	08:40 - 09:40	101	111
	09:40 - 10:40	108	
	10:40 - 11:40	124	
2-Oct-09	08:40 - 09:40	116	123
	09:40 - 10:40	117	
	10:40 - 11:40	135	
8-Oct-09	08:40 - 09:40	143	159
	09:40 - 10:40	173	
	10:40 - 11:40	160	
14-Oct-09	08:50 - 09:50	119	140
	09:50 - 10:50	139	
	10:50 - 11:50	163	
20-Oct-09	08:40 - 09:40	149	147
	09:40 - 10:40	128	

	10:40 - 11:40	165	
27-Oct-09	08:40 - 09:40	161	171
	09:40 - 10:40	172	
	10:40 - 11:40	179	

1-hr TSP Levels (August 2009 - October 2009)



Appendix E

*Summary and Graphical Plot of 24-Hour TSP
Monitoring Record*

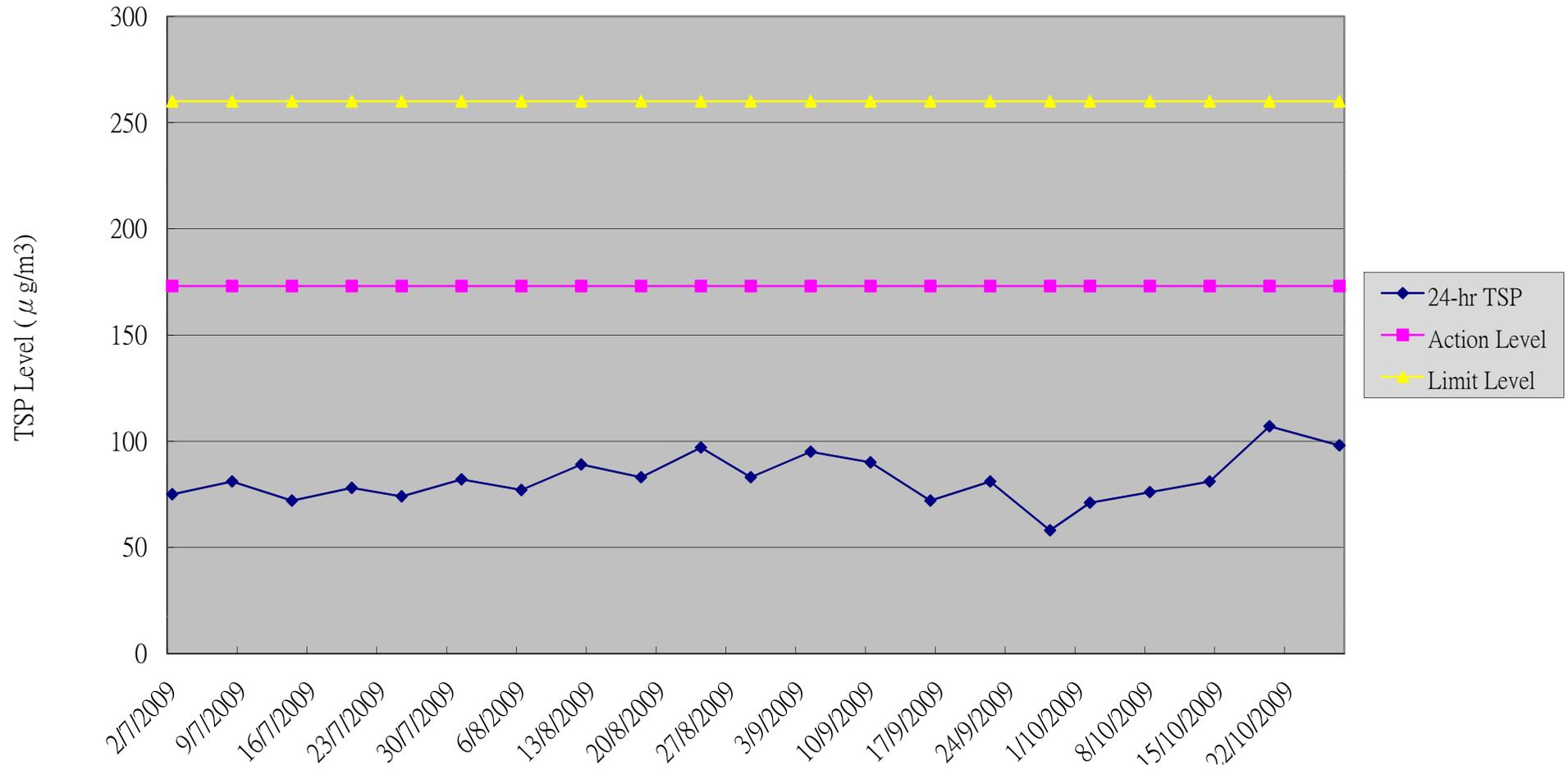
Impact Monitoring for Fish Market Project in Tuen Mun

Air Quality Monitoring: 24-hour TSP

Quarter: August 2009 - October 2009

Date	Start time	24-hr TSP ($\mu\text{g}/\text{m}^3$)
6-Aug-09	11:40	77
12-Aug-09	11:40	89
18-Aug-09	11:40	83
24-Aug-09	16:00	97
29-Aug-09	11:40	83
4-Sep-09	16:00	95
10-Sep-09	11:40	90
16-Sep-09	11:40	72
22-Sep-09	16:00	81
28-Sep-09	11:40	58
2-Oct-09	11:40	71
8-Oct-09	11:40	76
14-Oct-09	11:50	81
20-Oct-09	11:40	107
27-Oct-09	11:40	98

24-hour TSP Levels (August 2009- October 2009)



Appendix F

*Summary and Graphical Plot of Noise Monitoring
Record*

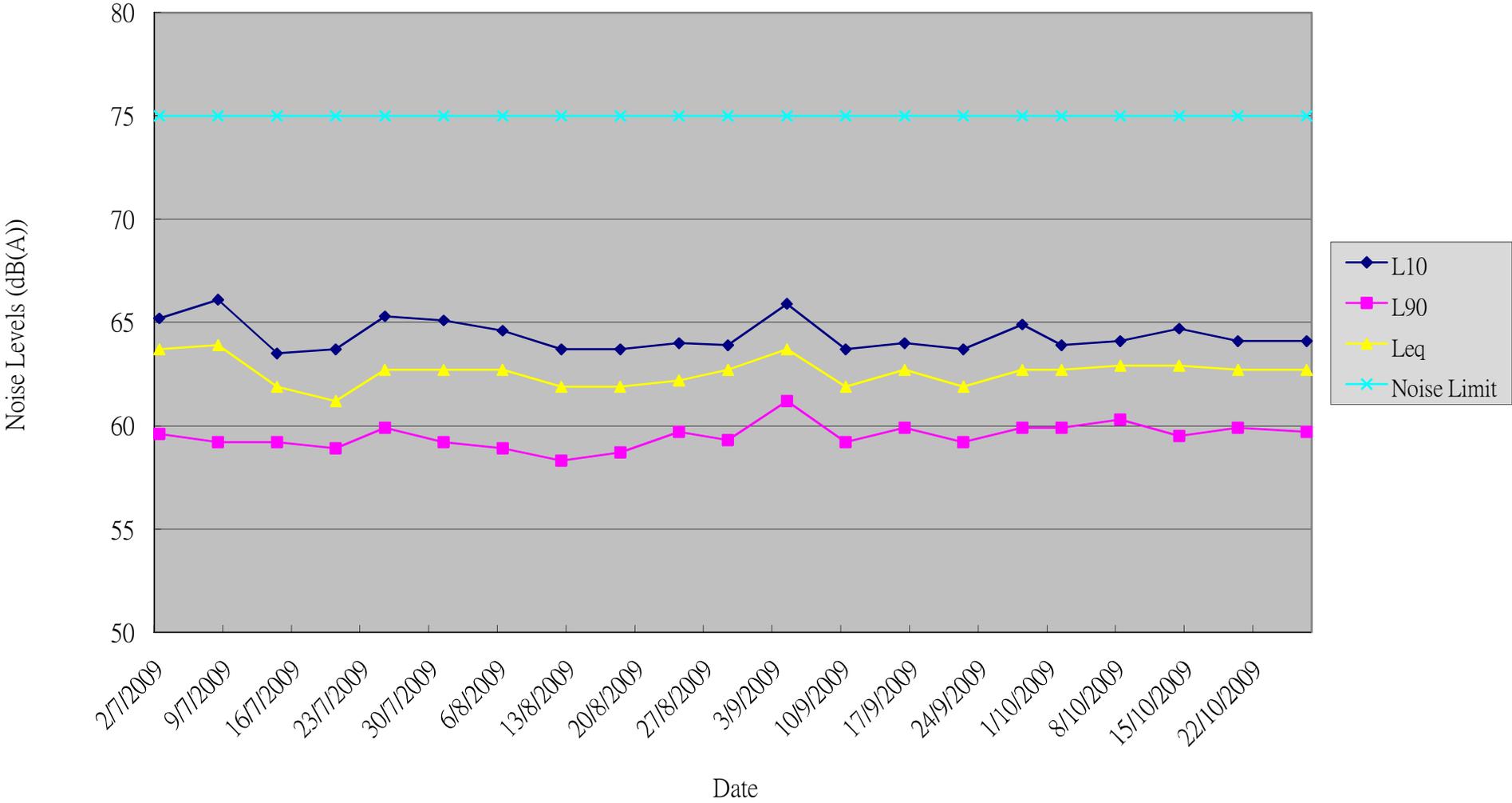
Impact Monitoring for Fish Market Project in Tuen Mun

