

Monthly Environmental Monitoring & Auditing Report for

Drainage Diversion Works for the Comprehensive Residential Development
at Various Lots in DD227 & DD229,
Tai Po Tsai, Sai Kung

July 2013


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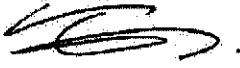
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EXECUTIVE SUMMARY

This is the eleventh monthly Environmental Monitoring and Audit (EM&A) Report for Drainage Diversion Works for the Comprehensive Residential Development at Various Lots in DD227 & DD229, Tai Po Tsai, Sai Kung under New World Project Management Ltd. This report concludes the impact monitoring for the activities undertaken during the period from 1st of July 2013 to 31st of July 2013. The major site activities in this reporting period were mainly construction of sand trap and manhole, construction of covered channel and concrete pipe installation.

The Environmental Team (ET) is responsible for the EM&A works required in the Particular Specifications (PS). Site inspections were carried out on weekly basis to investigate and audit the equipment and work methodologies with respect to pollution control and environmental mitigation. The weekly inspections and photos records were kept.

Noise, water quality and air quality monitoring were performed during the reporting period. Results were compared with the established Action/Limit (A/L) level.

In general, waste management was satisfactory during the reporting period.

Impact monitoring for construction noise and air quality was conducted in the reporting period. No exceedance of A/L level was reported.

Furthermore, impact monitoring for water quality was conducted. Total 9 numbers of exceedance were recorded in this reporting period. For the non-compliance events, it was believed that the exceedances record at W2 were caused by adverse weather and natural fluctuation, since the records of SS and turbidity at control station has been recorded relatively high. Therefore, the exceedance records at W2 were unlikely to be related to this project.

There was no complaint, notification of any summons and successful prosecutions against the project received during the reporting period.

It is expected that noise, water quality and air quality impacts may be resulted from the site works. ET has reminded the contractor to provide environmental pollution control measures wherever necessary and to keep a good environmental management at site practice. The recommended mitigation measures proposed for the project as well as implementation status can refer to section 13.3.

The ET will continue to implement the environmental monitoring & audit programme in accordance with the PS and Environmental Permit requirement.

1 Introduction

This is the eleventh monthly Environmental Monitoring and Audit (EM&A) Report for Drainage Diversion Works for the Comprehensive Residential Development at Various Lots in DD227 & DD229, Tai Po Tsai, Sai Kung under New World Project Management Ltd.. The site layout plan is shown in **Appendix A**. The Environmental Team, Environmental Pioneers & Solutions Limited was appointed by Hip Seng Construction Co. Ltd. to prepare the report. The report is to be submitted to the Contractor, the Engineer and the IEC.

This report presents the results of the environmental monitoring of the project activities conducted within the reporting period from 1st of July 2013 to 31st of July 2013. This report included the noise monitoring, water quality monitoring, air quality monitoring and regular site inspections for verification of implementation of the mitigation measures as recommended in the Environmental Permit (FEP-02/428/2011/A) (EP), PS and the Contractor's Environmental Management Plan (EMP).

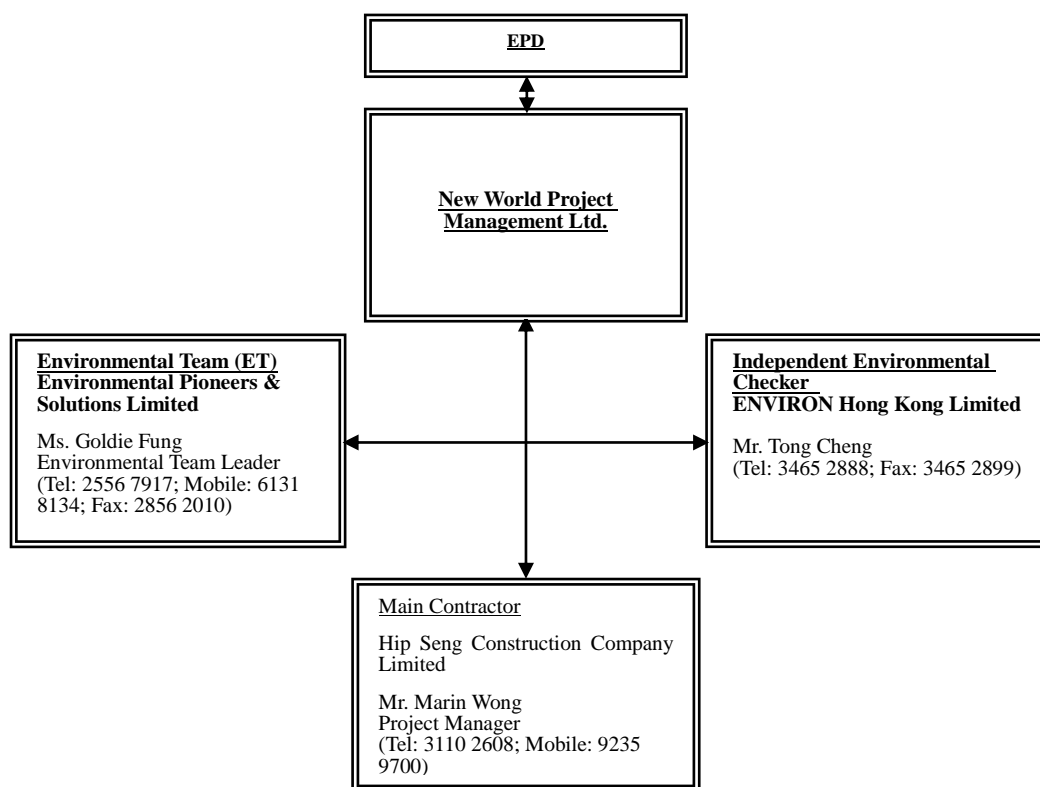
2 Project Information

Construction works of "Drainage Diversion Works for the Comprehensive Residential Development at Various Lots in DD227 & DD229, Tai Po Tsai, Sai Kung" project has been commenced in Sep 2012 and is expected to completed by July 2013. Construction master program is shown in **Appendix A**.

3 Project Organization

The Main Contractor, Hip Seng Construction Company Limited, has commissioned Environmental Pioneers & Solutions Limited as the Environmental Team, which comprises the environmental team leader, the environmental technicians to undertake the environmental monitoring and audit work for this project.

The Environmental management structure is shown in Fig. 3.1



3.1 Key personal contact information chart

Detail contact of key persons involved in environmental aspect of the project is shown in **Appendix B**.

4 Construction Stage

4.1 Construction Activities in Reporting Period

Major activities in the reporting period included the followings:

- Construction of sand trap and man hole
- Construction of covered channel
- Concrete pipe installation

4.2 Construction Activities for Coming Months

Proposed key construction works in the coming month will include:

- Construction of sand trap and manhole
- Construction of covered channel
- Concrete pipe installation
- Backfill works

4.3 Environmental Status

The site layout plan is shown in **Appendix A**.

Locations of the monitoring and control stations with environmental sensitive receivers are presented in Section 5.3, 6.3, and 7.3 for noise monitoring, water quality monitoring, and air quality monitoring respectively.

5 Noise Monitoring

5.1 Monitoring Parameters and Methodology

The construction noise level was measured in terms of the A-weighted equivalent continuous sound pressure level (L_{eq}). $L_{eq(30minutes)}$ was used as the monitoring parameter for the impact monitoring in the time period between 0700 to 1900 hours on normal weekdays. For all other time period, $L_{eq(5minutes)}$ was employed for comparison with the Noise Control Ordinance (NCO) criteria.

Noise measurement results obtained from each monitoring location were recorded in the Construction Noise Monitoring Data Sheet immediately after the measurement. As supplementary information for data auditing, statistical results L_{10} and L_{90} were also be recorded for reference.

In case of non-compliance with the construction noise criteria, more frequent monitoring, as specified in the Action plan in Table 5.7.2, shall be carried out. This additional monitoring shall be carried out until the recorded noise levels are rectified or proved to be irrelevant to the construction activities.

5.2 Monitoring Equipment

The sound level meters and calibrators comply with the International Electrotechnical Commission Publications 651:1979 (Type 1) and 804:1985 (Type 1) specifications as referred to in the Technical Memorandum (TM) to the Noise Control Ordinance was deployed as monitoring equipment for noise measurement.

Noise measurement was not be made in the presence of fog, rain, wind with a steady speed exceeding $5ms^{-1}$ or wind with gust exceeding $10ms^{-1}$. Thus wind speed was checked by the portable wind speed indicator capable of measuring the wind speed in m/s. Table 5.2.1 summarizes the equipment list for noise monitoring

Table 5.2.1 Equipment List for Noise Monitoring

Equipment	Manufacturer & Model No.	Precision Grade	Qty
Integrated sound level meter	Svantek 955 & S/N:27302	IEC 651 Type 1 IEC 804 Type 1	1
Acoustical calibrator	Svantek SV30A & S/N:29085	IEC 942 Type 1	1
Remarks: Calibration details of the sound level meter and acoustical calibrator are given in Appendix C for reference			

5.3 Monitoring Locations

According to the PS, impact noise monitoring was undertaken at four locations during the construction phase of the project. The monitoring locations are summarized in Table 5.3.1 and are shown in Figure 5.3.1.

Noise measurement for N4 location was taken at a point 1m from the exterior of the selected premises and at a height with no disturbance to the dweller and least obstructed view, so that façade measurement was made for monitoring location N4 and the free field measurements were made for monitoring locations N1, N2 and N3.

Table 5.3.1 Noise Monitoring Locations during Construction Phase

Identification No.	Noise Monitoring Locations
N1	Staff Quarters 1-12, HKUST
N2	174, Lots in DD227 & DD229, Tai Po Tsai, Sai Kung
N3	152A, Lots in DD227 & DD229, Tai Po Tsai, Sai Kung
N4	109, Lots in DD227 & DD229, Tai Po Tsai, Sai Kung

In accordance with the requirements in the PS, weekly impact monitoring was conducted. For the time period between 0700 and 1900 hours on normal weekdays, and noise parameter of $L_{eq(30minutes)}$ was measured. As if the construction works were carried out during restricted period (i.e. 1900-2300, 2300-0700 of next day and Sundays / general holiday), impact monitoring that comprises 3 consecutive $L_{eq(5minutes)}$ would be carried out.

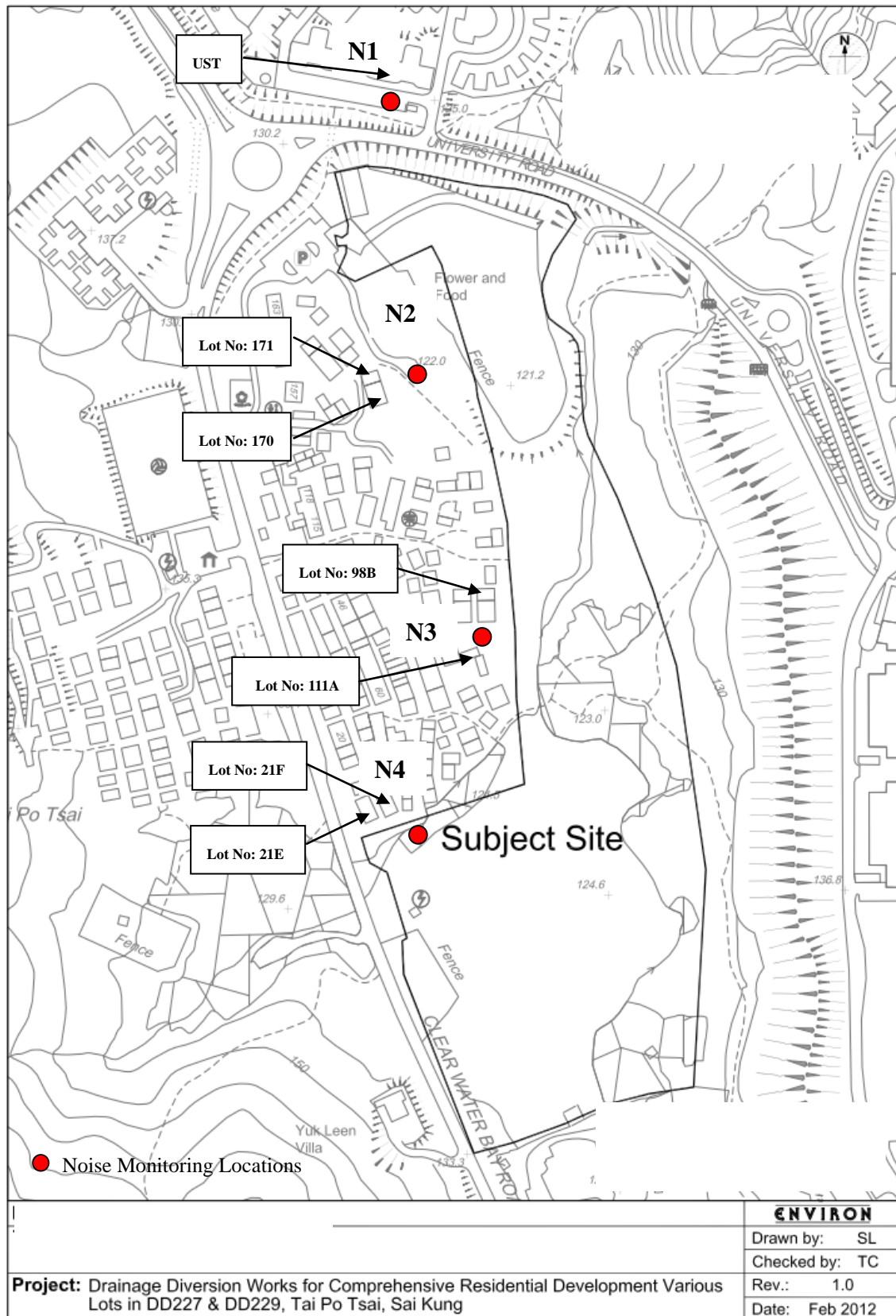


Figure 5.3.1 Impact noise monitoring locations

5.4 Monitoring Frequency

The regular monitoring for each location was performed on a basis of once in every 6 days.

Monitoring was carried out on 4th, 10th, 16th, 22nd and 27th of July 2013.

5.5 Monitoring Results and Interpretation

Relevant details of the noise monitoring results are presented in Table 5.5.1. The results of N1 ranged between 59.5dB (A) and 67.4dB (A), N2 ranged between 57.3dB (A) and 69.2dB (A), N3 ranged between 58.6dB (A) and 67.8dB (A) and N4 ranged between 61.4dB (A) and 66.0dB (A) were within the limit levels and therefore no exceedance was found.

Location	Parameter	Date	Time	L _{Aeq} dB(A)	Limit dB(A)	Exceedance	Weather
*N1	Leq30min	4-Jul-13	8:40	59.5	75	N	Sunny
*N1	Leq30min	10-Jul-13	8:45	63.1	75	N	Sunny
*N1	Leq30min	16-Jul-13	9:24	62.6	75	N	Sunny
*N1	Leq30min	22-Jul-13	13:01	67.4	75	N	Overcast
*N1	Leq30min	27-Jul-13	13:05	64.7	75	N	Overcast
*N2	Leq30min	4-Jul-13	9:15	61.2	75	N	Sunny
*N2	Leq30min	10-Jul-13	9:19	69.2	75	N	Sunny
*N2	Leq30min	16-Jul-13	9:59	57.3	75	N	Sunny
*N2	Leq30min	22-Jul-13	10:20	66.4	75	N	Overcast
*N2	Leq30min	27-Jul-13	09:36	62.7	75	N	Overcast
*N3	Leq30min	4-Jul-13	9:50	58.6	75	N	Sunny
*N3	Leq30min	10-Jul-13	9:55	67.8	75	N	Sunny
*N3	Leq30min	16-Jul-13	10:36	65.4	75	N	Sunny
*N3	Leq30min	22-Jul-13	10:59	65.2	75	N	Overcast
*N3	Leq30min	27-Jul-13	10:46	66.4	75	N	Overcast
N4	Leq30min	4-Jul-13	10:25	61.4	75	N	Sunny
N4	Leq30min	10-Jul-13	10:30	62.9	75	N	Sunny
N4	Leq30min	16-Jul-13	11:15	63.8	75	N	Sunny

N4	Leq30min	22-Jul-13	13:42	66.0	75	N	Overcast
N4	Leq30min	27-Jul-13	13:55	66.0	75	N	Overcast

*The equivalent noise level of N1, N2 and N3 is corrected by +3dB(A).

Remarks: Raw datasheet for noise monitoring are attached in **Appendix D** for reference.

5.6 Action and Limit Level for Construction noise

The Action and Limit (A/L) levels for construction noise are defined in Table 5.6.1. Should non-compliance of the criteria occur, action in accordance with the Action Plan in Table 5.6.2 should be carried out.

There was no exceedance recorded in the reporting period.