Noise Monitoring

Quarter: August 2009 - October 2009

Date	Time	L10(30mins) (dB(A))	L90(30mins) (dB(A))	Leq(30mins) (dB(A))
6-Aug-09	09:00 - 09:30	64.6	58.9	62.7
12-Aug-09	09:10 - 09:40	63.7	58.3	61.9
18-Aug-09	09:00 - 09:30	63.7	58.7	61.9
24-Aug-09	13:10 - 13:40	64	59.7	62.2
29-Aug-09	09:00 - 09:30	63.9	59.3	62.7
4-Sep-09	13:10 - 13:40	65.9	61.2	63.7
10-Sep-09	09:05 - 09:35	63.7	59.2	61.9
16-Sep-09	09:45 - 10:15	64	59.9	62.7
22-Sep-09	13:10 - 13:40	63.7	59.2	61.9
28-Sep-09	09:05 - 09:35	64.9	59.9	62.7
2-Oct-09	09:05 - 09:35	63.9	59.9	62.7
8-Oct-09	09:00 - 09:30	64.1	60.3	62.9
14-Oct-09	10:40 - 11:10	64.7	59.5	62.9
20-Oct-09	09:10 - 09:40	64.1	59.9	62.7
27-Oct-09	09:00 - 09:30	64.1	59.7	62.7

Noise Monitoring Record (August 2009 - October 2009)

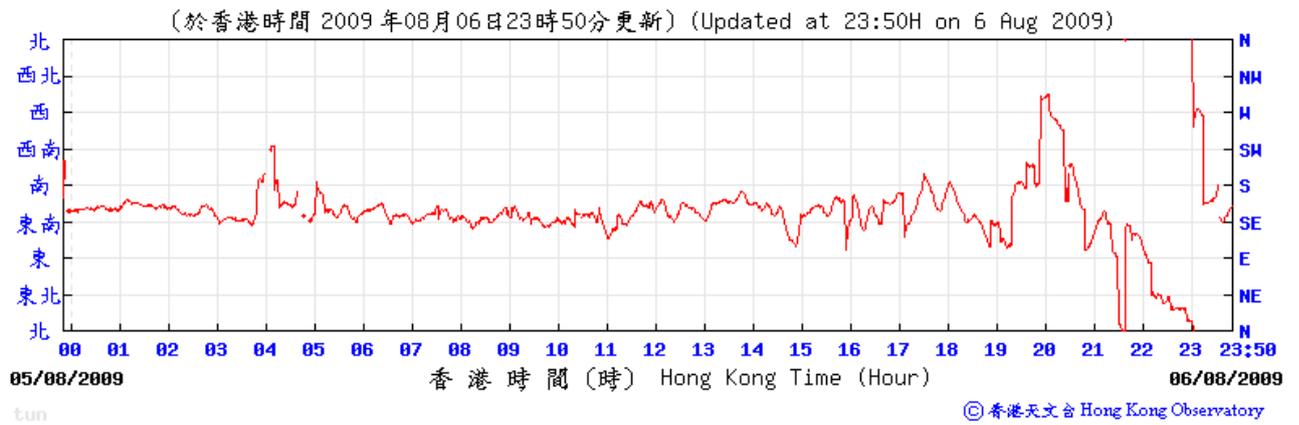


Appendix G

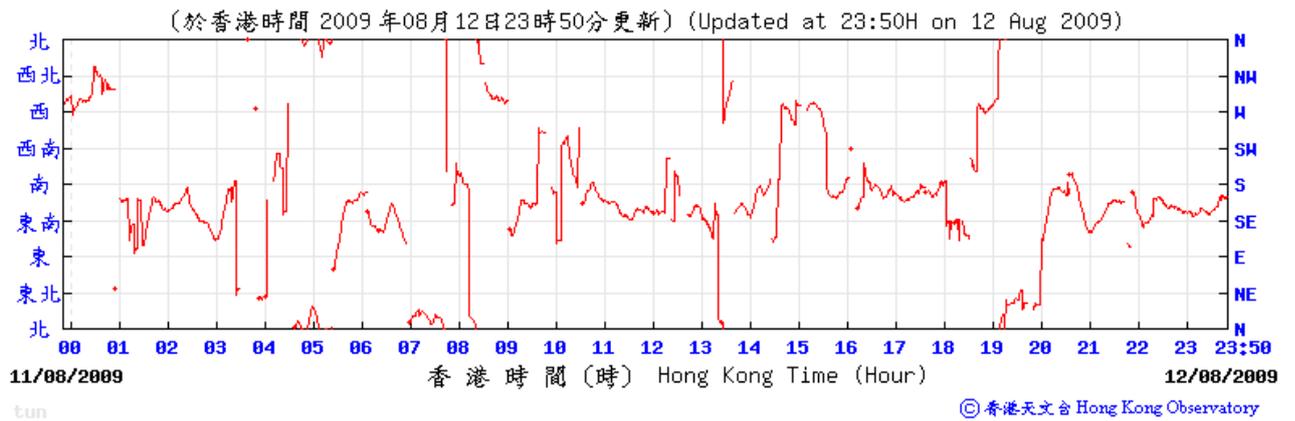
Wind Record from Hong Kong Observatory

Wind direction at Hong Kong Observatory (Tuen Mun Automatic Weather Station)

6/8/2009



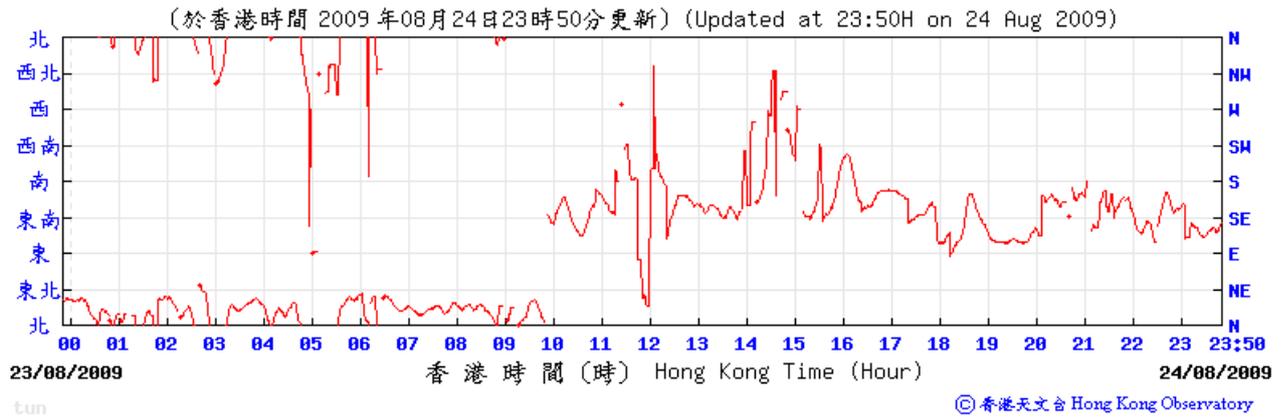
12/8/2009



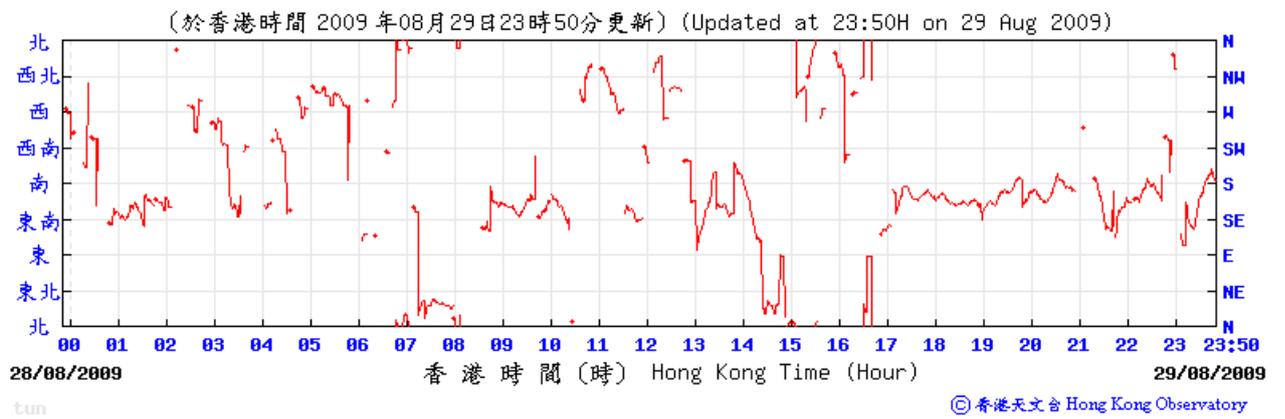
18/8/2009

Maintenance

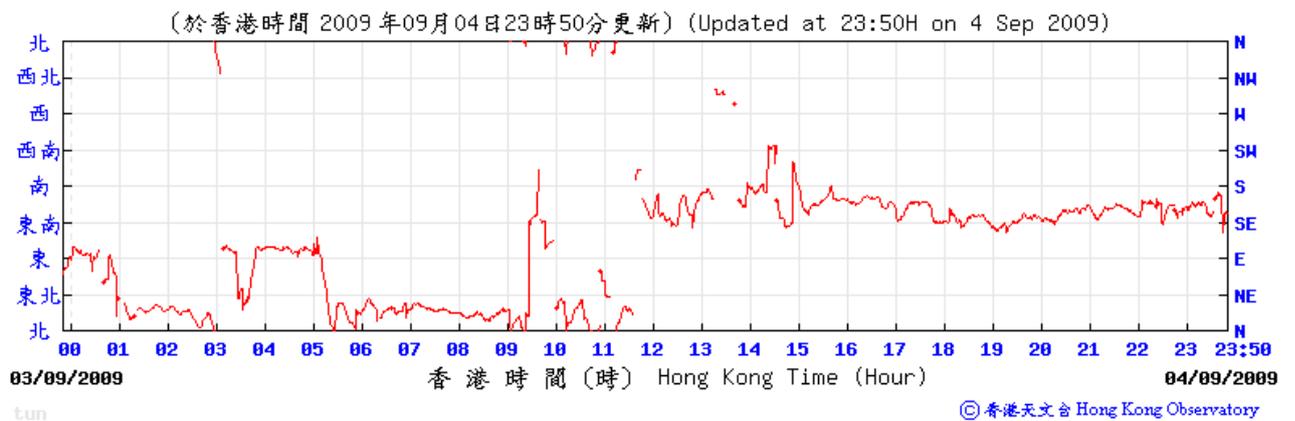
24/8/2009



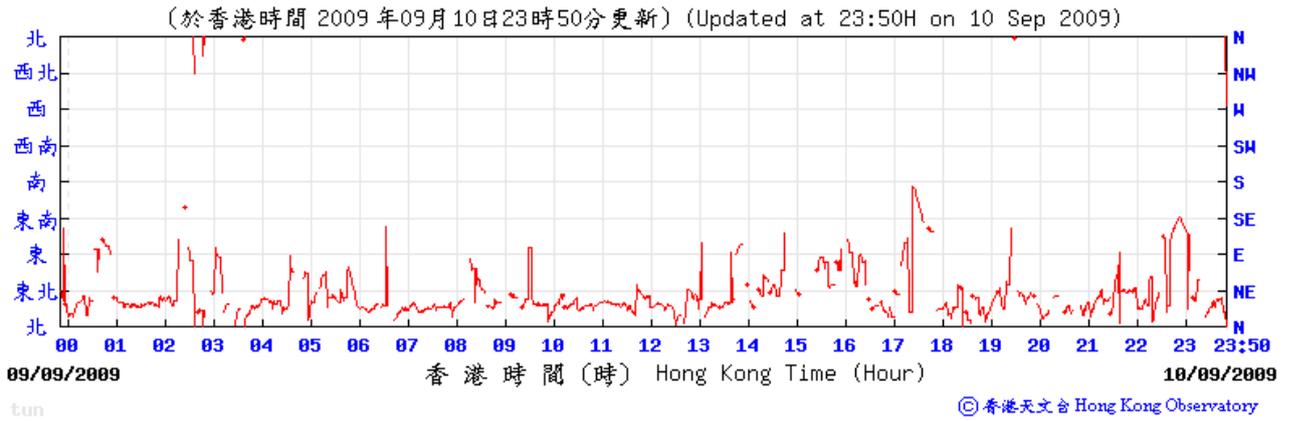
29/8/2009



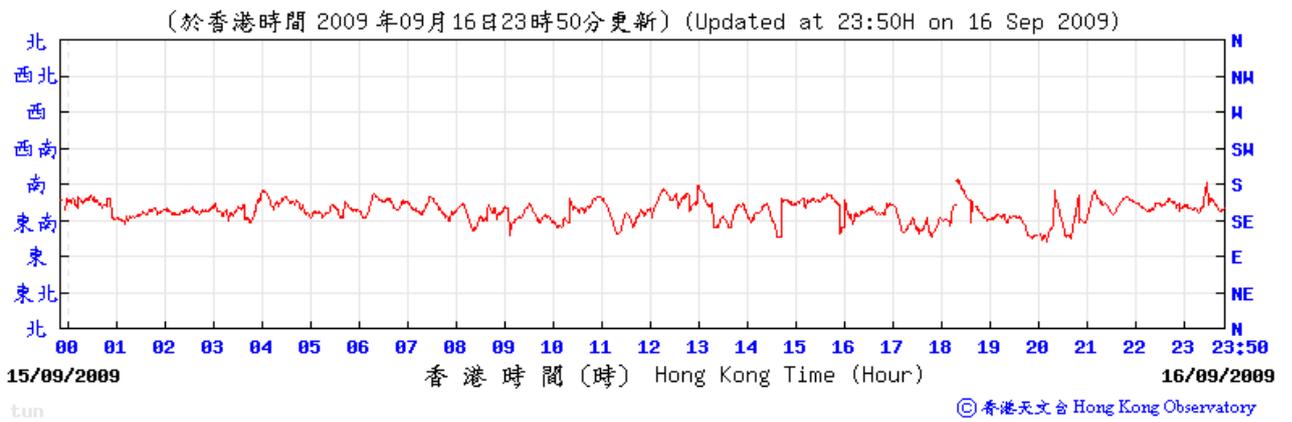
4/9/2009



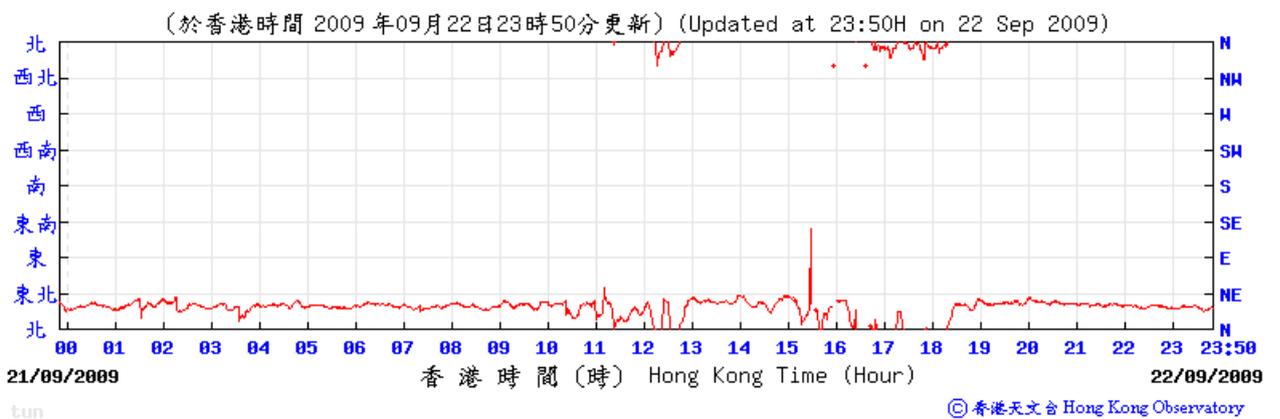
10/9/2009



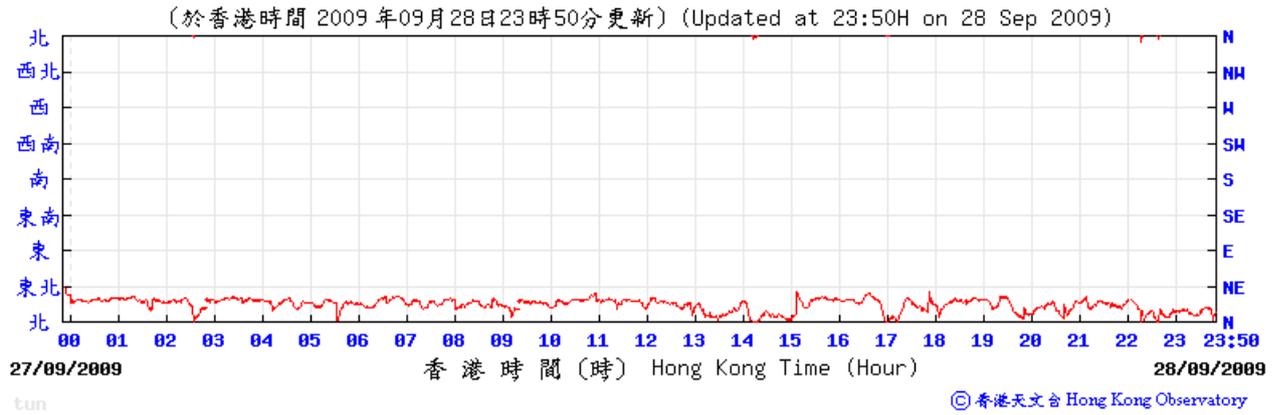