Table 5.6.1 Action and Limit Levels for Construction Noise at All Sensitive Receivers		
Time Period	Action	Limit
Daytime 0700 – 1900 hrs on normal weekdays	When one documented complaint is received	75 dB(A)*
1900 – 2300 on all days and 0700 – 2300 on general holidays (including Sundays)		60/65/70 dB(A)**
2300 – 0700 on all days		45/50/55 dB(A)**

Table 5.6.2 Event / Action Plan for Construction Noise

EVENT	ET Leader	IEC	ER	CONTRACTOR
Exceedance for one sample in Action Level	<ol style="list-style-type: none"> 1. Identify source, investigate the causes of exceedance and propose remedial measures. 2. Inform ER, IEC and Contractor. 3. Repeat measurement to confirm finding. 4. Increase monitoring frequency to daily. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET. 2. Check Contractor's working method. 	<ol style="list-style-type: none"> 1. Notify Contractor. 	<ol style="list-style-type: none"> 1. Rectify any unacceptable practice. 2. Amend working methods if appropriate.

<p>Exceedance for two or more consecutive samples in Action Level.</p>	<ol style="list-style-type: none"> 1. Identify source, investigate the causes of exceedance and propose remedial measures. 2. Inform IEC and Contractor. 3. Repeat measurements to confirm findings. 4. Increase monitoring frequency to daily. 5. Discuss with IEC and Contractor on remedial actions. 6. If exceedance continues, arrange meeting with IEC and ER. 7. If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> 1. Checking monitoring data submitted by ET. 2. Check Contractor's working method. 3. Discuss with ET and Contractor on possible remedial measures. 4. Advise the ER on the effectiveness of the proposed remedial measures. 5. Supervisor implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing. 2. Notify Contractor. 3. Ensure remedial measures properly implemented. 	<ol style="list-style-type: none"> 1. Submit proposals for remedial actions to IEC within three working days of notification. 2. Implement the agreed proposals. 3. Amend proposals if appropriate.
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<p>Exceedance for on sample in Limit Level</p>	<ol style="list-style-type: none"> 1. Identify source, investigate the causes of exceedance and propose remedial measures. 2. Inform ER, Contractor and EPD. 3. Repeat measurement to confirm finding. 4. Increase monitoring frequency to daily. 5. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results. 	<ol style="list-style-type: none"> 1. Checking monitoring data submitted by ET 2. Check Contractor's working method 3. Discuss with ET and Contractor on possible remedial measures 4. Advise the ER on the effectiveness of the proposed remedial measures. 5. Supervisor implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing. 2. Notify Contractor. 3. Ensure remedial measures properly implemented. 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance. 2. Submit proposals for remedial actions to IEC within three working days of notification. 3. Implement the agreed proposals. 4. Amend proposal if appropriate.
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<p>Exceedance for two or more consecutive samples in Limit Level</p>	<ol style="list-style-type: none"> 1. Identify source, investigate the causes of exceedance and propose remedial measures. 2. Notify IEC, ER, Contractor and EPD. 3. Repeat measurement to confirm findings. 4. Increase monitoring frequency to daily. 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented. 6. Arrange meeting with IEC and ER to discuss the remedial actions to be 	<ol style="list-style-type: none"> 1. Discuss amongst ER, ET and Contractor on the potential remedial actions. 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly. 3. Supervise the implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing. 2. Notify Contractor. 3. In consultation with the IEC, agree with the Contractor on the remedial measures to be implemented. 4. Ensure remedial measures properly implemented 5. If exceedance continues consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated remedial 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance. 2. Submit proposals for remedial actions to IEC within three working days of notification. 3. Implement the agreed proposals. 4. Resubmit proposals if problem still not under control. 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.
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	informed of the results			
	8. If exceedance stops, cease additional monitoring			

5.7 Monitoring Schedule for the next reporting period

Noise monitoring schedule is proposed to be carried out on 2nd, 8th, 14th, 20th, 26th and 31st of August 2013.

6 Water Monitoring

6.1 Water Quality Monitoring Parameters and Methodology

Turbidity in Nephelometric Turbidity Unit (NTU), and Dissolved Oxygen (DO) in mg/L, temperature, water depth and pH measurements were in-situ measurements and suspended solids measurements were performed by a HOKLAS accredited laboratory using recommended reference method APHA 2540D.

6.2 Monitoring Equipment

Turbidity, DO, Salinity, pH and temperature was measured by an instrument complied with the following requirements:

The instrument is a portable as well as weatherproof multimeter complete with cable and uses a DC power source. It is capable of measuring:

- A turbidity between 0-1000NTU;
- A dissolved Oxygen level in the range of 0-20mg/L and 0-200% saturation;
- A temperature of 0-50°C;
- pH in the range of 0-14.

The measurements were performed by a portable and weatherproof multi-meter. The equipment was calibrated and verified by certified laboratory every 3 months to ensure they perform to the same level of accuracy as stated in the manufacturer's specification. Detailed calibration records of the multi-meter were shown in **Appendix C** for reference

Suspended solids were determined by the water samples collected from the monitoring locations for further analysis in accredited HOKLAS laboratory. Water samples were contained by polythene bottles, packed in ice (cooled in 4°C without frozen) and delivered to the laboratory for analysis as soon as possible after collection.

Since water depths for all monitoring stations were less than 0.5m during the impact measurement period, only mid-depth level was monitored. The

monitoring parameters and measurement methods of water quality monitoring are summarized in Table 6.2.1.

Table 6.2.1 – Water Quality Monitoring Parameters and Measurement Methods	
Parameter	Measurement Method
Temperature (°C)	<i>in-situ</i>
Turbidity (NTU)	
pH	
Dissolved Oxygen (mg/L and %)	
Suspended Solids (mg/L)	Reference method APHA 2540D

6.3 Monitoring Locations

In accordance with the PS, monitoring stations were established at two locations, which are summarized in Table 6.3.1.

Table 6.3.1 – Water Quality Monitoring Locations		
Monitoring Station	Coordinates	
	Easting	Northing
W1 (upstream)	E:844944	N:821720
W2 (downstream)	E:844959	N:822249

As illustrated in Figure 6.3.1, W1 served as the control station while W2 was the monitoring location of water quality.

In accordance with the PS, measurements shall be taken at 3 water depths, namely, 1m below water surface, mid-depth and 1m above river bed, except where the water depth less than 6m, the mid-depth station may be omitted. Should the water depth be less than 3m, only the mid-depth station will be monitored.

As the depth of water was less than 3m, water samples were collected at mid-depth of each monitoring stations for measurements and sample collection.



Figure 6.3.1 Water Quality Monitoring Locations

6.4 Monitoring Frequency

Water quality monitoring for each monitoring station was performed at mid-flood or mid-ebb tides for 3 days per week during the course of the construction river works.

Monitoring was carried out on 2nd, 4th, 6th, 9th, 11th, 13th, 16th, 18th, 20th, 23rd, 25th, 27th and 30th of July 2013.

For the exceedances, the repeated measurements were carried out on 24th and 29th July 2013.

6.5 Monitoring Results and Interpretation

Water quality monitoring was carried out thirteen times in this reporting month. Detailed on-site measurements are shown in Appendix E. Table 6.5.1 presents consolidated results throughout the reporting month.

There were 9 numbers of exceedance (Turbidity & SS) were recorded in this reporting period as shown in Table 6.5.2. ET has arranged site investigations for the abnormal incidents on the same day and found that no construction activities had been carried out at the river bed. It was believed that the exceedances of water quality were not affected by the construction activities. According to the site investigation, we believed that the exceedance records at W2 were caused by adverse weather and natural fluctuation. Therefore, the exceedance records at W2 were unlikely to be related to this project.

	Average of Monitoring Results					
	<i>Temperature</i> (°C)	<i>Turbidity</i> (NTU)	<i>pH</i>	<i>Dissolved</i> <i>Oxygen</i> (mg/L)	<i>Dissolved</i> <i>Oxygen</i> (%)	<i>Suspended</i> <i>Solids</i> (mg/L)
W1	27.7	8.9	8.04	8.22	94.6	27.46
W2	27.5	9.4	8.15	8.31	96.3	25.92

Table 6.5.2 9 numbers of exceedance during the reporting month

Date	Location	Parameter		Interpretations
		Turbidity (NTU)	SS (mg/l)	
11/7/2013	W1	N/A	22	Exceedance was caused by natural fluctuation
	W2	N/A	37	
13/7/2013	W1	N/A	24	Exceedance was caused by natural fluctuation
	W2	N/A	25	
20/7/2013	W1	39.6	82	Exceedance was caused by adverse weather
	W2	33.3	84	
23/7/2013	W1	25.8	29	Exceedance was caused by adverse weather
	W2	23.6	30	
25/7/2013	W1	N/A	39	Exceedance was caused by natural fluctuation
	W2	N/A	19	
27/7/2013	W1	15.0	61	Exceedance was caused by adverse weather
	W2	18.7	60	

6.6 Action and Limit Level for Water Quality

Based on the criteria stipulated in PS (Table 6.6.1) and baseline water quality monitoring data obtained, the A/L levels are shown in Table 6.6.2. The A/L levels for W1 were ignored since W1 functions as the control station for the project. If the water quality monitoring results at any impact stations exceeded the criteria, the actions in accordance with the Event and Action Plan in Table 6.6.3 should be taken.

Total 9 numbers of exceedance were recorded during the reporting period. The repeated measurements were carried out on the 24th and 29th of August 2013. And, the site inspection for the exceedance was carried out at the same day. We found that the exceedances of water quality at W2 were not to be related to the project.

Table 6.6.1 Action and Limit Levels for Water Quality at All Monitoring Stations		
Parameters	Action	Limit
DO in mg/L	5 percentile of baseline data	4 mg/L or 1 percentile of baseline data
SS in mg/L	95 percentile of baseline data or 120% of upstream control station's SS recorded on the same day	99 percentile of baseline data or 130% of upstream control station's SS recorded on the same day
Turbidity in NTU	95 percentile of baseline data or 120% of upstream control station's Turbidity recorded on the same day	99 percentile of baseline data or 130% of upstream control station's Turbidity recorded on the same day
pH	<6.5 or >8.4 or > the upstream control station's pH recorded on the same day	<6.0 or >9.0

Table 6.6.2 Action and Limit Levels for Water Quality at All Monitoring Stations		
Parameters	Monitoring Stations	
	W2	
	Action Level	Limit Level
DO in mg/L	6.42	6.24
SS in mg/L	18.9	19.8
Turbidity in NTU	6.2	6.2
pH	<6.5 or >8.4	<6.0 or >9.0

Remarks:

1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For SS and Turbidity, non-compliance of the water quality limits occurs when monitoring results is higher than the limits.
3. For pH, for the action level, reference is made to the data recorded at EPD' river monitoring stations at the nearby Tseng Lan Shue Stream (JR3, JR6 and JR22) from year 2006 to 2010; while the limit level is referring to the water quality objective for Inland Water of Junk Bay Water Control Zone.

Table 6.6.3 Event and action Plan for Water Quality

Event	ET Leader	IEC	ER	Contractor
ACTION LEVEL				
Exceedance for one sample day	<ol style="list-style-type: none"> 1. Repeat in-site measurement to confirm findings. 2. Identify source(s) of impact. 3. Inform IEC and Contractor. 4. Check monitoring data, all plant, equipment and Contractor's working methods. 5. Discuss mitigation measures with IEC and Contractor. 6. Repeat measurement on next day of exceedance. 	<ol style="list-style-type: none"> 1. Discuss with ET and Contractor on the mitigation measures. 2. Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; 3. Assess effectiveness of the implemented mitigation measures. 	<ol style="list-style-type: none"> 1. Discuss with IEC on the proposed mitigation measures. 2. Make agreement on mitigation measures to be implemented. 3. Assess effectiveness of implemented mitigation measures. 	<ol style="list-style-type: none"> 1. Inform the ER and confirm notification of the non-compliance in writing. 2. Rectify unacceptable practice. 3. Check all plant and equipment. 4. Consider changes of working methods. 5. Discuss with ET, IEC and propose mitigation measures to IEC and ER. 6. Implement the agreed mitigation measures.

<p>Exceedance for more than one consecutive sampling days</p>	<ol style="list-style-type: none"> 1. Repeat in-situ measurements to confirm findings. 2. Identify source(s) of impact. 3. Inform IEC and Contractor. 4. Check monitoring data, all plant, equipment and Contractor's working methods. 5. Discuss mitigation measures with IEC and Contractor. 6. Ensure mitigation measures are implemented. 7. Prepare to increase the monitoring frequency to daily. 8. Repeat measurement on next day of exceedance. 	<ol style="list-style-type: none"> 1. Discuss with ET and Contractor on the mitigation measures. 2. Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly. 3. Assess effectiveness of the implemented mitigation measures. 	<ol style="list-style-type: none"> 1. Discuss with IEC on the proposed mitigation measures. 2. Make agreement on the mitigation measures to be implemented. 3. Assess effectiveness of the implemented mitigation measures. 	<ol style="list-style-type: none"> 1. Inform the ER and confirm notification of the non-compliance in writing. 2. Rectify unacceptable practice. 3. Check all plant and equipment. 4. Consider changes of working methods. 5. Discuss with ET and IEC and propose mitigation measures within three working days. 6. Implement the agreed mitigation measures.
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LIMIT LEVEL				
Exceedance for one sampling day	<ol style="list-style-type: none"> 1. Repeat in-situ measurements to confirm findings. 2. Identify source(s) of impact. 3. Inform EPD, IEC, Contractor. 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with IEC, ER and Contractor. 6. Ensure mitigation measures are implemented. 7. Increase the monitoring frequency to daily until no exceedance of Limit level. 	<ol style="list-style-type: none"> 1. Discuss with ET and Contractor on the mitigation measures. 2. Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly. 3. Assess effectiveness of the implemented mitigation measures. 	<ol style="list-style-type: none"> 1. Discuss with IEC, ET and Contractor on the proposed mitigation measures. 2. Request Contractor to critically review the working methods. 3. Make agreement on the mitigation measures to be implemented. 4. Assess the effectiveness of the implemented mitigation measures. 	<ol style="list-style-type: none"> 1. Inform the ER and confirm notification of the non-compliance in writing. 2. Rectify unacceptable practice. 3. Check all plant and equipment. 4. Consider changes of working methods. 5. Discuss with ET, IEC and ER and propose mitigation measures to IEC and ER within three working days. 6. Implement the agreed mitigation measures.
Exceedance for more than on consecutive	<ol style="list-style-type: none"> 1. Repeat in-situ measurements to confirm findings. 	<ol style="list-style-type: none"> 1. Discuss with ET and Contractor on the 	<ol style="list-style-type: none"> 1. Discuss with IEC, ET and Contractor 	<ol style="list-style-type: none"> 1. Inform the ER and confirm notification

<p>sampling days</p>	<ol style="list-style-type: none"> 2. Identify source(s) of impact. 3. Inform EPD, IEC and Contractor. 4. Check monitoring data, all plant, equipment and Contractor's working methods. 5. Discuss mitigation measures with IEC, ER and Contractor. 6. Ensure mitigation measures are implemented. 7. Increase the monitoring frequency to daily until no exceedance of Limit level for two consecutive days. 	<p>mitigation measures.</p> <ol style="list-style-type: none"> 2. Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly. 3. Assess the effectiveness of the implemented mitigation measures. 	<p>on the proposed mitigation measures.</p> <ol style="list-style-type: none"> 2. Request Contractor to critically review the working methods. 3. Make agreement on the mitigation measures to be implemented. 4. Assess the effectiveness of the implemented mitigation measures. 5. Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the work until 	<p>of the non-compliance in writing.</p> <ol style="list-style-type: none"> 2. Rectify unacceptable practice. 3. Check all plant and equipment. 4. Consider changes of working methods. 5. Discuss with ET, IEC and ER and propose mitigation measures to IEC and ER within three working days. 6. Implement the agreed mitigation measures. 7. As directed by the ER, to slow down or to stop all or part of the work or construction activities.
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			no exceedanc e of Limit Level.	
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6.7 Monitoring Schedule for Next Reporting Period

Water quality monitoring schedule is proposed to be carried out on 1st, 3rd, 6th, 8th, 10th, 13th, 15th, 17th, 20th, 22nd, 24th, 27th, 29th and 31st of August 2013.

7 Air Quality Monitoring

7.1 Monitoring Methodology and Parameters

1-hr and 24-hrs air quality monitoring have been carried out during the reporting period.

Measurements of 1-hr TSP monitoring were taken by a Dust Trak aerosol monitor or its equivalent that is a portable and battery-operated laser photometer capable of performing real time 1-hr TSP measurements.

24-hrs TSP was measured by the High Volume Sampler. The filter papers for each monitoring locations were sent to the accredited HOKLAS laboratory for further analysis.