16/9/2009



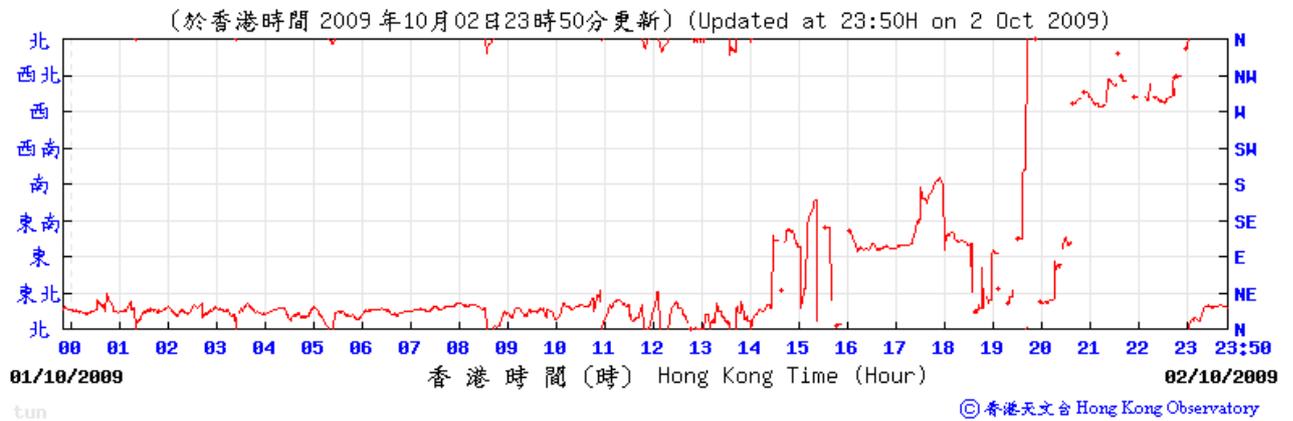
22/9/2009



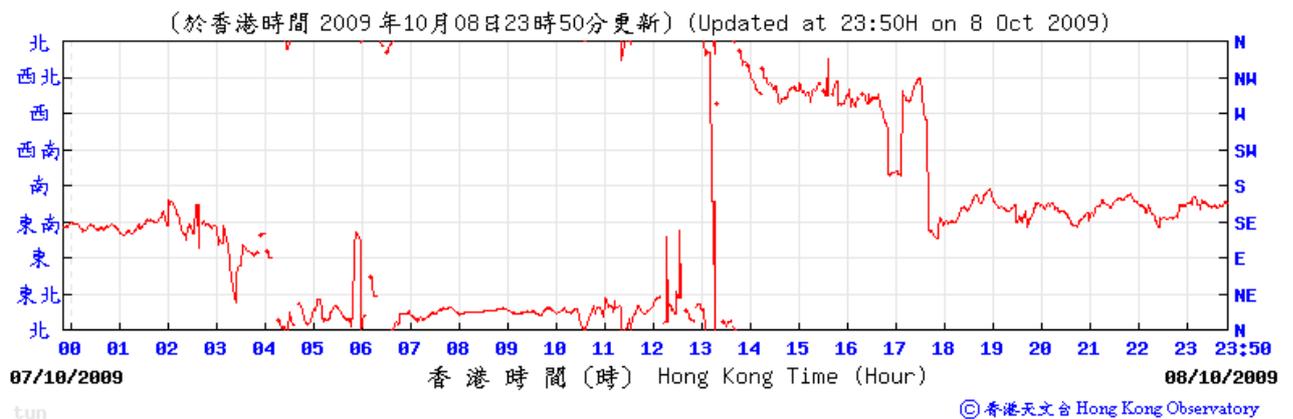
28/9/2009



2/10/2009



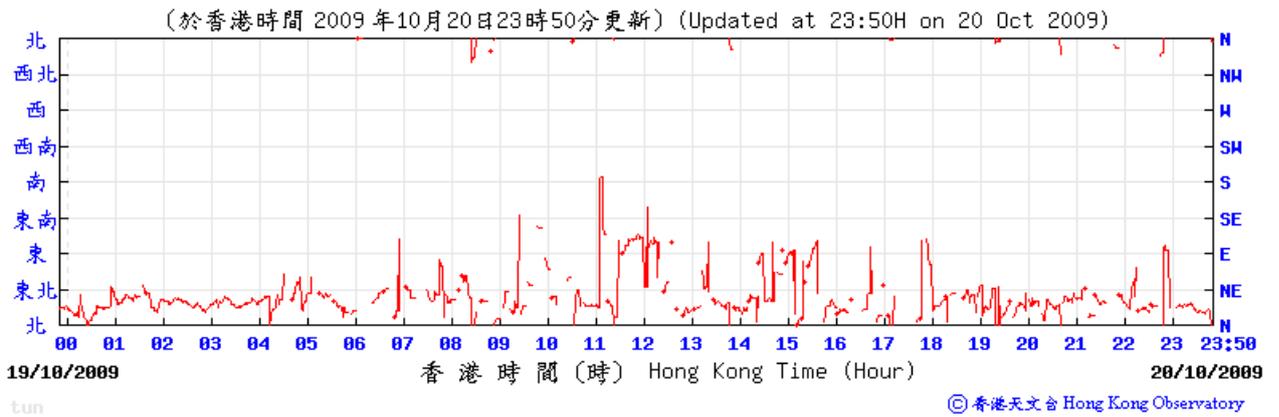
8/10/2009



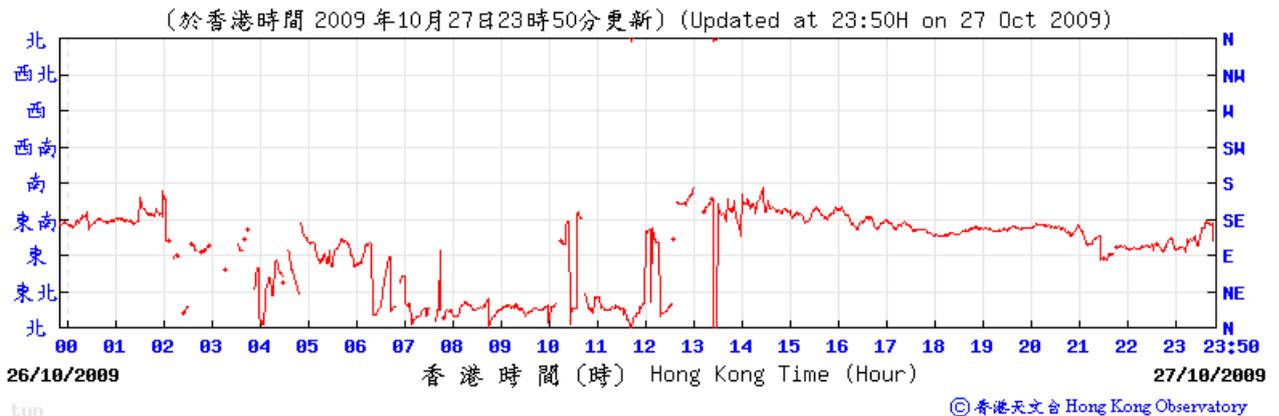
14/10/2009



20/10/2009



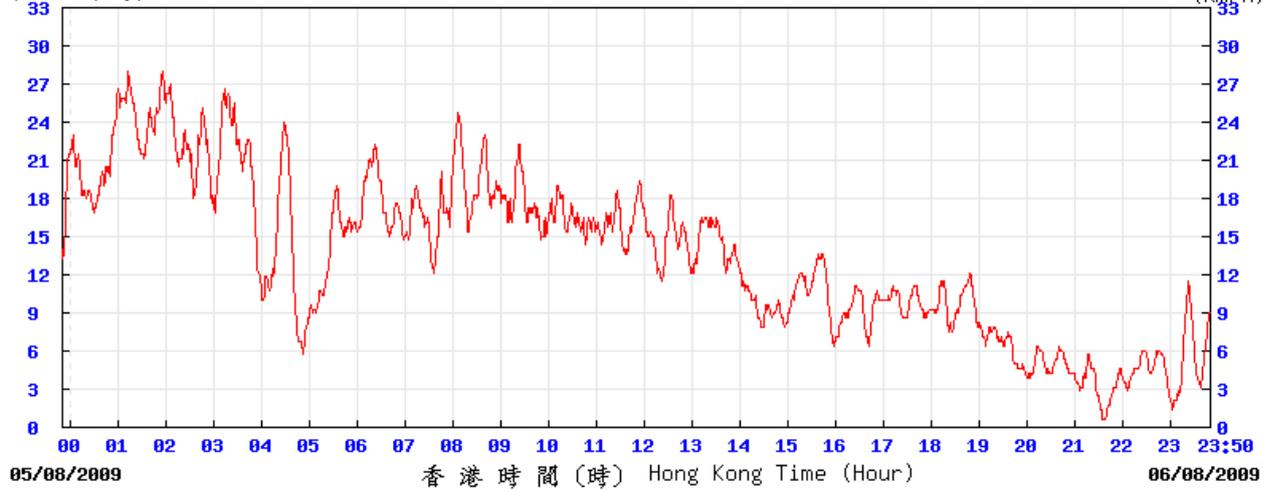
27/10/2009



Wind speed at Hong Kong Observatory (Tuen Mun Automatic Weather Station)

6/8/2009

(公里/小時) (於香港時間 2009 年 8 月 6 日 23 時 50 分更新) (Updated at 23:50H on 6 Aug 2009)

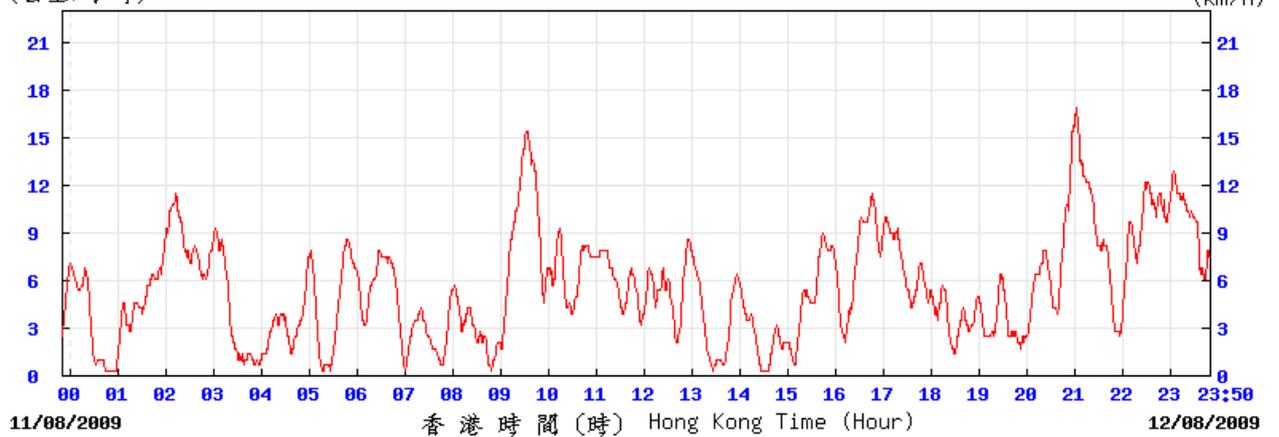


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12/8/2009

(公里/小時) (於香港時間 2009 年 8 月 12 日 23 時 50 分更新) (Updated at 23:50H on 12 Aug 2009)



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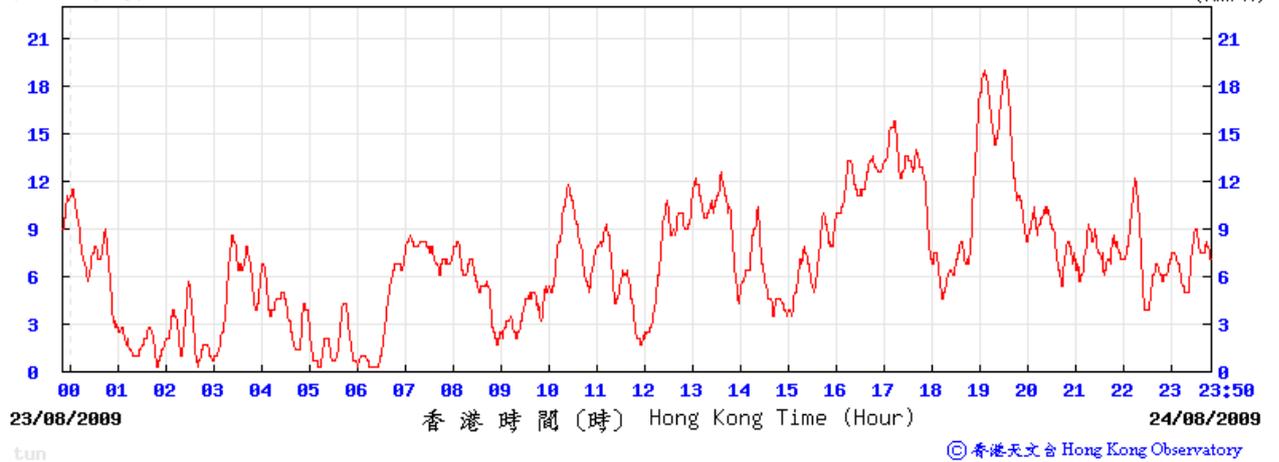
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14/7/2009

Maintenance

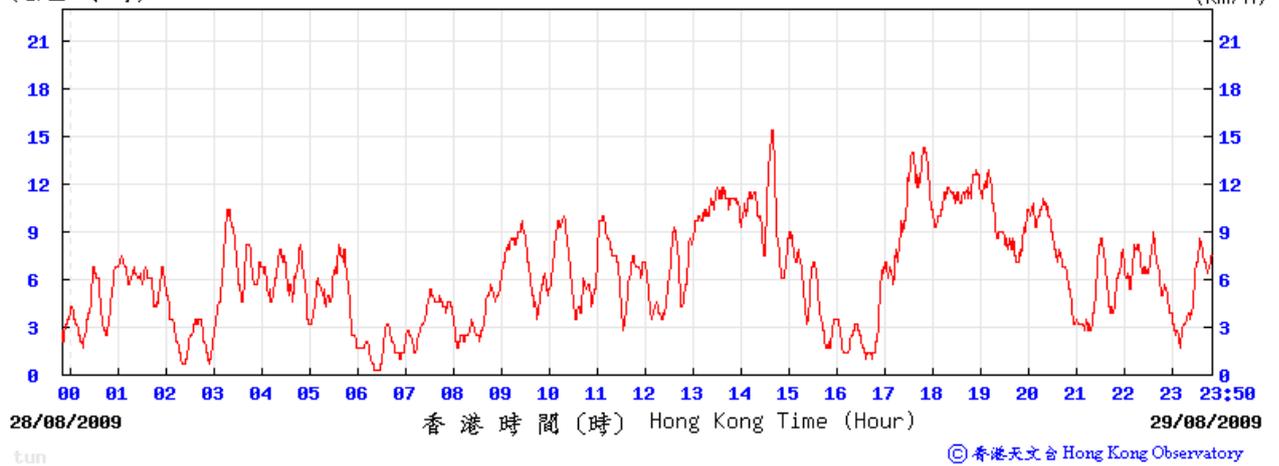
24/8/2009

(公里/小時) (於香港時間 2009 年 8 月 24 日 23 時 50 分更新) (Updated at 23:50H on 24 Aug 2009)