Other relevant data such as monitoring location, time, weather conditions and any other special phenomena at the construction site were recorded during the measurement period.

7.2 Monitoring Equipment

24-hrs TSP was measured by the High Volume Sampler. And the 3 sets of 1-hr TSP were carried out by the portable dust meter. The measurement equipments are listed in Table 7.2.1 and Calibration Certificates of the equipments are shown in **Appendix C**.

Table 7.2.1 Air Quality Monitoring Equipments

Equipment	Manufacturer & Model No.	Parameter	Qty
Laser Dust Monitor	1. AM510 2. SIBATA/LD-3B	1-hr TSP	4
High Volume Sampler	TE-5025A	24-hrs TSP	4

7.3 Monitoring Locations

Monitoring locations were established at 4 locations, which are summarized in Table 7.3.1 and are shown in Figure 7.3.1

Table 7.3.1 Air Quality Monitoring Locations

Identification No.	TSP Monitoring Locations
D1	Staff Quarters 1-12, HKUST
D2	174, Lots in DD227 & DD229, Tai Po Tsai, Sai Kung
D3	152A, Lots in DD227 & DD229, Tai Po Tsai, Sai Kung
D4	109, Lots in DD227 & DD229, Tai Po Tsai, Sai Kung

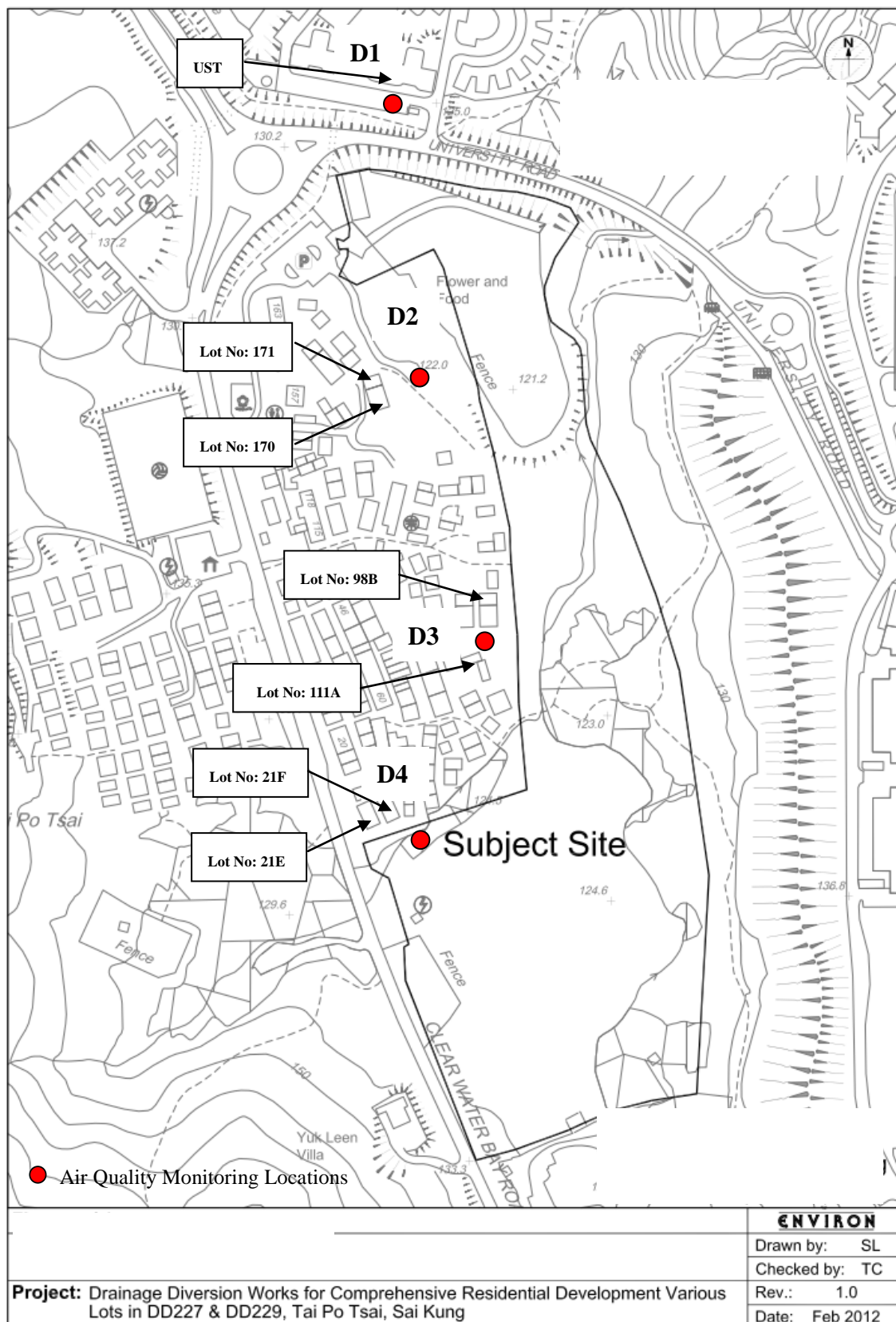


Figure 7.3.1 Air Quality Monitoring Locations

7.4 Monitoring Frequency

For 1-hr and 24-hr TSP monitoring, the sampling frequency of at least once in every six days.

Monitoring was carried out on 4th, 10th, 16th, 22nd and 27th of July 2013.

7.5 Monitoring Results and Interpretation

1-hr TSP and 24-hrs TSP were carried out during this reporting. And, no exceedance was recorded.

1-hr TSP monitoring was conducted at four designated monitoring locations. The monitoring results are summarized in Table 7.5.1.

Location	Range (µg/m ³) (Min – Max)	Average (µg/m ³)
D1	9-36	20.7
D2	15-33	21.5
D3	9-29	20.0
D4	13-85	29.9

24-hrs TSP monitoring data was obtained at four designated monitoring locations. The monitoring results are summarized in Table 7.5.2.

Location	Range (µg/m ³) (Min – Max)	Average (µg/m ³)
D1	9.9-34.0	23.3
D2	0.6-24.4	10.8
D3	3.7-48.5	22.3
D4	22.7-152.2	65.6

Details of the monitoring data were presented in **Appendix F**.

7.6 Action and Limit Level for 1-hr TSP and 24-hrs TSP

The Action and Limit levels for all monitoring stations are summarized in Table 7.6.1 and Table 7.6.2, which would be applied for compliance assessment of air quality for this project. If the air quality monitoring results at any impact stations exceeded the criteria, the actions in accordance with the Event and Action Plan in Table 7.6.3 should be taken.

Monitoring Station	Monitoring Frequency	Action Level	Limit Level
D1	1-hr	285.6 $\mu\text{g}/\text{m}^3$	500 $\mu\text{g}/\text{m}^3$
D2		279.4 $\mu\text{g}/\text{m}^3$	500 $\mu\text{g}/\text{m}^3$
D3		289.4 $\mu\text{g}/\text{m}^3$	500 $\mu\text{g}/\text{m}^3$
D4		284.3 $\mu\text{g}/\text{m}^3$	500 $\mu\text{g}/\text{m}^3$

Monitoring Station	Monitoring Frequency	Action Level	Limit Level
D1	24-hrs	156.4 $\mu\text{g}/\text{m}^3$	260 $\mu\text{g}/\text{m}^3$
D2		153.8 $\mu\text{g}/\text{m}^3$	260 $\mu\text{g}/\text{m}^3$
D3		155.2 $\mu\text{g}/\text{m}^3$	260 $\mu\text{g}/\text{m}^3$
D4		158.0 $\mu\text{g}/\text{m}^3$	260 $\mu\text{g}/\text{m}^3$

Table 7.6.3 Event and action Plan for Air Quality

Event	ET Leader	IEC	ER	Contractor
ACTION LEVEL				
Exceedance for one sample	<ol style="list-style-type: none"> Identify source, investigate the cause s of exceedance and propose remedial measures. Inform ER , IEC and Contractor. Repeat measurement to confirm finding. Increase monitoring frequency to daily. 	<ol style="list-style-type: none"> Check monitoring data submitted by ET. Check Contractor’s working method. 	<ol style="list-style-type: none"> Notify Contractor. 	<ol style="list-style-type: none"> Rectify any unacceptable practice. Amend working methods if appropriate.
Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> Identify source, investigate the causes of exceedance and propose remedial measures. Inform IEC and Contractor. Repeat measurements 	<ol style="list-style-type: none"> Checking monitoring data submitted by ET. Check Contractor’s working method. Discuss with ET and Contractor on Possible 	<ol style="list-style-type: none"> Confirm receipt of notification of failure in writing. Notify Contractor . Ensure remedial measures properly 	<ol style="list-style-type: none"> Submit proposals for remedial actions to IEC within three working days of notification. Implement the agreed proposals. Amend

	<p>to confirm findings</p> <p>4. Increase monitoring frequency to daily.</p> <p>5. Discuss with IEC and Contractor on remedial actions.</p> <p>6. If exceedance continues, arrange meeting with IEC and ER</p> <p>7. If exceedance stops, cease additional monitoring.</p>	<p>remedial measures.</p> <p>4. Advise the ER on the effectiveness of the proposed remedial measures.</p> <p>5. Supervisor implementation of remedial measures.</p>	<p>implemented</p>	<p>proposal if appropriate.</p>
LIMIT LEVEL				
Exceedance for one sample	<p>1. Identify source, investigate the causes of exceedance and propose remedial measures.</p> <p>2. Inform ER, Contractor and EPD.</p> <p>3. Repeat measurement to confirm finding.</p> <p>4. Increase</p>	<p>1. Checking monitoring data submitted by ET.</p> <p>2. Check Contractor's working method</p> <p>3. Discuss with ET and Contractor on possible remedial measures</p> <p>4. Advise the</p>	<p>1. Confirm receipt of notification of failure in writing.</p> <p>2. Notify Contractor.</p> <p>3. Ensure remedial measures properly implemented.</p>	<p>1. Take immediate action to avoid further exceedance.</p> <p>2. Submit proposals for remedial actions to IEC within three working days of notification.</p> <p>3. Implement the agreed proposals.</p>

	<p>monitoring frequency to daily.</p> <p>5. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the result.</p>	<p>ER on the effectiveness of the proposed remedial measures.</p> <p>5. Supervisor implementation of remedial measures.</p>		<p>4. Amend proposal if appropriate.</p>
<p>Exceedance for two or more consecutive samples</p>	<p>1. Identify source, investigate the causes of exceedance and propose remedial measures.</p> <p>2. Notify IEC, ER, Contractor and EPD.</p> <p>3. Repeat measurement to confirm findings.</p> <p>4. Increase monitoring frequency to daily.</p> <p>5. Carry out analysis of Contractor's working procedures to determine possible</p>	<p>1. Discuss amongst ER, ET and Contractor on the potential remedial actions.</p> <p>2. Reviews Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly.</p> <p>3. Supervisor the implement</p>	<p>1. Confirm receipt of notification of failure in writing.</p> <p>2. Notify Contractor.</p> <p>3. In consultation with the IEC, agree with the Contractor on the remedial measures to be implemented.</p> <p>4. Ensure remedial measures properly implement</p>	<p>1. Take immediate action to avoid further exceedance.</p> <p>2. Submit proposals for remedial actions to IEC within three working days of notification.</p> <p>3. Implement the agreed proposals</p> <p>4. Resubmit proposals if problem still not under control.</p> <p>5. Stop the relevant portion of</p>

	<p>mitigation to be implemented.</p> <p>6. Arrange meeting with IEC and ER to discuss the remedial actions to be taken.</p> <p>7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results.</p> <p>8. If exceedance stops, cease additional monitoring</p>	<p>ation of remedial measures.</p>	<p>ed.</p> <p>5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated remedial actions.</p>	<p>works as determined by the ER until the exceedance is abated</p>
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7.7 Monitoring Schedule for Next Reporting Period

1-hr TSP and 24-hrs TSP monitoring schedule is proposed to be carried out on 2nd, 8th, 14th, 20th, and 26th of August 2013.

8 Ecology

During the reporting period, tree protection measures have been implemented by contractor, such as provision of tree protective fencing for the retained trees. The tree protection zone has enough space to prevent the construction activities to damage the trees.

As the existing river was diverted temporarily, contractor was reminded that the water flow in the existing river within the site should be maintained.

9 Action Taken in Event of Exceedance

If the measurements (Noise, Water and Air) exceed the action / limit level, exceedance details will be reported and follow-up actions will be taken by relevant parties involved.

During the reporting month there was no exceedance for noise and air measurements recorded; therefore, no actions were taken.

For water quality monitoring, total 9 numbers of exceedance (Turbidity & SS) were record in this reporting month in accordance with the established level. ET has arranged site investigations for the exceedance on the same day and found that no construction activities had been carried out at the river bed. It was believed that the exceedances of water quality were not affected by the construction activities. According to the site investigation, we believed that the exceedance records at W2 were caused by adverse weather and natural fluctuation. Therefore, the exceedance records at W2 were unlikely to be related to this project.

10 Construction Waste Disposal

It is the contractor's responsibility to ensure that all wastes produced during the construction phase for the drainage improvement works are handled, stored and disposed in accordance with good waste management practices and EPD's regulation and requirement. Waste materials generated during construction activities, such as construction and demolition (C&D) material, chemical wastes and general refuse, are recommended to be audited at regular intervals to ensure that proper storage, transportation and disposal practices are being implemented.

Table 10.1 is a summary of figures of the construction wastes disposal provided by Contractor.

Table 10.1 Summary of Construction Waste Disposal

Month	Actual Quantities of Inert C & D Materials Generated Monthly						Actual Quantities of C & D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/cardboard packaging	Plastics (see note3)	Chemical Waste	Others, e.g. general refuse
	(in'000ton)	(in'000ton)	(in'000ton)	(in'000ton)	(in'000ton)	(in'000ton)	(in'000kg)	(in'000kg)	(in'000kg)	(in'000kg)	(in'000kg)
Sep 12	0	0	0	0	0	0	0	0	0	0	0
Oct12	0	0	0	0	0	0	0	0	0	0	0
Nov 12	2.77	0	0	0	2.77	0	0	0	0	0	0.031
Dec 12	3.70	0	0	0	3.70	0	0	0	0	0	0.006
Jan 13	43.89	0	0	0	43.89	0	0	0	0	0	0
Feb 13	68.93	0	0	0	68.93	0	0	0	0	0	0.016
Mar 13	55.30	0	0	0	55.30	0	0	0	0	0	6.77
Apr 13	23.40	0	0	0	23.40	0	0	0	0	0	0
May 13	13.50	0	0	0	13.50	0	0	0	0	0	7.6
Jun 13	4.09	0	0	0	4.09	0	9.66	0	0	0	4.63
Jul 13	3.05	0	0	0	3.05	0	0	0	0	0	0.009
Aug 13	0	0	0	0	0	0	0	0	0	0	0
Total	218.63	0	0	0	218.63	0	9.66	0	0	0	19.06
Forecast of Total Quantities of C & D Materials to be Generated from the Contract											
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/cardboard packaging	Plastics (see note3)	Chemical Waste	Others, e.g. general refuse
	(in'000ton)	(in'000ton)	(in'000ton)	(in'000ton)	(in'000ton)	(in'000ton)	(in'000kg)	(in'000kg)	(in'000kg)	(in'000kg)	(in'000kg)
	581	1.67	180	0	239	0	0	0	0	0	240

11 Status of Permits and Licenses

Table 11.1 is the updated status of environmental related permits/ license obtained for the construction activities

Table 11.1 Status of Permits and Licenses Obtained					
Description	License / Permit No.#	Date of Issue	Site	Date of expiry	Status
EP	EP-428/2011	4 November 2011	Various Lots in DD227 & DD229, Tai Po Tsai, Sai Kung	N/A	Superseded by VEP
EP	EP-428/2011/A	1 June 2012			Valid
FEP	FEP-01/428/2011/A	9 July 2012			Surrendered on 28 Nov 2012
FEP	FEP-02/428/2011/A	26 November 2012			Valid
Discharge License	WT00014162-2012	18 October 2012			Valid
Registration as a Chemical Waste Producer	349704	27 Sep 2012			Valid
Waste Disposal	N/A	N/A			N/A
Notification Pursuant to Section 3(1) of The Air Pollution Control (Construction Dust) Regulation	349519	4 Sep 2012	Various Lots in DD227 & DD229, Tai Po Tsai, Sai Kung	Valid	

12 Compliant Log

There was no formal complaint received during the reporting period. Therefore, no follow up actions for the environmental complaint is required.

	Noise	Water	Air	Others
Year 2012	0	0	0	0
January 2013	0	0	0	0
February 2013	0	0	0	0
March 2013	1	0	1	0
April 2013	0	0	0	0
May 2013	0	0	0	0
June 2013	0	0	0	0
July 2013	0	0	0	0
Total	1	0	1	0

13 Site Environmental Audits

13.1 Site Inspection

Site inspections were undertaken weekly to inspect the construction activities in active site areas to ensure that appropriate environmental protection and pollution control mitigation measures are properly implemented.