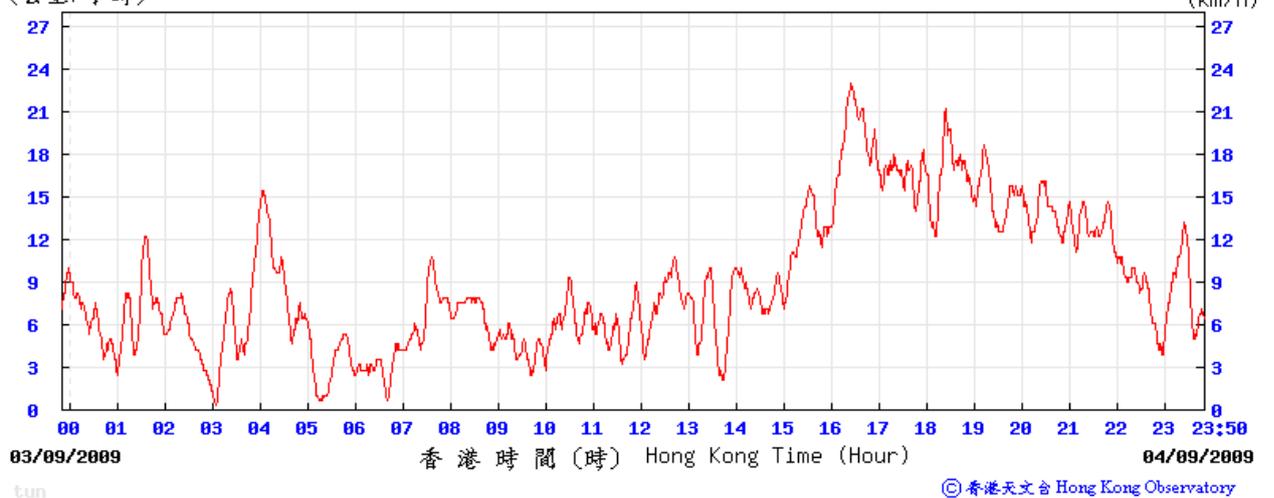
29/8/2009

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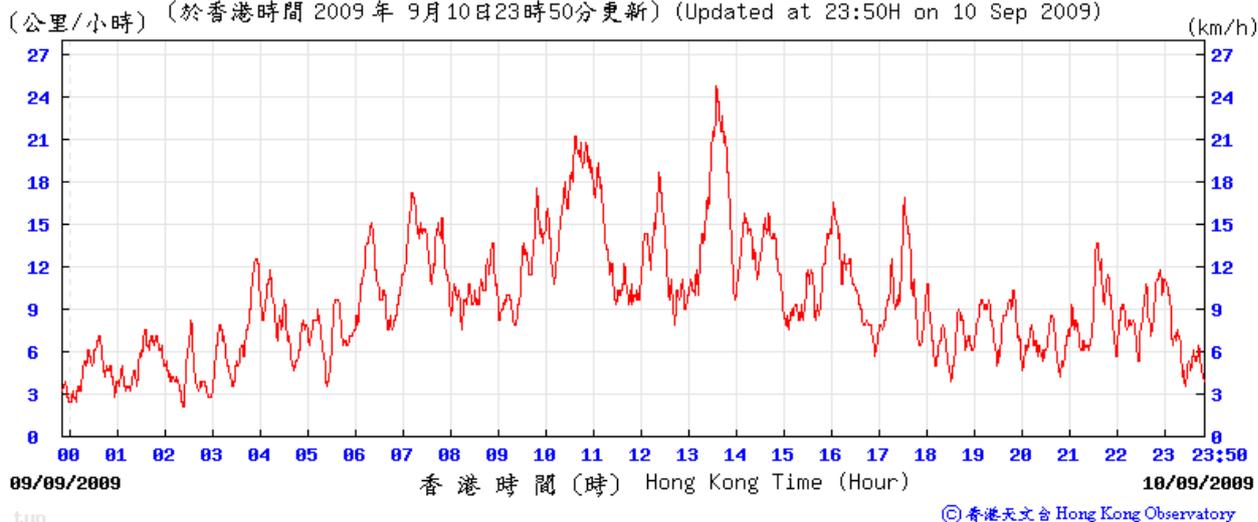
4/9/2009

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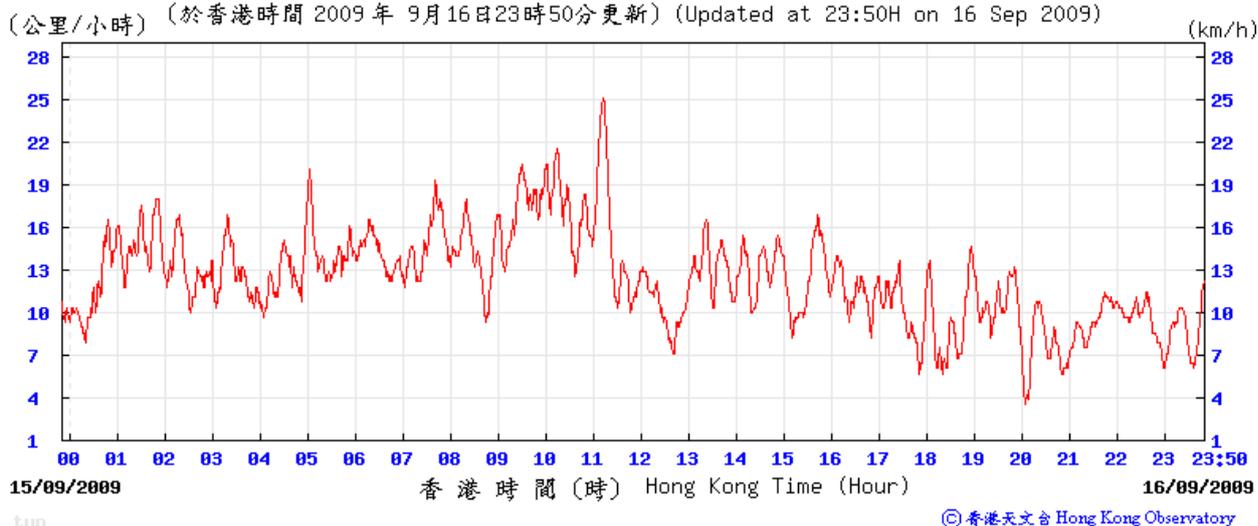
10/9/2009

(公里/小時) (於香港時間 2009 年 9 月 10 日 23 時 50 分更新) (Updated at 23:50H on 10 Sep 2009)



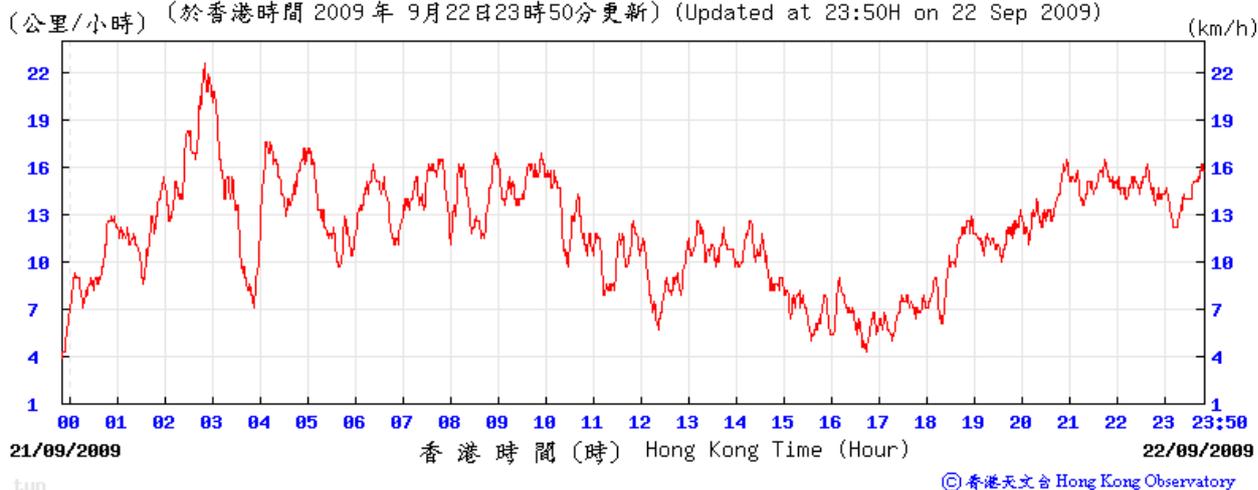
16/9/2009

(公里/小時) (於香港時間 2009 年 9 月 16 日 23 時 50 分更新) (Updated at 23:50H on 16 Sep 2009)