Within this reporting period, site inspections were conducted on 4th, 10th, 16th, 22nd and 30th of July 2013. A detailed checklist of each site inspection together with comments and relevant photos have been filed and kept. The findings from inspection were summarized in Table 13.1.

Table 13.1 Summary results of site inspections findings

Date	Findings	Identification	Advice from ET	Action taken	Closing date	Remarks
4, 10, 16, 22 & 30 July 2013	No major environmental deficiency was observed.	N/A	N/A	N/A	N/A	N/A

13.2 Compliance with Legal and Contractual Requirement

There was no non-compliance recorded for the month of July 2013.

13.3 Implementation Status and Effectiveness of Mitigation Measures

Contractor has implemented mitigation measures to address those problems as advised by ET. Some of the measures taken by the contractor were considered as effective to minimize negative impact to the environment. Ongoing investigation will be carried out to observe performance and effectiveness of those measures. Outstanding environmental items will be inspected in next month.

As there were some ongoing follow up practices, contractor was reminded to regularly review and rectify the discrepancy once found and maintain good site condition. The contractor implemented various environmental mitigation measures as recommended in the Environmental Permit.

14 Future Key Issues and Recommendations

According to the forecasted site activities, key environmental issues to be considered should at least include the following items:

- Site water control and relevant protective measures
- Dust suppression
- Noise control
- Control and disposal for construction wastes generated from works

Tree protective measures for tree planting and transplanting should be implemented such as tree protection zone and regular watering.

15 Conclusions

Construction of sand trap and manhole, construction of covered channel and concrete pipe installation were major site activities being carried out within this reporting period.

Regular site meetings and inspection audits led by the seniors for discussing site environmental matters were held among Contractor and the ET on weekly basis. Also monthly site meeting and inspection audits with the above parties and IEC were carried out on 30th July 2013.

No exceedance was recorded for Noise and Air during the reporting period.

Impact monitoring for water quality was conducted. Total 9 numbers of exceedance were recorded in this reporting period. For the non-compliance events, ET has arranged site investigation for the abnormal incidents on the same day and found that no construction activities had been carried out at the river bed and could disturb the water quality. It was believed that the exceedances of water quality were not affected by construction activities. According to the site investigation, we believed that the exceedance records at W2 were affected by adverse weather and natural fluctuation. Therefore, the exceedances records at W2 were unlikely to be related to this project.

Also, there was no notification of summons, formal prosecution or complaints being recorded during the reporting period.

ET has reminded the contractor to provide environmental pollution control measures wherever necessary, and to keep a good environmental management at site practice.

The ET will continue to implement the environmental monitoring & audit programme in accordance with the PS and Environmental Permit requirements.

Appendix A

Construction Master Programme and Site Location Plan

Appendix B

Key Personal Contact Information Chart

Key Personal Contact Information Chart

Organization Name	Role	Name	Telephone	Fax Number
ENVIRON Hong Kong Limited	Independent Environmental Checker (IEC)	Mr. Tong Cheng	3465 2888	3465 2899
Hip Seng Construction Company Limited	Main Contractor	Mr. Martin Wong	3110 2608	3110 2606
Environmental Pioneers & Solutions Limited	Environmental Team (ET)	Ms. Goldie Fung	2556 9172	2856 2010

Appendix C

Calibration Certificates for Measuring Instruments



Calibration Certificate

Certificate No. **28553**

Page 1 of 5 Pages

Customer : Environmental Pioneers and Solutions Limited

Address : Flat A, 19/F., Chai Wan Industrial Centre Building, 21 Lee Chung Street, Chai Wan, HK.

Order No. : Q23300

Date of receipt : 11-Dec-12

Item Tested

Description : Sound Level Meter

Manufacturer : SVAN

Model : 955

Serial No. : 27302

Test Conditions

Date of Test : 8-Jan-13

Supply Voltage : --

Ambient Temperature : (23 ± 3)°C

Relative Humidity : (50 ± 25) %

Test Specifications

Calibration check.

Ref. Document/Procedure: Z01.

Test Results


All results were within the IEC 61672 Type1, IEC 1260 Class1 and manufacturer's specification.
The results are shown in the attached page(s).


Main Test equipment used:

<u>Equipment No.</u>	<u>Description</u>	<u>Cert. No.</u>	<u>Traceable to</u>
S017	Multi-Function Generator	C127181	SCL-HKSAR
S024	Sound Level Calibrator	28588	NIM-PRC & SCL-HKSAR

The values given in this Calibration Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Hong Kong Calibration Ltd. shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to International System of Units (SI).
The test results apply to the above Unit-Under-Test only

Calibrated by : 
P. F. Wong

Approved by : 
Dorothy Cheuk

Date: 8-Jan-13



Calibration Certificate

Certificate No. 28553

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Results :

1. Self-generated noise: 2.0 dBA (Mfr's Spec (Electrical) ≤ 14 dBA)

2. Acoustical signal test

UUT Setting				Applied Value (dB)	UUT Reading (dB)	
Range (dB)	Frequency Weighting	Time Weighting	1/1 Octave Filter		Before adjust	After adjust
25-120	A	F	OFF	94.0	--	93.5
		S	OFF		--	93.5
	C	F	OFF	--	93.5	
	A	F	OFF	114.0	--	113.9
		S	OFF		--	113.9
	C	F	OFF	--	113.9	
	A	F	ON	94.0	--	93.5
	A	F	ON	114.0	--	113.9
45-139	A	F	OFF	94.0	*91.6	93.5
		S	OFF		--	93.5
	C	F	OFF	--	93.5	
	A	F	OFF	114.0	--	113.9
		S	OFF		--	113.9
	C	F	OFF	--	113.9	
	A	F	ON	94.0	--	93.5
	A	F	ON	114.0	--	113.9

Mfr's Spec. : ± 0.7 dB

Uncertainty : ± 0.1 dB

3 Electrical signal tests of frequency weightings (A weighting)

Frequency	Attenuation (dB)	IEC 61672 Type 1 Spec.
31.5 Hz	-39.5	- 39.4 dB, ± 2 dB
63 Hz	-26.5	- 26.2 dB, ± 1.5 dB
125 Hz	-16.2	- 16.1 dB, ± 1.5 dB
250 Hz	-8.7	- 8.6 dB, ± 1 dB
500 Hz	-3.3	- 3.2 dB, ± 1.4 dB
1 kHz	0.0 (Ref)	0 dB, ± 1.1 dB
2 kHz	+1.2	+ 1.2 dB, ± 1.6 dB
4 kHz	+1.0	+ 1.0 dB, ± 1.6 dB
8 kHz	-1.1	- 1.1 dB, + 2.1 dB \sim -3.1 dB
16 kHz	-6.9	- 6.6 dB, + 3.5 dB \sim -17.0 dB

Uncertainty : ± 0.1 dB



Calibration Certificate

Certificate No. 28553

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4. Frequency & Time weightings at 1 kHz

4.1 Frequency Weighting (Fast)

UUT Setting	Applied Value (dB)	UUT Reading (dB)	Difference (dB)	IEC 61672 Type 1 Spec.
A	94.0	93.5 (Ref.)	--	± 0.4 dB
C	94.0	93.5	0.0	

4.2 Time Weighting (A-weighted)

UUT Setting	Applied Value (dB)	UUT Reading (dB)	Difference (dB)	IEC 61672 Type 1 Spec.
Fast	94.0	93.5 (Ref.)	--	± 0.3 dB
Slow	94.0	93.5	0.0	
Time-averaging	94.0	93.5	0.0	

Uncertainty : ± 0.1 dB

5. Level linearity on the reference level range

UUT Range	Applied Value (dB)	UUT Reading (dB)	Difference (dB)	IEC 61672 Type 1 Spec.
140 dB (Ref Level)	137.0	136.5	0.0	± 1.1 dB
	136.0	135.5	0.0	
	135.0	134.5	0.0	
	134.0	133.5	0.0	
	129.0	128.5	0.0	
	124.0	123.5	0.0	
	119.0	118.5	0.0	
	114.0	113.5	0.0	
	109.0	108.5	0.0	
	104.0	103.5	0.0	
	99.0	98.5	0.0	
	94.0	93.5 (Ref)	--	
	89.0	88.5	0.0	
	84.0	83.5	0.0	
	79.0	78.5	0.0	
	74.0	73.5	0.0	
	69.0	68.5	0.0	
	64.0	63.5	0.0	
	59.0	58.5	0.0	
	54.0	53.5	0.0	
49.0	48.4	0.1		
48.0	47.4	0.1		

Uncertainty : ± 0.1 dB



Calibration Certificate

Certificate No. **28553**

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6. Toneburst response (4kHz)

UUT Setting	Tone Burst Duration(ms)	UUT Reading(dB)	Difference (dB)	IEC 61672 Type 1 Spec.
Fast	Steady	137.0(Ref)	--	--
	200	136.0	-1.0	-1.0 ± 0.8dB
	2	118.9	-18.1	-18.0, +1.3 dB ~ -1.8 dB
	0.25	109.9	-27.1	-27.0, +1.3 dB ~ -3.3 dB
Slow	Steady	137.0(Ref)	--	--
	200	129.5	-7.5	-7.4 ± 0.8dB
	2	109.9	-27.1	-27.0, +1.3 dB ~ -3.3 dB
Time averaging	Steady	137.0(Ref)	--	--
	200	130.0	-7.0	-7.0±0.8dB
	2	110.8	-26.2	-27.0, +1.3 dB ~ -1.8 dB
	0.25	102.0	-35.0	-36.0, +1.3 dB ~ -3.3 dB

Uncertainty : ± 0.1 dB

7. Peak C sound level (140 dB Range, C-weighted, Fast)

Freq(Hz)	Signal Type	Indication of overload	UUT reading (dB)	Difference (dB)	IEC 61672 Type 1 Spec.
8000	Steady	--	132.0	--	3.2 ± 2.4 dB
	Complete-cycle	No	135.3	3.3 dB	
500	Steady	--	132.0	--	2.4 ± 1.4 dB
	+ve half-cycle	No	129.3	2.7 dB	
	-ve half-cycle	No	129.1	2.9 dB	

Uncertainty : ± 0.1 dB



Calibration Certificate

Certificate No. **28553**

Page 5 of 5 Pages

8. Overload indication (140 dB range, A-weighted, Time-average, 4kHz)

UUT Reading at overload (dB)		Difference (dB)	IEC 61672 Type 1 Spec.
+ ve one half cycle	- ve one half cycle		
137.0	138.5	1.5	< 1.8 dB

The overload indicator latched on until reset

Uncertainty : ± 0.1 dB

9. Filter Characteristics

9.1 1/1 – Octave Filter

Frequency	Attenuation (dB)	IEC 1260 Class 1 (dB)
125 Hz	-76.4	< - 61
250 Hz	-70.5	< - 42
500 Hz	-36.3	< - 17.5
707 Hz	-4.3	- 2 ~ - 5
1 kHz (Ref)	--	--
1.414 kHz	-2.1	- 2 ~ - 5
2 kHz	-50.6	< - 17.5
4 kHz	-82.3	< - 42
8 kHz	-82.5	< - 61

Uncertainty : ± 0.25 dB

Remarks : 1. UUT : Unit-Under-Test

2. The uncertainty claimed is for a confidence probability of not less than 95%.
3. Atmospheric Pressure : 1010 hPa.
4. Preamplifier model : SV 12L , S/N : 25732
5. Firmware Version: 6.12.4
6. Power Supply Check: OK
7. The UUT was adjusted with the supplied sound calibrator at the reference sound pressure level before the calibration.
8. *Out of specification.

----- END -----



Calibration Certificate

Certificate No. **28554**

Page 1 of 2 Pages

Customer : Environmental Pioneers and Solutions Limited

Address : Flat A, 19/F., Chai Wan Industrial Centre Building, 21 Lee Chung Street, Chai Wan, HK.

Order No. : Q23300

Date of receipt : 11-Dec-12

Item Tested

Description : Sound Level Calibrator

Manufacturer : Svantek

Model : SV30A

Serial No. : 29085

Test Conditions

Date of Test : 3-Jan-13

Supply Voltage : --

Ambient Temperature : (23 ± 3)°C

Relative Humidity : (50 ± 25) %

Test Specifications

Calibration check.

Ref. Document/Procedure : F21, Z02.

Test Results

All results were within the IEC 942 Class1 specification.

The results are shown in the attached page(s).

Main Test equipment used:

<u>Equipment No.</u>	<u>Description</u>	<u>Cert. No.</u>	<u>Traceable to</u>
S014	Spectrum Analyzer	13535	NIM-PRC & SCL-HKSAR
S024	Sound Level Calibrator	28588	NIM-PRC & SCL-HKSAR
S041	Universal Counter	28347	SCL-HKSAR
S206	Sound Level Meter	16338	SCL-HKSAR

The values given in this Calibration Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Hong Kong Calibration Ltd. shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to International System of Units (SI).
The test results apply to the above Unit-Under-Test only

Calibrated by : 

P. F. Wong

Approved by : 

Dorothy Cheuk

Date: 3-Jan-13

This Certificate is issued by:

Hong Kong Calibration Ltd.

Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street, Kwai Chung, NT, Hong Kong.

Tel: 2425 8801 Fax: 2425 8646



Calibration Certificate

Certificate No. 28554

Page 2 of 2 Pages

Results :

1. Level Accuracy

UUT Nominal Value (dB)	Measured Value (dB)	IEC 942 Class 1 Spec.
94	94.03	± 0.3 dB
114	114.02	

Uncertainty : ± 0.2 dB

2. Frequency

UUT Nominal Value	Measured Value	IEC 942 Class 1 Spec.
1 kHz	1.000 kHz	± 2 %

Uncertainty : ± 3.6 x 10⁻⁶

3. Level Stability : 0.0 dB

IEC 942 Class 1 Spec. : ± 0.1 dB

Uncertainty : ± 0.01 dB

4. Total Harmonic Distortion : < 0.1 %

IEC 942 Class 1 Spec. : < 3 %

Uncertainty : ± 2.3 % of reading

Remark : 1. UUT : Unit-Under-Test

2. The above measured values are the mean of 3 measurements.

3. The uncertainty claimed is for a confidence probability of not less than 95%.

4. Atmospheric Pressure : 1010 hPa.

----- END -----



ALS Technichem (HK) Pty Ltd

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

CONTACT: MR ALLEN CHAN
CLIENT: ENVIRONMENTAL PIONEERS & SOLUTIONS LIMITED
ADDRESS: FLAT A, 19/F, CHAI WAN INDUSTRIAL BUILDING,
20 LEE CHUNG STREET,
CHAI WAN,
HONG KONG

WORK ORDER: HK1310697
LABORATORY: HONG KONG
DATE RECEIVED: 18/04/2013
DATE OF ISSUE: 02/05/2013

COMMENTS

It is certified that the item under calibration/checking has been calibrated/checked by corresponding calibrated equipment in the laboratory.

Maximum Tolerance and calibration frequency stated in the report, unless otherwise stated, the internal acceptance criteria of ALS will be followed.

Scope of Test: Conductivity, Dissolved Oxygen, pH, Temperature and Turbidity
Equipment Type: MULTI-METER
Brand Name: Horiba
Model No.: U-54-2 Multiparameter Probe
Serial No.: T825CR6N
Equipment No.: --
Date of Calibration: 30 April, 2013

NOTES

This is the Final Report and supersedes any preliminary report with this batch number. Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

ISSUING LABORATORY: HONG KONG

Address

ALS Technichem (HK) Pty Ltd
11/F Chung Shun Knitting Centre
1-3 Wing Yip Street
Kwai Chung
HONG KONG

Phone: 852-2610 1044
Fax: 852-2610 2021
Email: hongkong@alsglobal.com


Mr. Fung Lim Chee, Richard
General Manager
Greater China & Hong Kong

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Page 1 of 2

REPORT OF EQUIPMENT PERFORMANCE CHECK / CALIBRATION



Work Order: HK1310697
Date of Issue: 02/05/2013
Client: ENVIRONMENTAL PIONEERS & SOLUTIONS LIMITED

Description: MULTI-METER
Brand Name: Horiba
Model No.: U-54-2 Multiparameter Probe
Serial No.: T825CR6N
Equipment No.: --

Date of Calibration: 30 April, 2013 **Date of next Calibration:** 30 July, 2013

Parameters:

Conductivity

Method Ref: APHA (21st edition), 2510B

Expected Reading (uS/cm)	Displayed Reading (uS/cm)	Tolerance (%)
146.9	147	0.1
6667	6360	-4.6
12890	13000	0.9
58670	58700	0.1
Tolerance Limit (±%)		10.0

Dissolved Oxygen

Method Ref: APHA (21st edition), 4500O: G

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)
3.94	4.09	0.15
6.10	6.23	0.13
8.55	8.59	0.04
Tolerance Limit (±mg/L)		0.20

pH Value

Method Ref: APHA 21st Ed. 4500H:B

Expected Reading (pH Unit)	Displayed Reading (pH Unit)	Tolerance (pH unit)
4.0	4.01	0.01
7.0	7.07	0.07
10.0	10.01	0.01
Tolerance Limit (±pH unit)		0.20

Temperature

Method Ref: Section 6 of International Accreditation New Zealand Technical Guide No. 3 Second edition March 2008: Working Thermometer Calibration Procedure.

Expected Reading (°C)	Displayed Reading (°C)	Tolerance (°C)
10.0	10.71	0.7
22.0	23.68	1.7
39.5	39.36	-0.1
Tolerance Limit (±°C)		2.0

Turbidity

Method Ref: APHA (21st edition), 2130B

Expected Reading (NTU)	Displayed Reading (NTU)	Tolerance (%)
0	0	--
4	3.9	-2.5
40	41.6	4.0
80	83.3	4.1
400	402	0.5
800	779	-2.6
Tolerance Limit (±%)		10.0

Remark: "Displayed Reading" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.

Mr. Fung Lim Chee, Richard
 General Manager
 Greater China & Hong Kong

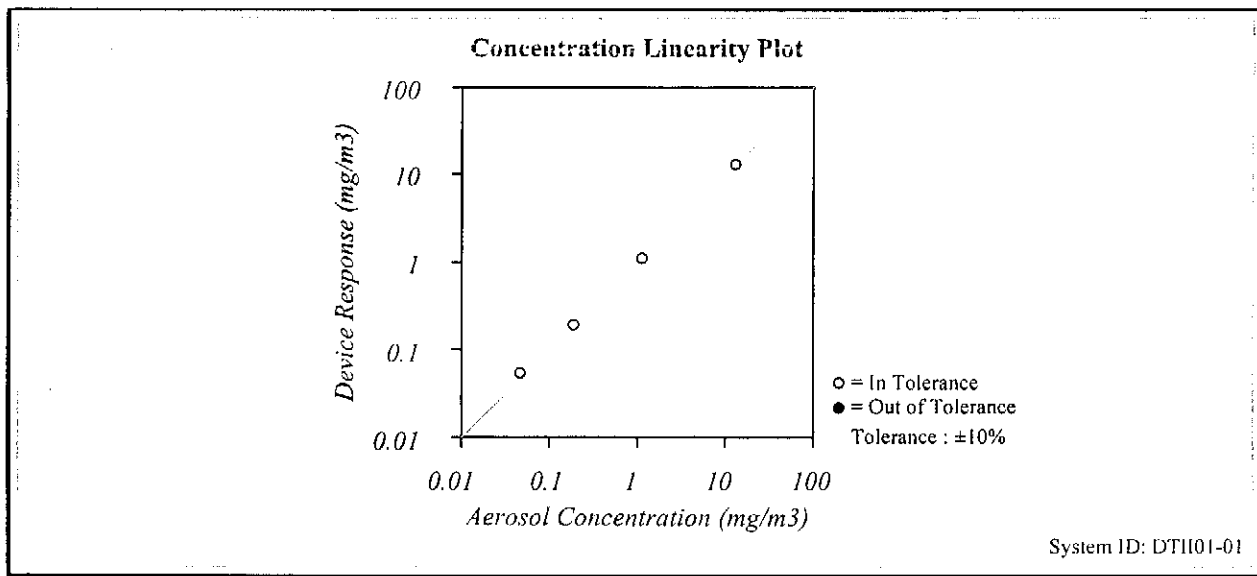


CERTIFICATE OF CALIBRATION AND TESTING

TSI Incorporated, 500 Cardigan Road, Shoreview, MN 55126 USA
 Tel: 1-800-874-2811 1-651-490-2811 Fax: 1-651-490-3824 <http://www.tsi.com>

Environment Condition			Model	AM510
Temperature	68.5 (20.3)	°F (°C)		
Relative Humidity	22	%RH	Serial Number	11304034
Barometric Pressure	28.95 (980.4)	inHg (hPa)		

<input checked="" type="checkbox"/> As Left	<input checked="" type="checkbox"/> In Tolerance
<input type="checkbox"/> As Found	<input type="checkbox"/> Out of Tolerance



TSI Incorporated does hereby certify that all materials, components, and workmanship used in the manufacture of this equipment are in strict accordance with the applicable specifications agreed upon by TSI and the customer and with all published specifications. All performance and acceptance tests required under this contract were successfully conducted according to required specifications. There is no NIST standard for optical mass measurements. Calibration of this instrument performed by TSI has been done using emery oil and has been nominally adjusted to respirable mass of standard ISO 12103-1, A1 test dust (Arizona dust). Our calibration ratio is greater than 1.2:1

Measurement Variable	System ID	Last Cal.	Cal. Due	Measurement Variable	System ID	Last Cal.	Cal. Due
Photometer	E003433	04-12-13	10-12-13	Flowmeter	E003520	02-28-13	02-28-14
DC Voltage(Keithley)	E002859	01-03-13	01-03-14	Microbalance	M001324	01-04-13	01-04-15
Barometric Pressure	E003733	03-12-13	03-12-14	Temperature	E002873	11-08-12	11-08-13
Humidity	E002873	11-08-12	11-08-13	Pressure	E003440	08-17-12	08-17-13

Bee Vang
 Final Function Check
 April 24, 2013

Calibrated Date

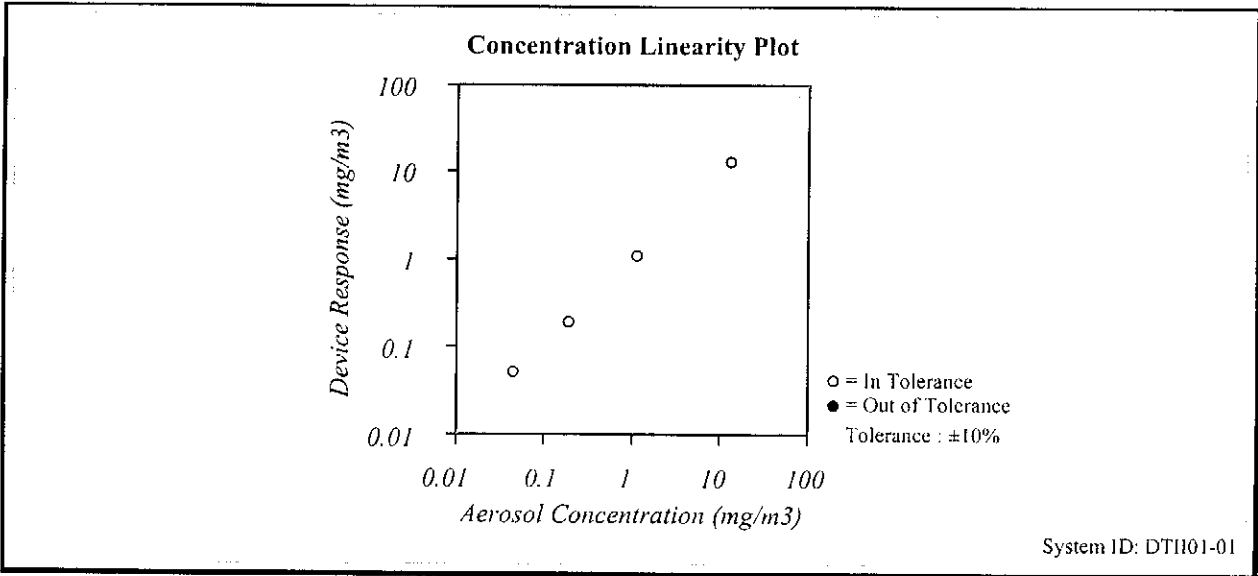


CERTIFICATE OF CALIBRATION AND TESTING

TSI Incorporated, 500 Cardigan Road, Shoreview, MN 55126 USA
Tel: 1-800-874-2811 1-651-490-2811 Fax: 1-651-490-3824 <http://www.tsi.com>

Environment Condition			Model	AM510
Temperature	73.8 (23.2)	°F (°C)	Serial Number	11304037
Relative Humidity	27	%RH		
Barometric Pressure	28.99 (981.7)	inHg (hPa)		

<input checked="" type="checkbox"/> As I left	<input checked="" type="checkbox"/> In Tolerance
<input type="checkbox"/> As Found	<input type="checkbox"/> Out of Tolerance



TSI Incorporated does hereby certify that all materials, components, and workmanship used in the manufacture of this equipment are in strict accordance with the applicable specifications agreed upon by TSI and the customer and with all published specifications. All performance and acceptance tests required under this contract were successfully conducted according to required specifications. There is no NIST standard for optical mass measurements. Calibration of this instrument performed by TSI has been done using emery oil and has been nominally adjusted to respirable mass of standard ISO 12103-1, A1 test dust (Arizona dust). Our calibration ratio is greater than 1.2:1

Measurement Variable	System ID	Last Cal.	Cal. Due	Measurement Variable	System ID	Last Cal.	Cal. Due
Photometer	E003433	04-12-13	10-12-13	Flowmeter	E003520	02-28-13	02-28-14
DC Voltage(Keithley)	E002859	01-03-13	01-03-14	Microbalance	M001324	01-04-13	01-04-15
Barometric Pressure	E003733	03-12-13	03-12-14	Temperature	E002873	11-08-12	11-08-13
Humidity	E002873	11-08-12	11-08-13	Pressure	E003440	08-17-12	08-17-13

Jacques Cohen
Calibrated

Final Function Check

April 26, 2013
Date

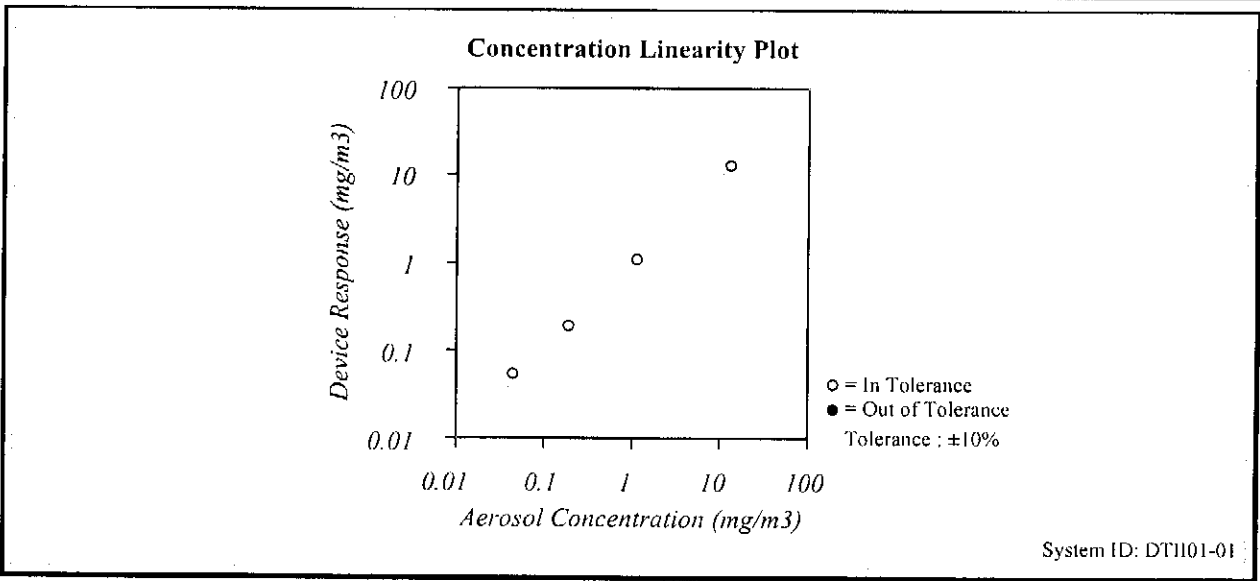


CERTIFICATE OF CALIBRATION AND TESTING

TSI Incorporated, 500 Cardigan Road, Shoreview, MN 55126 USA
Tel: 1-800-874-2811 1-651-490-2811 Fax: 1-651-490-3824 http://www.tsi.com

Environment Condition			Model	AM510
Temperature	73.8 (23.2)	°F (°C)	Serial Number	11304038
Relative Humidity	27	%RH		
Barometric Pressure	28.99 (981.7)	inHg (hPa)		

- | | |
|---|--|
| <input checked="" type="checkbox"/> As Left | <input checked="" type="checkbox"/> In Tolerance |
| <input type="checkbox"/> As Found | <input type="checkbox"/> Out of Tolerance |



TSI Incorporated does hereby certify that all materials, components, and workmanship used in the manufacture of this equipment are in strict accordance with the applicable specifications agreed upon by TSI and the customer and with all published specifications. All performance and acceptance tests required under this contract were successfully conducted according to required specifications. There is no NIST standard for optical mass measurements. Calibration of this instrument performed by TSI has been done using emery oil and has been nominally adjusted to respirable mass of standard ISO 12103-1 A1 test dust (Arizona dust). Our calibration ratio is greater than 1.2:1

Measurement Variable	System ID	Last Cal.	Cal. Due	Measurement Variable	System ID	Last Cal.	Cal. Due
Photometer	E003433	04-12-13	10-12-13	Flowmeter	E003520	02-28-13	02-28-14
DC Voltage(Keithley)	E002859	01-03-13	01-03-14	Microbalance	M001324	01-04-13	01-04-15
Barometric Pressure	E003733	03-12-13	03-12-14	Temperature	E002873	11-08-12	11-08-13
Humidity	E002873	11-08-12	11-08-13	Pressure	E003440	08-17-12	08-17-13

Jacque Corbin
Calibrated

Final Function Check

April 26, 2013
Date



Calibration Certificate

Certificate No. **28552**

Page 1 of 2 Pages

Customer : Environmental Pioneers and Solutions Limited

Address : Flat A, 19/F., Chai Wan Industrial Centre Building, 21 Lee Chung Street, Chai Wan, HK.

Order No. : Q23328

Date of receipt : 11-Dec-12

Item Tested

Description : Laser Dust Monitor

Manufacturer : SIBATA

Model : LD-3B

Serial No. : 095027

Test Conditions

Date of Test : 18-Dec-12

Supply Voltage : --

Ambient Temperature : (23 ± 3)°C

Relative Humidity : (50 ± 25) %

Test Specifications

Calibration check.

Ref. Document/Procedure : Manufacturer recommended method (gravimetric), Z28.

Test Results

The results are shown in the attached page(s).

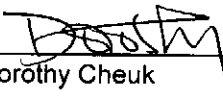
Main Test equipment used:

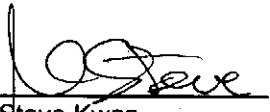
<u>Equipment No.</u>	<u>Description</u>	<u>Cert. No.</u>	<u>Traceable to</u>
S136B	Stop Watch	26077	NIM-PRC
S156	Analytical Balance	27964	NIM-PRC
S207B	Std. Flowmeter	20588	NIM-PRC

The values given in this Calibration Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Hong Kong Calibration Ltd. shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to International System of Units (SI).

The test results apply to the above Unit-Under-Test only

Calibrated by : 
Dorothy Cheuk

Approved by : 
Steve Kwan

This Certificate is issued by:

Hong Kong Calibration Ltd.

Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street, Kwai Chung, NT, Hong Kong.