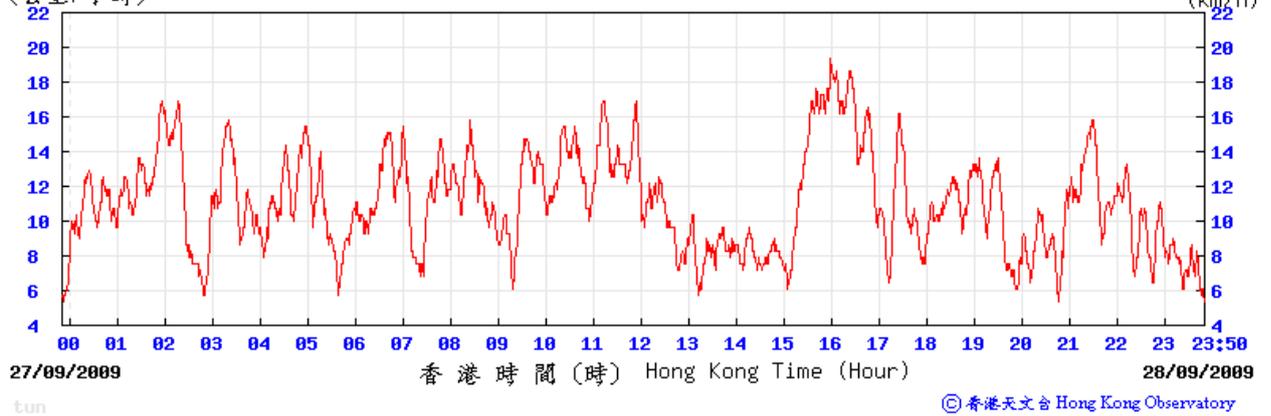
22/9/2009

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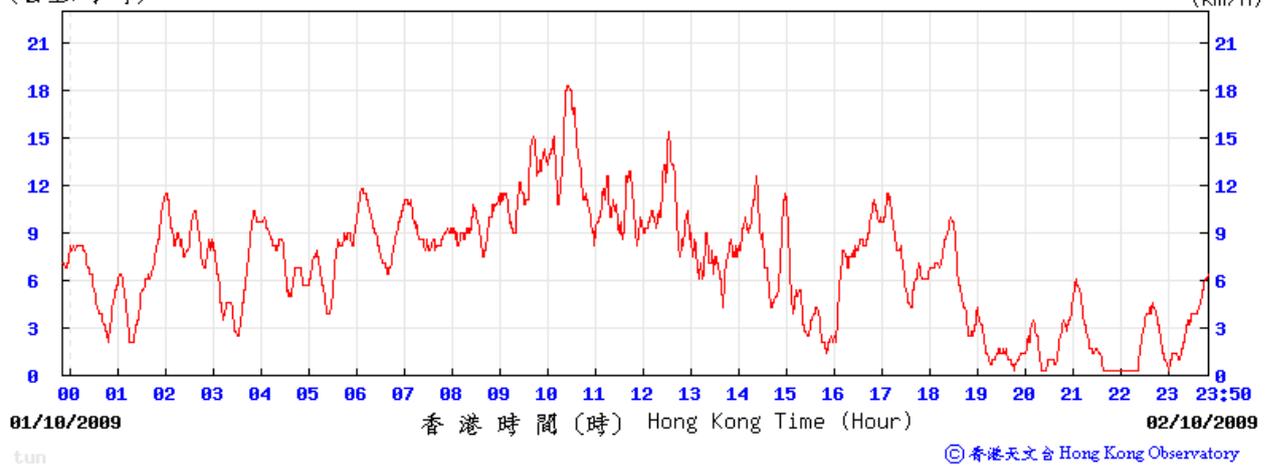
28/9/2009

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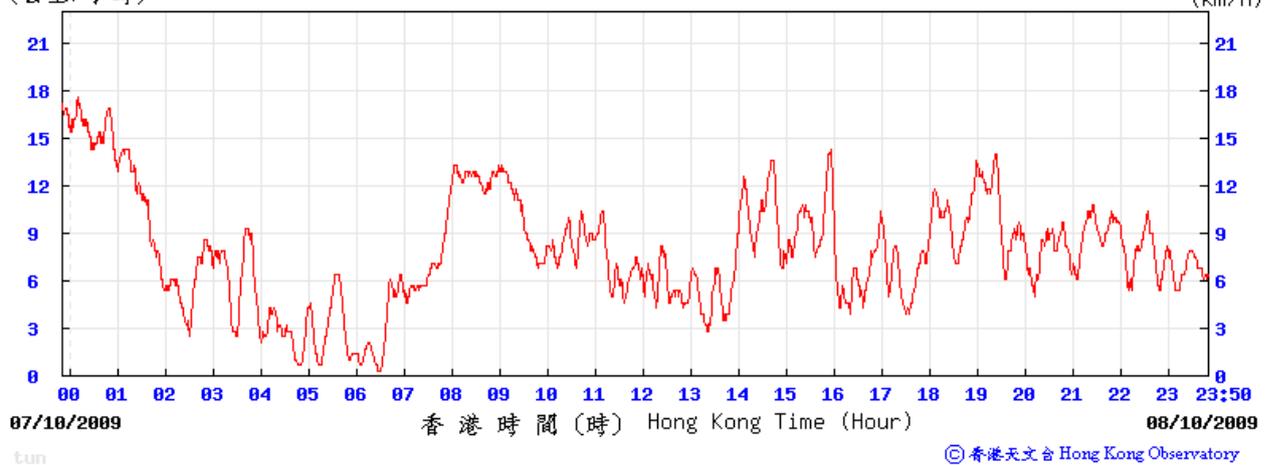
2/10/2009

(公里/小時) (於香港時間 2009 年 10 月 2 日 23 時 50 分更新) (Updated at 23:50H on 2 Oct 2009)



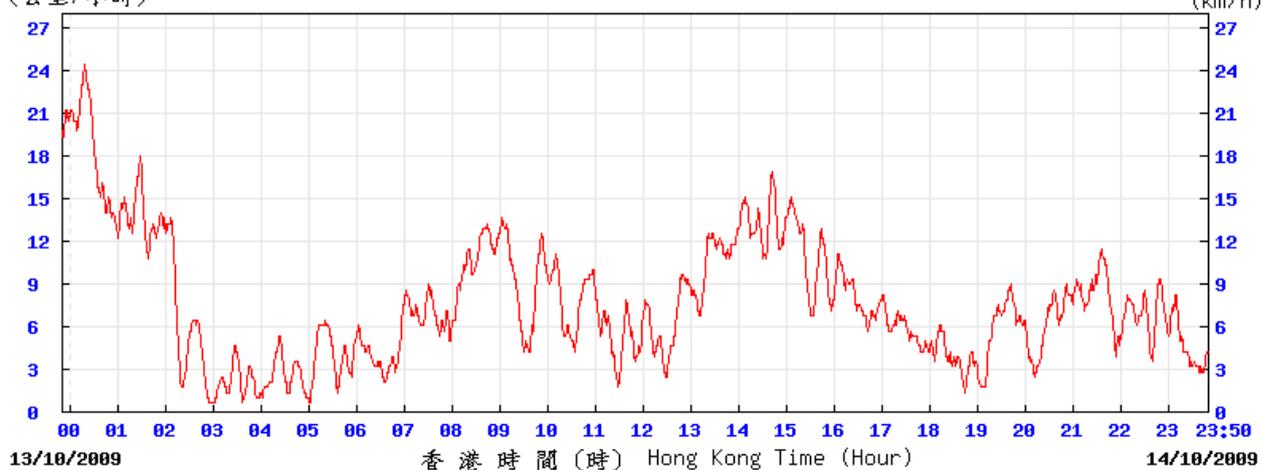
8/10/2009

(公里/小時) (於香港時間 2009 年 10 月 8 日 23 時 50 分更新) (Updated at 23:50H on 8 Oct 2009)



14/10/2009

(公里/小時) (於香港時間 2009 年10月14日23時50分更新) (Updated at 23:50H on 14 Oct 2009)

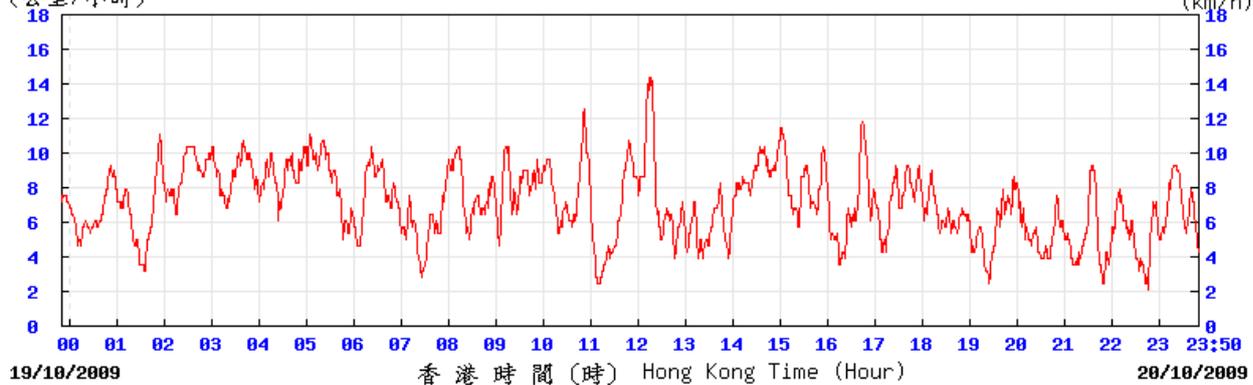


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20/10/2009

(公里/小時) (於香港時間 2009 年10月20日23時50分更新) (Updated at 23:50H on 20 Oct 2009)