Tel: 2425 9801 Fax: 2425 8646

Date: 19-Dec-12



Calibration Certificate

Certificate No. 28552

Page 2 of 2 Pages

Results :

Applied Value ($\mu\text{g}/\text{m}^3$)	UUT Measured Value (K=1.9) ($\mu\text{g}/\text{m}^3$), (cpm)
695.2	694.6

Remarks : 1. UUT : Unit-Under-Test

2. Uncertainty $\pm 15\%$, for a confidence probability of not less than 95%.
3. The results were the mean of 3 measurements,
4. ISO 12103-1 A1 respirable standard test dust was used for the calibration.
5. The K-Factor had been adjusted from 1.0 to 1.9

----- END -----



TISCH ENVIRONMENTAL, INC.
 145 SOUTH MIAMI AVE.
 VILLAGE OF CLEVELAND, OH 45002
 513.467.9000
 877.263.7610 TOLL FREE
 513.467.9009 FAX
 WWW.TISCH-ENV.COM

AIR POLLUTION MONITORING EQUIPMENT
 ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Apr 09, 2013 Rootsometer S/N 0438320 Ta (K) - 296
 Operator Tisch Orifice I.D. - 1941 Pa (mm) - 751.84

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER DIFF Hg (mm)	ORFICE DIFF H2O (in.)
1	NA	NA	1.00	1.4710	3.3	2.00
2	NA	NA	1.00	1.0370	6.4	4.00
3	NA	NA	1.00	0.9270	7.9	5.00
4	NA	NA	1.00	0.8840	8.8	5.50
5	NA	NA	1.00	0.7300	12.8	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
0.9916	0.6741	1.4113	0.9956	0.6768	0.8874
0.9874	0.9521	1.9959	0.9914	0.9560	1.2549
0.9854	1.0630	2.2315	0.9894	1.0673	1.4030
0.9843	1.1134	2.3405	0.9883	1.1180	1.4715
0.9790	1.3410	2.8227	0.9829	1.3465	1.7747
Qstd slope (m) = 2.11662			Qa slope (m) = 1.32539		
intercept (b) = -0.01714			intercept (b) = -0.01078		
coefficient (r) = 0.99999			coefficient (r) = 0.99999		
y axis = $\text{SQRT}[\text{H2O}(\text{Pa}/760)(298/\text{Ta})]$			y axis = $\text{SQRT}[\text{H2O}(\text{Ta}/\text{Pa})]$		

CALCULATIONS

$V_{std} = \text{Diff. Vol} [(\text{Pa} - \text{Diff. Hg}) / 760] (298 / \text{Ta})$
 $Q_{std} = V_{std} / \text{Time}$

$V_a = \text{Diff Vol} [(\text{Pa} - \text{Diff Hg}) / \text{Pa}]$
 $Q_a = V_a / \text{Time}$

For subsequent flow rate calculations:

$Q_{std} = 1/m \{ [\text{SQRT}(\text{H2O}(\text{Pa}/760)(298/\text{Ta}))] - b \}$
 $Q_a = 1/m \{ [\text{SQRT}(\text{H2O}(\text{Ta}/\text{Pa}))] - b \}$

TSP Sampler Calibration

SITE

Location: Tai Po Tsai Date: June 27, 2013
Sampler: TE-5170 MFC (Serial # : 2039) Tech: Sam Wong

CONDITIONS

Barometric Pressure (in Hg): 39.65 Corrected Pressure (mm Hg): 1007
Temperature (deg F): 90 Temperature (deg K): 305
Average Press. (in Hg): 39.65 Corrected Average (mm Hg): 1007
Average Temp. (deg F): 90 Average Temp. (deg K): 305

CALIBRATION ORIFICE

Make: Tisch Qstd Slope: 2.11662
Model: TE-5025A Qstd Intercept: -0.01714
Serial#: 1941 Date Certified: April 9, 2013

CALIBRATIONS

Plate or Test #	H2O (in)	Qstd (m3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION
1	12.00	1.870	60.0	68.25	Slope = 36.8341
2	10.40	1.741	54.0	61.42	Intercept = -2.3572
3	8.20	1.547	46.0	52.32	Corr. coeff.= 0.9939
4	5.20	1.234	38.0	43.22	
5	3.20	0.969	30.0	34.12	# of Observations: 5

Calculations

$Qstd = 1/m[\text{sqrt}(H2O(Pa/Pstd)(Tstd/Ta)) - b]$
 $IC = I[\text{sqrt}(Pa/Pstd)(Tstd/Ta)]$

Qstd = standard flow rate
IC = corrected chart response
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K)
Pa = actual pressure during calibration (mm Hg)
Tstd = 298 deg K
Pstd = 760 mm Hg
For subsequent calculation of sampler flow:
 $1/m((I)[\text{sqrt}(298/Tav)(Pav/760)] - b)$

m = sampler slope
b = sampler intercept
I = chart response
Tav = daily average temperature
Pav = daily average pressure

TSP Sampler Calibration

SITE

Location: **Tai Po Tsai** Date: **June 27, 2013**
Sampler: **TE-300-310X (Serial # : 0873)** Tech: **Sam Wong**

CONDITIONS

Barometric Pressure (in Hg):	39.65	Corrected Pressure (mm Hg):	1007
Temperature (deg F):	90	Temperature (deg K):	305
Average Press. (in Hg):	39.65	Corrected Average (mm Hg):	1007
Average Temp. (deg F):	90	Average Temp. (deg K):	305

CALIBRATION ORIFICE

Make: **Tisch** Qstd Slope: **2.11662**
Model: **TE-5025A** Qstd Intercept: **-0.01714**
Serial#: **1941** Date Certified: **April 9, 2013**

CALIBRATIONS

Plate or Test #	H2O (in)	Qstd (m3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION
1	12.20	1.885	58.0	65.97	Slope = 33.1529 Intercept = 2.4883 Corr. coeff.= 0.9983 # of Observations: 5
2	10.20	1.724	52.0	59.15	
3	8.00	1.528	46.0	52.32	
4	5.20	1.234	38.0	43.22	
5	3.00	0.939	30.0	34.12	

Calculations

$$Qstd = 1/m[\text{Sqrt}(H2O(Pa/Pstd)(Tstd/Ta))-b]$$
$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

Qstd = standard flow rate
IC = corrected chart response
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K)
Pa = actual pressure during calibration (mm Hg)
Tstd = 298 deg K
Pstd = 760 mm Hg
For subsequent calculation of sampler flow:
 $1/m((I)[\text{Sqrt}(298/Tav)(Pav/760)]-b)$

m = sampler slope
b = sampler intercept
I = chart response
Tav = daily average temperature
Pav = daily average pressure

TSP Sampler Calibration

SITE

Location: **Tai Po Tsai** Date: **June 27, 2013**
Sampler: **TE-5170 MFC (Serial # : 2042)** Tech: **Sam Wong**

CONDITIONS

Barometric Pressure (in Hg):	39.65	Corrected Pressure (mm Hg):	1007
Temperature (deg F):	90	Temperature (deg K):	305
Average Press. (in Hg):	39.65	Corrected Average (mm Hg):	1007
Average Temp. (deg F):	90	Average Temp. (deg K):	305

CALIBRATION ORIFICE

Make:	Tisch	Qstd Slope:	2.11662
Model:	TE-5025A	Qstd Intercept:	-0.01714
Serial#:	1941	Date Certified:	April 9, 2013

CALIBRATIONS

Plate or Test #	H2O (in)	Qstd (m3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION
1	12.40	1.900	58.0	65.97	Slope = 34.6285
2	10.20	1.724	52.0	59.15	Intercept = -0.1915
3	8.00	1.528	46.0	52.32	Corr. coeff.= 0.9992
4	5.20	1.234	38.0	43.22	
5	3.40	0.999	30.0	34.12	# of Observations: 5

Calculations

$Qstd = 1/m[\text{sqrt}(H2O(Pa/Pstd)(Tstd/Ta)) - b]$
 $IC = I[\text{sqrt}(Pa/Pstd)(Tstd/Ta)]$

Qstd = standard flow rate
IC = corrected chart response
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K)
Pa = actual pressure during calibration (mm Hg)
Tstd = 298 deg K
Pstd = 760 mm Hg
For subsequent calculation of sampler flow:
 $1/m((I)[\text{sqrt}(298/Tav)(Pav/760)] - b)$

m = sampler slope
b = sampler intercept
I = chart response
Tav = daily average temperature
Pav = daily average pressure

TSP Sampler Calibration

SITE

Location: **Tai Po Tsai** Date: **June 27, 2013**
 Sampler: **TE-5170 MFC (Serial # : 2040)** Tech: **Sam Wong**

CONDITIONS

Barometric Pressure (in Hg):	39.65	Corrected Pressure (mm Hg):	1007
Temperature (deg F):	90	Temperature (deg K):	305
Average Press. (in Hg):	39.65	Corrected Average (mm Hg):	1007
Average Temp. (deg F):	90	Average Temp. (deg K):	305

CALIBRATION ORIFICE

Make:	Tisch	Qstd Slope:	2.11662
Model:	TE-5025A	Qstd Intercept:	-0.01714
Serial#:	1941	Date Certified:	April 9, 2013

CALIBRATIONS

Plate or Test #	H2O (in)	Qstd (m3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION
1	12.20	1.885	58.0	65.97	Slope = 35.1701 Intercept = -0.2206 Corr. coeff.= 0.9982 # of Observations: 5
2	10.20	1.724	54.0	61.42	
3	8.00	1.528	46.0	52.32	
4	5.20	1.234	38.0	43.22	
5	3.20	0.969	30.0	34.12	

Calculations

$$Qstd = 1/m[\text{sqrt}(H2O(Pa/Pstd) (Tstd/Ta)) - b]$$

$$IC = I[\text{sqrt}(Pa/Pstd) (Tstd/Ta)]$$

Qstd = standard flow rate
 IC = corrected chart response
 I = actual chart response
 m = calibrator Qstd slope
 b = calibrator Qstd intercept
 Ta = actual temperature during calibration (deg K)
 Pa = actual pressure during calibration (mm Hg)
 Tstd = 298 deg K
 Pstd = 760 mm Hg
 For subsequent calculation of sampler flow:
 $1/m((I) [\text{sqrt}(298/Tav) (Pav/760)] - b)$

m = sampler slope
 b = sampler intercept
 I = chart response
 Tav = daily average temperature
 Pav = daily average pressure

Appendix D

Construction Noise Monitoring Data

大成環境科技拓展有限公司
Environmental Pioneers and Solutions Limited

Noise Monitoring Data Sheet

Monitoring Location		N1	N2	N3	N4
Monitoring Method		Freefield	Freefield	Freefield	Façade
Date of Monitoring		4/7/2013	4/7/2013	4/7/2013	4/7/2013
Weather Condition		Sunny	Sunny	Sunny	Sunny
Measurement Start Time (hh:mm)		8:40	9:15	9:50	10:25
Measurement Time Length (mins)		30 mins		30 mins	
SLM Model & S/N		SVAN 955		SVAN 955	
Wind Speed (m/s)		<5, Southeast	<5, Southeast	<5, Southeast	<5, Southeast
Measurement Results	L _{eq} (dB(A))	59.5	61.2	58.6	61.4
	L ₁₀ (dB(A))	62.2	61.7	59.6	64.5
	L ₉₀ (dB(A))	53.2	50.3	56.2	53.3
Major Construction Noise Source(s) During Monitoring		Nil	Nil	Nil	Nil
Other Noise Source(s) During Monitoring		Background noise	Background noise	Background noise	Background noise Traffic noise

Name

Signature

Date

Prepared by: Lai Chi Hang



4/7/2013

大成環境科技拓展有限公司
Environmental Pioneers and Solutions Limited

Noise Monitoring Data Sheet

Monitoring Location		N1	N2	N3	N4
Monitoring Method		Freefield	Freefield	Freefield	Façade
Date of Monitoring		10/7/2013	10/7/2013	10/7/2013	10/7/2013
Weather Condition		Sunny	Sunny	Sunny	Sunny
Measurement Start Time (hh:mm)		8:45	9:19	9:55	10:30
Measurement Time Length (mins)		30 mins		30 mins	
SLM Model & S/N		SVAN 955		SVAN 955	
Wind Speed (m/s)		<5, South	<5, South	<5, South	<5, South
Measurement Results	L _{eq} (dB(A))	63.1	69.2	67.8	62.9
	L ₁₀ (dB(A))	65.4	72.7	70.5	65.5
	L ₉₀ (dB(A))	58.4	59.6	59.5	58.0
Major Construction Noise Source(s) During Monitoring		Nil	Nil	Nil	Nil
Other Noise Source(s) During Monitoring		Background noise	Background noise	Background noise	Background noise Traffic noise

Name

Signature

Date

Prepared by: Lai Chi Hang



10/7/2013

大成環境科技拓展有限公司
Environmental Pioneers and Solutions Limited

Noise Monitoring Data Sheet

Monitoring Location		N1	N2	N3	N4
Monitoring Method		Freefield	Freefield	Freefield	Façade
Date of Monitoring		16/7/2013	16/7/2013	16/7/2013	16/7/2013
Weather Condition		Overcast	Overcast	Overcast	Overcast
Measurement Start Time (hh:mm)		9:24	9:59	10:36	11:15
Measurement Time Length (mins)		30 mins		30 mins	
SLM Model & S/N		SVAN 955		SVAN 955	
Wind Speed (m/s)		<5, North	<5, Northeast	<5, Southwest	<5, North
Measurement Results	L _{eq} (dB(A))	62.6	57.3	65.4	63.8
	L ₁₀ (dB(A))	66.6	58.9	69.5	65.9
	L ₉₀ (dB(A))	54.1	50.4	61.9	58.1
Major Construction Noise Source(s) During Monitoring		Nil	Nil	Nil	Nil
Other Noise Source(s) During Monitoring		Background noise	Background noise	Background noise	Background noise Traffic noise

Name

Signature

Date

Prepared by: Lai Chi Hang



16/7/2013

大成環境科技拓展有限公司
Environmental Pioneers and Solutions Limited

Noise Monitoring Data Sheet

Monitoring Location		N1	N2	N3	N4
Monitoring Method		Freefield	Freefield	Freefield	Façade
Date of Monitoring		22/7/2013	22/7/2013	22/7/2013	22/7/2013
Weather Condition		Overcast	Overcast	Overcast	Overcast
Measurement Start Time (hh:mm)		13:01	10:20	10:59	13:42
Measurement Time Length (mins)		30 mins		30 mins	
SLM Model & S/N		SVAN 955		SVAN 955	
Wind Speed (m/s)		<5, East	<5, East	<5, East	<5, East
Measurement Results	L _{eq} (dB(A))	67.4	66.4	65.2	66.0
	L ₁₀ (dB(A))	70.4	69.9	68.4	68.9
	L ₉₀ (dB(A))	54.8	58.2	60.3	59.6
Major Construction Noise Source(s) During Monitoring		Nil	Nil	Nil	Nil
Other Noise Source(s) During Monitoring		Background noise	Background noise	Background noise	Background noise Traffic noise

Name

Signature

Date

Prepared by: Lai Chi Hang



22/7/2013

大成環境科技拓展有限公司
Environmental Pioneers and Solutions Limited

Noise Monitoring Data Sheet

Monitoring Location		N1	N2	N3	N4
Monitoring Method		Freefield	Freefield	Freefield	Façade
Date of Monitoring		27/7/2013	27/7/2013	27/7/2013	27/7/2013
Weather Condition		Overcast	Overcast	Overcast	Overcast
Measurement Start Time (hh:mm)		13:05	9:36	10:46	13:55
Measurement Time Length (mins)		30 mins		30 mins	
SLM Model & S/N		SVAN 955		SVAN 955	
Wind Speed (m/s)		<5, South	<5, South	<5, South	<5, South
Measurement Results	L _{eq} (dB(A))	64.7	62.7	66.4	66.0
	L ₁₀ (dB(A))	67.0	64.4	67.1	72.0
	L ₉₀ (dB(A))	56.6	54.7	62.6	62.3
Major Construction Noise Source(s) During Monitoring		Nil	Nil	Nil	Nil
Other Noise Source(s) During Monitoring		Background noise	Background noise	Background noise	Background noise Traffic noise