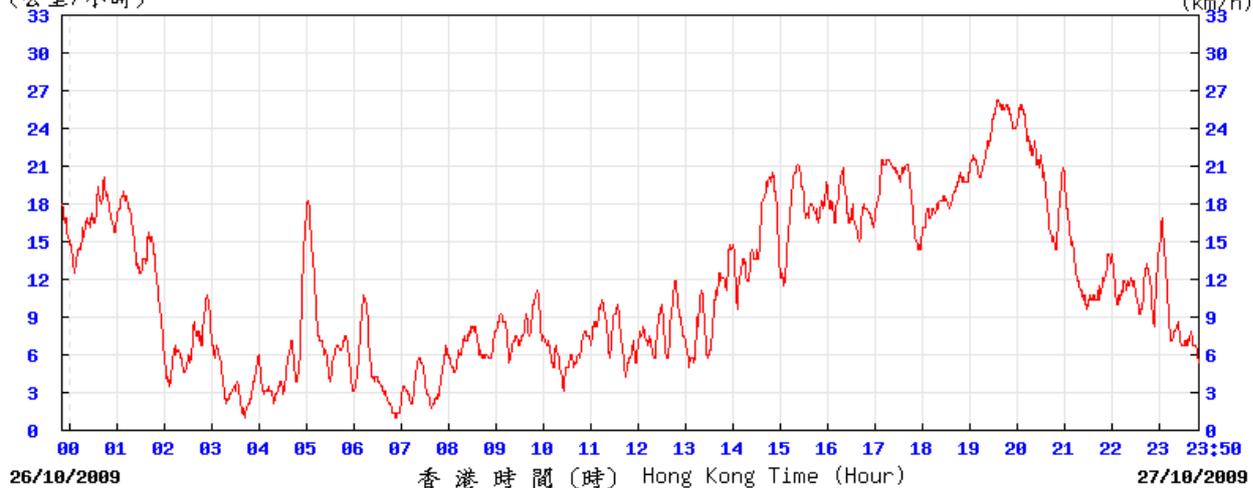


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27/10/2009

(公里/小時) (於香港時間 2009 年10月27日23時50分更新) (Updated at 23:50H on 27 Oct 2009)



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Appendix H

*Mitigation Measures Implementation Schedule for
Construction Stage*

EIA Ref. Section	EM&A Ref. Section	Environmental Protection Measures	Status
4.7	2.8	<p>Air Quality</p> <ul style="list-style-type: none"> • Hoarding of not less than 2.4m high shall be provided along the site boundary section adjoins a road, street, service land or other area accessible to the public • Spray water to where excavation to be taken place immediately prior to, during and after excavation • Any stockpile of dusty material shall be either: (a) covered entirely by impervious sheeting; (b) placed in an area sheltered on the top and the three sides; or (c) sprayed with water or a dust suppression chemical so as to maintain the entire surface wet • Cement bags or any other dusty materials collected during the work should be disposed of in totally enclosed containers • All dusty materials should be sprayed with water immediately prior to any loading, unloading or transfer operation so as to minimise the dusty materials wet • Any dusty material remaining after a stockpile of cement or other materials is removed should be wetted and removed from the surface of roads • Where a vehicle leaving the construction site is carrying a load of dusty materials, the load shall be covered entirely by clean impervious sheeting to ensure that the dusty materials do not leak from the vehicle • Conveyor belts shall be fitted with windboards, and conveyor transfer points and hopper discharge areas shall be enclosed and fitted with belt cleaners • Skip hoist for the transport of construction wastes should be properly enclosed • Vehicle washing facilities including a high pressure water jet shall be provided at the designated vehicle exit point and every vehicle immediately before leaving the construction site shall be washed to remove any dusty materials from its body and wheels • Every main haul road, vehicle washing areas and the section of road between the washing facilities and the exit point shall be paved with concrete, bituminous materials, hardcore or metal plates and kept clear of dusty materials or sprayed with water so as to maintain the entire road surface wet • Debris from the construction of the WFM shall be covered entirely by impervious sheeting or stored in a sheltered debris collection area 	<p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">^</p> <p style="text-align: center;">*</p> <p style="text-align: center;">N/A</p>

Remarks: ^ Compliance of mitigation measure;
 N/A Not Applicable at this stage;

 X Non-compliance of mitigation measure;
 * Not satisfactory but rectified by the contractor.

EIA Ref. Section	EM&A Ref. Section	Environmental Protection Measures	Status
5.7	3.7	<p>Noise</p> <ul style="list-style-type: none"> • Use quiet construction equipment • Use silencers / mufflers, noise barriers / enclosure where practicable • The Contractor is required to determine the number and type of construction equipment taking into account the use of quiet plant while devising a feasible work programme • Only well-maintained plant shall be operated on-site and all equipment shall be routinely checked • Turn off or throttle down idle plant • Plants known to emit noise strongly shall be oriented away from NSRs • Mobile plants shall be sited as far away from NSRs as possible • Stockpiles and other structures shall be effectively utilised as practicable to screen noise from on-site construction activities • Obtain valid noise permits for construction work during restricted hours 	<p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p>
6.7	4.1	<p>Water Quality</p> <ul style="list-style-type: none"> • Site shall be kept clean and tidy to avoid construction materials and waste being washed off from site • Works shall be planned to avoid rainy season so as to minimize the runoff and reduce the amount of soil that can be carried offsite • Surface run-off from the construction site shall be directed to silt traps or sedimentation basin before reuse or discharge with help of channels, earth bunds or sand bag barriers for suspended solids removal prior to its being discharged to storm water drain. Silt trap design shall conform to the guidelines laid down in Appendix A1 of ProPECC PN 1/94 • Wastewater likely to be contaminated with oil or grease should be passed through an oil separator or grease trap before entering the site drainage system • Hoarding gaps should be tightly sealed to avoid the seepage of wastewater to the nullah and outside the site • Perimeter channels shall be provide at site boundaries, where necessary, to intercept storm-water runoff from outside the site • Silt traps, sedimentation basins, channels and manholes shall be regularly cleaned to remove the deposited silt and grit • Temporarily exposed slope surfaces and construction material stockpiles shall be covered with tarpaulin or similar fabric to prevent erosion • Wastewater generated from bored-piling shall be re-circulated after sedimentation as practicable. The final discharge of the wastewater shall be via silt removal facilities. • All fuel tanks and chemical storage areas shall be surrounded by bunds with a capacity equal to 110% of the storage capacity 	<p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>N/A</p> <p>^</p> <p>^</p>

Remarks: ^ Compliance of mitigation measure;
N/A Not Applicable at this stage;

X Non-compliance of mitigation measure;
* Not satisfactory but rectified by the contractor.

EIA Ref. Section	EM&A Ref. Section	Environmental Protection Measures	Status
		<p>of the largest tank to prevent spilled oil, fuel and chemicals from reaching the receiving waters</p> <ul style="list-style-type: none"> • Obtain valid discharge license for construction site discharges • Chemical toilets shall be provided on site • Monitor the quality of water discharge to ensure compliance of the license condition • Surface drainage channels of operational areas shall be easily cleaned and connected to foul sewerage 	<p>^ ^ ^ ^ ^</p>
7.2	5.1	<p>Waste Management</p> <ul style="list-style-type: none"> • Reuse of excavated soils for back-filling and landscaping purposes • All reusable and recyclable waste materials shall be segregated and stored in different containers, skips or stockpiled • Separate the inert and non-inert portions of construction material for disposal of public fill and landfill respectively • Employ approved licensed waste collectors to collect the inert construction materials to be disposed of at public fill • Provide a temporary storage areas for storing and stockpiling reusable and recyclable materials. • Contractor should register as chemical waste producer should chemical waste is produced. • Licensed waste collectors shall be employed for collecting chemical wastes for disposal. • Handling and Disposal of chemical waste shall be in accordance with the Code of Practice on the Practice on the Packaging, Labelling and Storage of Chemical Wastes issued under the Waste Disposal Ordinance.. • Quantities of waste materials generated on site and disposal record (e.g. trip ticket) shall be kept on site for inspection • A Waste Management Plan (WMP) shall be prepared to set out waste handling and disposal strategy and submitted for the architect's approval • Material being temporary used for construction shall be recyclable as possible • Design and provide an area within the construction site to allow on-site sorting and segregation of waste materials • Training shall be provided to site staff on waste minimisation practices including waste reduction, reuse and recycling • Disposal of C&D material shall be monitored by Trip-Ticket System • In order to minimize the amount of waste disposal, durable and reusable containers should be used, where practicable, instead of plastic bags 	<p>^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^</p>

Remarks: ^ Compliance of mitigation measure;
N/A Not Applicable at this stage;

X Non-compliance of mitigation measure;
* Not satisfactory but rectified by the contractor.

8.7	6.1	<p>Hazard to Life</p> <ul style="list-style-type: none"> • Cranes shall be located away from the LPG compound and its access as far as possible • Before excavation work is undertaken, the gas company should be contacted to obtain information (drawings, plans) of all gas pipes in the vicinity of the site. Suitable pipe locating devices must be used to locate underground pipes. Hand dug trial holes must then be used to confirm the position of underground pipes. Excavation must be carried out with extreme care following any advice given by the Gas Authority or Gas Company. • Sufficient guidance shall be given to all workers before carrying out excavation in the vicinity of pipelines • Manually operated warning siren shall be installed to instruct people to take timely shelter • Fire drill exercises shall be organized for the users of the WFM. 	<p style="text-align: center;">^</p>
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Remarks: ^ Compliance of mitigation measure;
 N/A Not Applicable at this stage;

X Non-compliance of mitigation measure;
 * Not satisfactory but rectified by the contractor.