Name

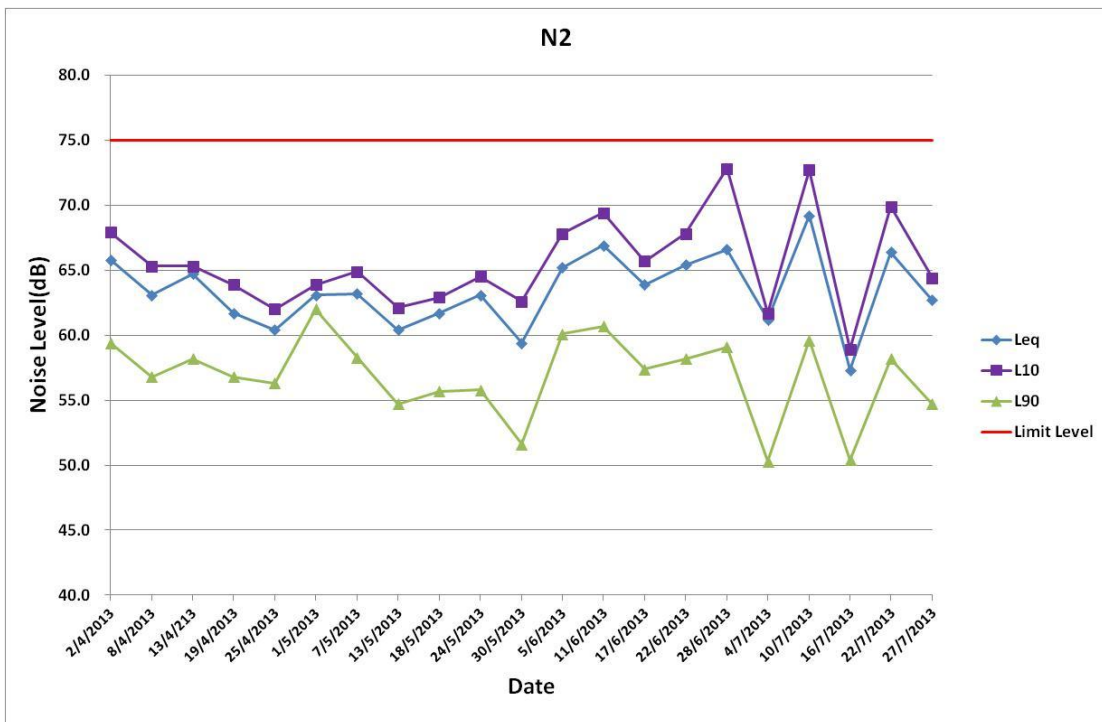
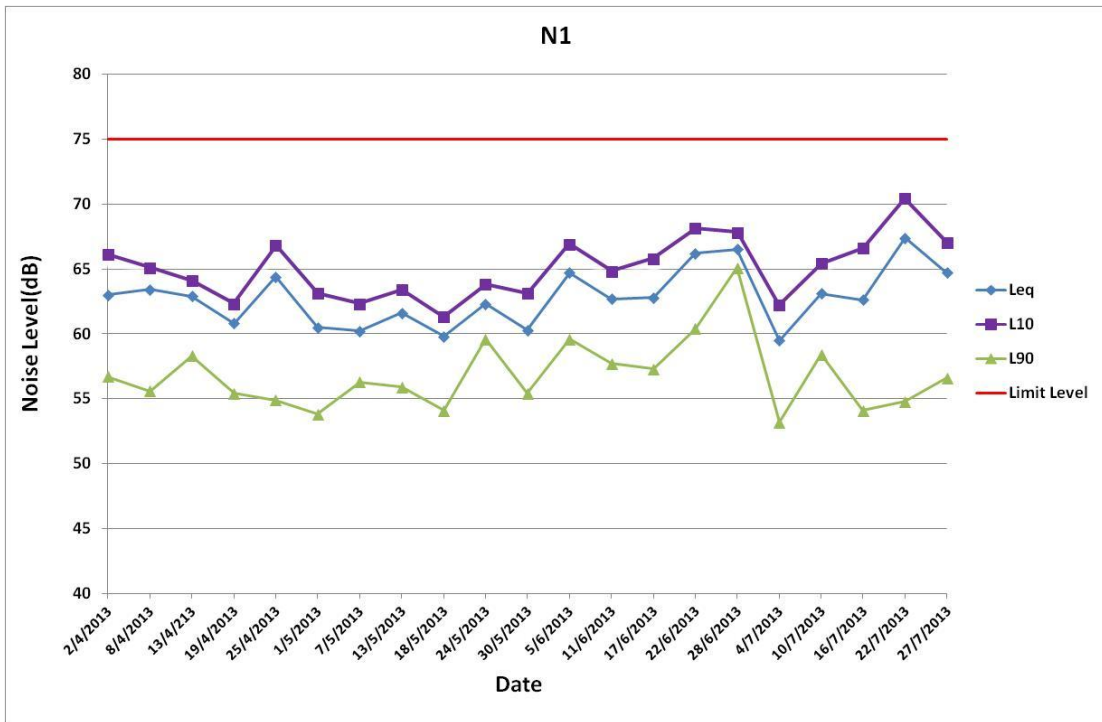
Signature

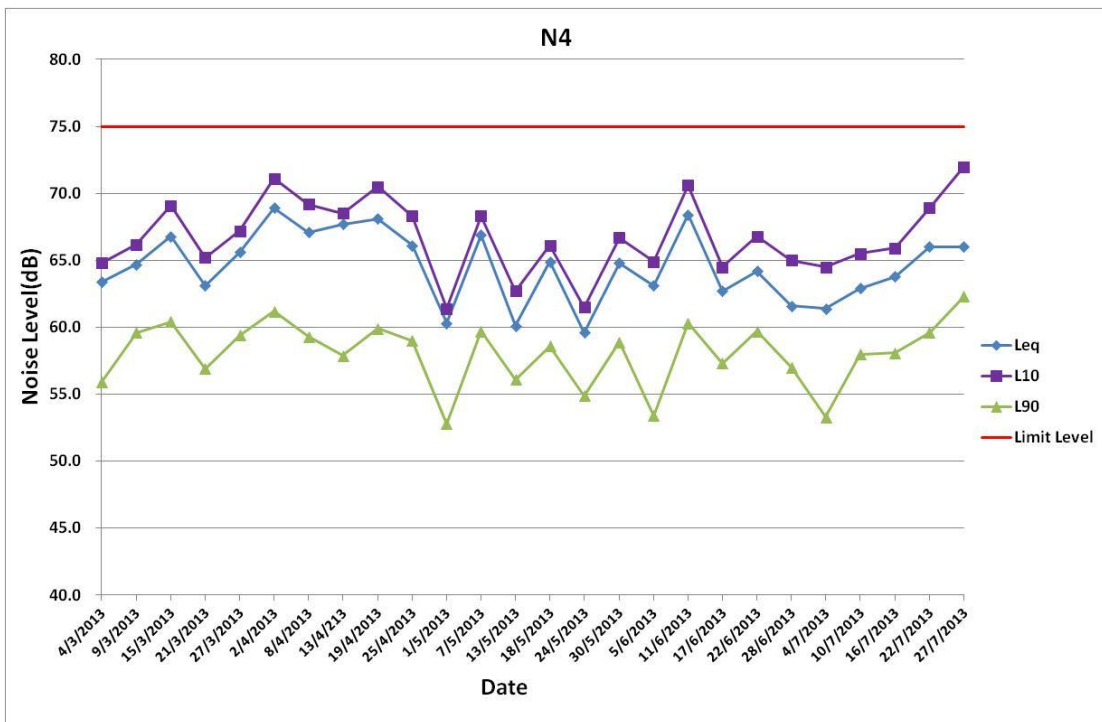
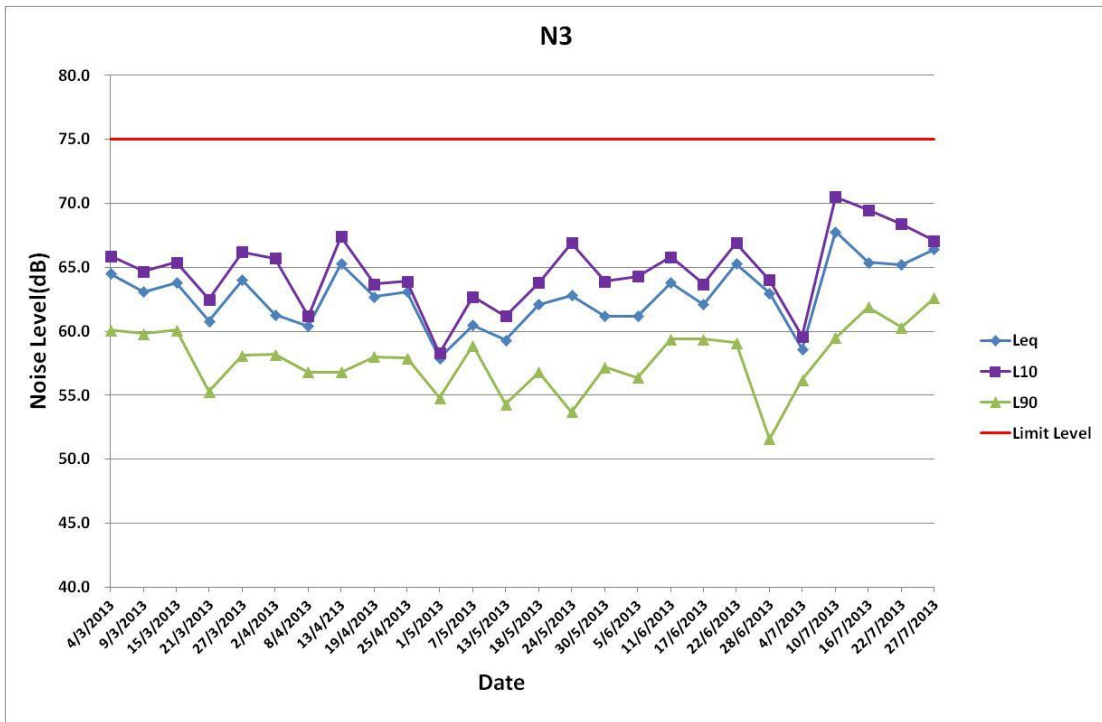
Date

Prepared by: Lai Chi Hang



27/7/2013





Appendix E

Water Quality Monitoring Data

Environmental Pioneers & Solutions Limited
Water Quality Monitoring - Summary of On-Site Measurement Results

Date of Sampling : 2/7/2013

Weather : Sunny

Monitoring Location	W1	W2
Time (hhmm)	13:00	13:30
Water Depth (m)	<1	<1
pH value	8.26	8.28
Temperature (°C)	28.3	28.5
Turbidity (NTU)	5.8	6.0
DO (mg/L)	7.89	8.23
DO Saturation (%)	90%	103%
Suspended Solids (mg/L)	5.0	4.0

Remark or Observation : _____

Name

Signature

Date

Prepared By : Lau Kai Chung

Lau Kai Chung

2/7/2013

Environmental Pioneers & Solutions Limited
Water Quality Monitoring - Summary of On-Site Measurement Results

Date of Sampling : 4/7/2013

Weather : Sunny

Monitoring Location	W1	W2
Time (hhmm)	13:00	13:30
Water Depth (m)	<1	<1
pH value	7.87	8.03
Temperature (°C)	27.9	28.1
Turbidity (NTU)	4.0	5.5
DO (mg/L)	8.10	8.03
DO Saturation (%)	91%	90%
Suspended Solids (mg/L)	7.0	5.0

Remark or Observation : _____

Name

Signature

Date

Prepared By : Lau Kai Chung

Lau Kai Chung

4/7/2013

Environmental Pioneers & Solutions Limited
Water Quality Monitoring - Summary of On-Site Measurement Results

Date of Sampling : 6/7/2013

Weather : Cloudy

Monitoring Location	W1	W2
Time (hhmm)	16:00	16:30
Water Depth (m)	<1	<1
pH value	8.10	8.16
Temperature (°C)	27	27.2
Turbidity (NTU)	3.9	6.0
DO (mg/L)	8.47	8.65
DO Saturation (%)	98%	98%
Suspended Solids (mg/L)	16.0	14.0

Remark or Observation : _____

Name

Signature

Date

Prepared By : Lau Kai Chung

Lau Kai Chung

6/7/2013

Environmental Pioneers & Solutions Limited
Water Quality Monitoring - Summary of On-Site Measurement Results

Date of Sampling : 9/7/2013

Weather : Cloudy

Monitoring Location	W1	W2
Time (hhmm)	13:00	13:30
Water Depth (m)	<1	<1
pH value	7.98	8.16
Temperature (°C)	28.1	28.2
Turbidity (NTU)	4.5	5.1
DO (mg/L)	8.01	7.85
DO Saturation (%)	91%	88%
Suspended Solids (mg/L)	17.0	18.0

Remark or Observation : _____

Name

Signature

Date

Prepared By : Lau Kai Chung

Lau Kai Chung

9/7/2013

Environmental Pioneers & Solutions Limited
Water Quality Monitoring - Summary of On-Site Measurement Results

Date of Sampling : 11/7/2013

Weather : Sunny

Monitoring Location	W1	W2
Time (hhmm)	13:00	13:30
Water Depth (m)	<1	<1
pH value	7.98	8.23
Temperature (°C)	27.2	27.4
Turbidity (NTU)	4.0	6.1
DO (mg/L)	7.86	7.88
DO Saturation (%)	85%	85%
Suspended Solids (mg/L)	22.0	37.0

Remark or Observation : Turbid water was observed at W1 and W2.

Name

Signature

Date

Prepared By : Lau Kai Chung

Lau Kai Chung

11/7/2013

Environmental Pioneers & Solutions Limited
Water Quality Monitoring - Summary of On-Site Measurement Results

Date of Sampling : 13/7/2013

Weather : Sunny

Monitoring Location	W1	W2
Time (hhmm)	16:00	16:30
Water Depth (m)	<1	<1
pH value	7.83	8.13
Temperature (°C)	28.1	28.2
Turbidity (NTU)	5.3	6.0
DO (mg/L)	7.81	8.12
DO Saturation (%)	85%	98%
Suspended Solids (mg/L)	24.0	25.0

Remark or Observation : Turbid water was observed at W1 and W2.

Name

Signature

Date

Prepared By : Lau Kai Chung

Lau Kai Chung

13/7/2013

Environmental Pioneers & Solutions Limited
Water Quality Monitoring - Summary of On-Site Measurement Results

Date of Sampling : 16/7/2013

Weather : Cloudy

Monitoring Location	W1	W2
Time (hhmm)	13:00	13:30
Water Depth (m)	<1	<1
pH value	8.10	8.23
Temperature (°C)	27	27.1
Turbidity (NTU)	3.0	5.8
DO (mg/L)	8.18	7.90
DO Saturation (%)	98%	90%
Suspended Solids (mg/L)	12.0	12.0

Remark or Observation : _____

Name

Signature

Date

Prepared By : Lau Kai Chung

Lau Kai Chung

16/7/2013

Environmental Pioneers & Solutions Limited
Water Quality Monitoring - Summary of On-Site Measurement Results

Date of Sampling : 18/7/2013

Weather : Sunny

Monitoring Location	W1	W2
Time (hhmm)	13:00	13:30
Water Depth (m)	<1	<1
pH value	8.10	8.21
Temperature (°C)	27.5	27.5
Turbidity (NTU)	5.0	4.3
DO (mg/L)	7.85	8.34
DO Saturation (%)	85%	90%
Suspended Solids (mg/L)	11.0	12.0

Remark or Observation : _____

Name

Signature

Date

Prepared By : Lau Kai Chung

Lau Kai Chung

18/7/2013

Environmental Pioneers & Solutions Limited
Water Quality Monitoring - Summary of On-Site Measurement Results

Date of Sampling : 20/7/2013

Weather : Rainy

Monitoring Location	W1	W2
Time (hhmm)	16:00	16:30
Water Depth (m)	<1	<1
pH value	8.18	8.26
Temperature (°C)	26.8	26.9
Turbidity (NTU)	39.6	33.3
DO (mg/L)	8.81	8.89
DO Saturation (%)	103%	105%
Suspended Solids (mg/L)	82.0	84.0

Remark or Observation : Turbid water was observed at W1 and W2.
The exceedances were caused by adverse weather

Name

Signature

Date

Prepared By : Lau Kai Chung

Lau Kai Chung

20/7/2013

Environmental Pioneers & Solutions Limited
Water Quality Monitoring - Summary of On-Site Measurement Results

Date of Sampling : 23/7/2013

Weather : Rainy

Monitoring Location	W1	W2
Time (hhmm)	13:00	13:30
Water Depth (m)	<1	<1
pH value	8.23	8.16
Temperature (°C)	27.2	26.8
Turbidity (NTU)	25.8	23.6
DO (mg/L)	8.85	8.68
DO Saturation (%)	108%	105%
Suspended Solids (mg/L)	29.0	30.0

Remark or Observation : Turbid water was observed at W1 and W2.
The exceedances were caused by adverse weather

Name

Signature

Date

Prepared By : Lau Kai Chung

Lau Kai Chung

23/7/2013

Environmental Pioneers & Solutions Limited
Water Quality Monitoring - Summary of On-Site Measurement Results

Date of Sampling : 24/7/2013

Weather : Cloudy

Monitoring Location	W1	W2
Time (hhmm)	13:00	13:30
Water Depth (m)	<1	<1
pH value	7.96	8.12
Temperature (°C)	27.6	27.1
Turbidity (NTU)	4.9	5.6
DO (mg/L)	8.26	8.51
DO Saturation (%)	106%	112%
Suspended Solids (mg/L)	N/A	N/A

Remark or Observation : _____

Name

Signature

Date

Prepared By : Lau Kai Chung

Lau Kai Chung

24/7/2013

Environmental Pioneers & Solutions Limited
Water Quality Monitoring - Summary of On-Site Measurement Results

Date of Sampling : 25/7/2013

Weather : Cloudy

Monitoring Location	W1	W2
Time (hhmm)	13:00	13:30
Water Depth (m)	<1	<1
pH value	8.15	8.23
Temperature (°C)	27.3	26.9
Turbidity (NTU)	3.3	6.0
DO (mg/L)	8.21	8.16
DO Saturation (%)	95%	90%
Suspended Solids (mg/L)	39.0	19.0

Remark or Observation : Turbid water was observed at W1 and W2.

Name

Signature

Date

Prepared By : Lau Kai Chung

Lau Kai Chung

25/7/2013

Environmental Pioneers & Solutions Limited
Water Quality Monitoring - Summary of On-Site Measurement Results

Date of Sampling : 27/7/2013

Weather : Rainy

Monitoring Location	W1	W2
Time (hhmm)	16:00	16:30
Water Depth (m)	<1	<1
pH value	7.87	8.01
Temperature (°C)	28.3	28.1
Turbidity (NTU)	15.0	18.7
DO (mg/L)	8.45	8.61
DO Saturation (%)	93%	95%
Suspended Solids (mg/L)	61.0	60.0

Remark or Observation : Turbid water was observed at W1 and W2.
The exceedances were caused by adverse weather

Name

Signature

Date

Prepared By : Lau Kai Chung

Lau Kai Chung

27/7/2013

Environmental Pioneers & Solutions Limited
Water Quality Monitoring - Summary of On-Site Measurement Results

Date of Sampling : 29/7/2013

Weather : Sunny

Monitoring Location	W1	W2
Time (hhmm)	11:00	11:30
Water Depth (m)	<1	<1
pH value	8.01	8.12
Temperature (°C)	27.9	26.4
Turbidity (NTU)	4.2	3.6
DO (mg/L)	8.13	8.44
DO Saturation (%)	96%	102%
Suspended Solids (mg/L)	N/A	N/A

Remark or Observation : _____

Name

Signature

Date

Prepared By : Lau Kai Chung

Lau Kai Chung

29/7/2013

Environmental Pioneers & Solutions Limited
Water Quality Monitoring - Summary of On-Site Measurement Results

Date of Sampling : 30/7/2013

Weather : Sunny

Monitoring Location	W1	W2
Time (hhmm)	16:00	16:30
Water Depth (m)	<1	<1
pH value	8.01	7.89
Temperature (°C)	28.9	28.4
Turbidity (NTU)	5.8	6.0
DO (mg/L)	8.40	8.38
DO Saturation (%)	95%	94%
Suspended Solids (mg/L)	32.0	17.0

Remark or Observation : _____

Name

Signature

Date

Prepared By : Lau Kai Chung

Lau Kai Chung

30/7/2013



CERTIFICATE OF ANALYSIS

Client	: ENVIRONMENTAL PIONEERS & SOLUTIONS LTD	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 3
Contact	: MR ALLEN CHAN	Contact	: Fung Lim Chee, Richard	Work Order	: HK1318063
Address	: FLAT A, 19/F, CHAI WAN INDUSTRIAL CENTRE BUILDING, 20 LEE CHUNG STREET, CHAI WAN HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: allenchan@eps1.com.hk	E-mail	: Richard.Fung@alsglobal.com	Date Samples Received	: 05-JUL-2013
Telephone	: +852 2558 7699	Telephone	: +852 2610 1044	Issue Date	: 15-JUL-2013
Facsimile	: ----	Facsimile	: +852 2610 2021	No. of samples received	: 4
Project	: TAI PO TSAI	Quote number	: ----	No. of samples analysed	: 4
Order number	: ----				
C-O-C number	: ----				
Site	: ----				

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. The completion date of analysis is: 11-JUL-2013

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific comments for Work Order: **HK1318063**

Sample(s) were received in an ambient condition.

Water sample(s) analysed and reported on an as received basis.

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This document has been electronically signed by those names that appear on this report and are the authorised signatories. Electronic signing has been carried out in compliance with procedures specified in the Electronic Transactions Ordinance of Hong Kong, Chapter 553, Section 6.

Signatories

Position

Authorised results for

Fung Lim Chee, Richard

General Manager

Inorganics

ALS Laboratory Group

Trading Name: ALS Technichem (HK) Pty Ltd

11/F., Chung Shun Knitting Centre, 1-3 Wing Yip Street, Kwai Chung, N.T., Hong Kong

Tel: +852 2610 1044 Fax: +852 2610 2021 www.alsenviro.com

A Campbell Brothers Limited Company



Analytical Results

Sub-Matrix: WATER

				Client sample ID	W1	W2	W1	W2	
				Client sampling date / time	[02-JUL-2013]	[02-JUL-2013]	[04-JUL-2013]	[04-JUL-2013]	
Compound	CAS Number	LOR	Unit		HK1318063-001	HK1318063-002	HK1318063-003	HK1318063-004	
EA/ED: Physical and Aggregate Properties									
EA025: Suspended Solids (SS)	----	2	mg/L		5	4	7	5	



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 2957566)								
HK1317960-009	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	109	106	2.6
EA/ED: Physical and Aggregate Properties (QC Lot: 2959302)								
HK1318029-001	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	3	3	0.0
HK1318195-001	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	<2	<2	0.0

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER			Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EA/ED: Physical and Aggregate Properties (QC Lot: 2957566)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	10 mg/L	98.0	----	86	112	----	----
EA/ED: Physical and Aggregate Properties (QC Lot: 2959302)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	10 mg/L	94.0	----	86	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

- No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.



CERTIFICATE OF ANALYSIS

Client	: ENVIRONMENTAL PIONEERS & SOLUTIONS LTD	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 3
Contact	: MR ALLEN CHAN	Contact	: Fung Lim Chee, Richard	Work Order	: HK1318582
Address	: FLAT A, 19/F, CHAI WAN INDUSTRIAL CENTRE BUILDING, 20 LEE CHUNG STREET, CHAI WAN HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: allenchan@eps1.com.hk	E-mail	: Richard.Fung@alsglobal.com		
Telephone	: +852 2558 7699	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: TAI PO TSAI	Quote number	: ----	Date Samples Received	: 10-JUL-2013
Order number	: ----			Issue Date	: 19-JUL-2013
C-O-C number	: ----			No. of samples received	: 4
Site	: ----			No. of samples analysed	: 4

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. The completion date of analysis is: 15-JUL-2013

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific comments for Work Order: **HK1318582**

Sample(s) were received in an ambient condition.

Water sample(s) analysed and reported on an as received basis.

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Signatories

Position

Authorised results for

Fung Lim Chee, Richard

General Manager

Inorganics

ALS Laboratory Group

Trading Name: **ALS Technichem (HK) Pty Ltd**

11/F., Chung Shun Knitting Centre, 1-3 Wing Yip Street, Kwai Chung, N.T., Hong Kong

Tel: +852 2610 1044 Fax: +852 2610 2021 www.alsenviro.com

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Analytical Results

Sub-Matrix: WATER

				Client sample ID	W1	W2	W1	W2	
				Client sampling date / time	[06-JUL-2013]	[06-JUL-2013]	[09-JUL-2013]	[09-JUL-2013]	
Compound	CAS Number	LOR	Unit		HK1318582-001	HK1318582-002	HK1318582-003	HK1318582-004	
EA/ED: Physical and Aggregate Properties									
EA025: Suspended Solids (SS)	----	2	mg/L		16	14	17	18	



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 2965625)								
HK1318472-005	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	3	4	0.0
HK1318569-002	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	<2	<2	0.0

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EA/ED: Physical and Aggregate Properties (QC Lot: 2965625)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	10 mg/L	104	----	86	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

- No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.



CERTIFICATE OF ANALYSIS

Client	: ENVIRONMENTAL PIONEERS & SOLUTIONS LTD	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 3
Contact	: MR ALLEN CHAN	Contact	: Fung Lim Chee, Richard	Work Order	: HK1319023
Address	: FLAT A, 19/F, CHAI WAN INDUSTRIAL CENTRE BUILDING, 20 LEE CHUNG STREET, CHAI WAN HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: allenchan@eps1.com.hk	E-mail	: Richard.Fung@alsglobal.com	Date Samples Received	: 15-JUL-2013
Telephone	: +852 2558 7699	Telephone	: +852 2610 1044	Issue Date	: 24-JUL-2013
Facsimile	: ----	Facsimile	: +852 2610 2021	No. of samples received	: 4
Project	: TAI PO TSAI	Quote number	: ----	No. of samples analysed	: 4
Order number	: ----				
C-O-C number	: ----				
Site	: ----				

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. The completion date of analysis is: 18-JUL-2013

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific comments for Work Order: **HK1319023**

Sample(s) were received in an ambient condition.

Water sample(s) analysed and reported on an as received basis.

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Signatories

Position

Authorised results for

Fung Lim Chee, Richard

General Manager

Inorganics

ALS Laboratory Group

Trading Name: ALS Technichem (HK) Pty Ltd

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Analytical Results

Sub-Matrix: WATER

				Client sample ID	W1	W2	W1	W2	
				Client sampling date / time	[11-JUL-2013]	[11-JUL-2013]	[13-JUL-2013]	[13-JUL-2013]	
Compound	CAS Number	LOR	Unit		HK1319023-001	HK1319023-002	HK1319023-003	HK1319023-004	
EA/ED: Physical and Aggregate Properties									
EA025: Suspended Solids (SS)	----	2	mg/L		22	37	24	25	



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 2972195)								
HK1319023-001	W1	EA025: Suspended Solids (SS)	----	2	mg/L	22	24	8.9

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EA/ED: Physical and Aggregate Properties (QC Lot: 2972195)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	10 mg/L	104	----	86	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

- No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.



CERTIFICATE OF ANALYSIS

Client	: ENVIRONMENTAL PIONEERS & SOLUTIONS LTD	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 3
Contact	: MR ALLEN CHAN	Contact	: Fung Lim Chee, Richard	Work Order	: HK1319548
Address	: FLAT A, 19/F, CHAI WAN INDUSTRIAL CENTRE BUILDING, 20 LEE CHUNG STREET, CHAI WAN HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: allenchan@epsil.com.hk	E-mail	: Richard.Fung@alsglobal.com	Date Samples Received	: 19-JUL-2013
Telephone	: +852 2558 7699	Telephone	: +852 2610 1044	Issue Date	: 29-JUL-2013
Facsimile	: ----	Facsimile	: +852 2610 2021	No. of samples received	: 4
Project	: TAI PO TSAI	Quote number	: ----	No. of samples analysed	: 4
Order number	: ----				
C-O-C number	: ----				
Site	: ----				

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. The completion date of analysis is: 23-JUL-2013

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Signatories

Position

Authorised results for

Fung Lim Chee, Richard

General Manager

Inorganics

ALS Laboratory Group

Trading Name: ALS Technichem (HK) Pty Ltd

11/F., Chung Shun Knitting Centre, 1-3 Wing Yip Street, Kwai Chung, N.T., Hong Kong

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Analytical Results

Sub-Matrix: WATER

				Client sample ID	W1	W2	W3	W4	
				Client sampling date / time	[16-JUL-2013]	[16-JUL-2013]	[18-JUL-2013]	[18-JUL-2013]	
Compound	CAS Number	LOR	Unit		HK1319548-001	HK1319548-002	HK1319548-003	HK1319548-004	
EA/ED: Physical and Aggregate Properties									
EA025: Suspended Solids (SS)	----	2	mg/L		12	12	11	12	



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 2977985)								
HK1319514-003	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	1110	1100	1.1
HK1319522-004	Anonymous	EA025: Suspended Solids (SS)	----	0.5	mg/L	3.0	3.3	11.5
EA/ED: Physical and Aggregate Properties (QC Lot: 2977986)								
HK1319548-002	W2	EA025: Suspended Solids (SS)	----	2	mg/L	12	13	8.6
HK1319582-005	Anonymous	EA025: Suspended Solids (SS)	----	2.0	mg/L	<2.0	<2.0	0.0

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER			Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EA/ED: Physical and Aggregate Properties (QC Lot: 2977985)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	10 mg/L	103	----	86	112	----	----
EA/ED: Physical and Aggregate Properties (QC Lot: 2977986)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	10 mg/L	100	----	86	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

- No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.



CERTIFICATE OF ANALYSIS

Client	: ENVIRONMENTAL PIONEERS & SOLUTIONS LTD	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 3
Contact	: MR ALLEN CHAN	Contact	: Fung Lim Chee, Richard	Work Order	: HK1319843
Address	: FLAT A, 19/F, CHAI WAN INDUSTRIAL CENTRE BUILDING, 20 LEE CHUNG STREET, CHAI WAN HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: allenchan@epsil.com.hk	E-mail	: Richard.Fung@alsglobal.com	Date Samples Received	: 23-JUL-2013
Telephone	: +852 2558 7699	Telephone	: +852 2610 1044	Issue Date	: 01-AUG-2013
Facsimile	: ----	Facsimile	: +852 2610 2021	No. of samples received	: 4
Project	: TAI PO TSAI	Quote number	: ----	No. of samples analysed	: 4
Order number	: ----				
C-O-C number	: ----				
Site	: ----				

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific comments for Work Order: **HK1319843**

Sample(s) were picked up from client by ALS Technichem (HK) staff in a chilled condition.

Water sample(s) analysed and reported on an as received basis.

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Signatories

Position

Authorised results for

Fung Lim Chee, Richard

General Manager

Inorganics

ALS Laboratory Group

Trading Name: **ALS Technichem (HK) Pty Ltd**

11/F., Chung Shun Knitting Centre, 1-3 Wing Yip Street, Kwai Chung, N.T., Hong Kong

Tel: +852 2610 1044 Fax: +852 2610 2021 www.alsenviro.com

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Analytical Results

Sub-Matrix: WATER

				Client sample ID	W1	W2	W1	W2	
				Client sampling date / time	[20-JUL-2013]	[20-JUL-2013]	[23-JUL-2013]	[23-JUL-2013]	
Compound	CAS Number	LOR	Unit		HK1319843-001	HK1319843-002	HK1319843-003	HK1319843-004	
EA/ED: Physical and Aggregate Properties									
EA025: Suspended Solids (SS)	----	2	mg/L		82	84	29	30	



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 2982745)								
HK1319784-004	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	4	4	0.0
HK1319897-003	Anonymous	EA025: Suspended Solids (SS)	----	1	mg/L	3	2	0.0

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EA/ED: Physical and Aggregate Properties (QC Lot: 2982745)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	10 mg/L	93.5	----	86	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

- No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.



CERTIFICATE OF ANALYSIS

Client	: ENVIRONMENTAL PIONEERS & SOLUTIONS LTD	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 3
Contact	: MR ALLEN CHAN	Contact	: Fung Lim Chee, Richard	Work Order	: HK1320246
Address	: FLAT A, 19/F, CHAI WAN INDUSTRIAL CENTRE BUILDING, 20 LEE CHUNG STREET, CHAI WAN HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: allenchan@epsil.com.hk	E-mail	: Richard.Fung@alsglobal.com	Date Samples Received	: 29-JUL-2013
Telephone	: +852 2558 7699	Telephone	: +852 2610 1044	Issue Date	: 05-AUG-2013
Facsimile	: ----	Facsimile	: +852 2610 2021	No. of samples received	: 4
Project	: TAI PO TSAI	Quote number	: ----	No. of samples analysed	: 4
Order number	: ----				
C-O-C number	: ----				
Site	: ----				

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific comments for Work Order: **HK1320246**

Sample(s) were received in an ambient condition.

Water sample(s) analysed and reported on an as received basis.

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Signatories

Position

Authorised results for

Fung Lim Chee, Richard

General Manager

Inorganics

ALS Laboratory Group

Trading Name: **ALS Technichem (HK) Pty Ltd**

11/F., Chung Shun Knitting Centre, 1-3 Wing Yip Street, Kwai Chung, N.T., Hong Kong

Tel: +852 2610 1044 Fax: +852 2610 2021 www.alsenviro.com

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Analytical Results

Sub-Matrix: WATER

				Client sample ID	W1	W2	W1	W2	
				Client sampling date / time	[25-JUL-2013]	[25-JUL-2013]	[27-JUL-2013]	[27-JUL-2013]	
Compound	CAS Number	LOR	Unit	Client sample ID	W1	W2	W1	W2	
				HK1320246-001	HK1320246-002	HK1320246-003	HK1320246-004		
EA/ED: Physical and Aggregate Properties									
EA025: Suspended Solids (SS)	----	2	mg/L		39	19	61	60	



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 2989009)								
HK1320227-001	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	<2	<2	0.0
HK1320246-003	W1	EA025: Suspended Solids (SS)	----	2	mg/L	61	62	2.0

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EA/ED: Physical and Aggregate Properties (QC Lot: 2989009)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	10 mg/L	106	----	86	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

- No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.



CERTIFICATE OF ANALYSIS

Client	: ENVIRONMENTAL PIONEERS & SOLUTIONS LTD	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 3
Contact	: MR ALLEN CHAN	Contact	: Fung Lim Chee, Richard	Work Order	: HK1320739
Address	: FLAT A, 19/F, CHAI WAN INDUSTRIAL CENTRE BUILDING, 20 LEE CHUNG STREET, CHAI WAN HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: allenchan@epsil.com.hk	E-mail	: Richard.Fung@alsglobal.com	Date Samples Received	: 01-AUG-2013
Telephone	: +852 2558 7699	Telephone	: +852 2610 1044	Issue Date	: 09-AUG-2013
Facsimile	: ----	Facsimile	: +852 2610 2021	No. of samples received	: 4
Project	: TAI PO TSAI	Quote number	: ----	No. of samples analysed	: 4
Order number	: ----				
C-O-C number	: ----				
Site	: ----				

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. The completion date of analysis is: 05-AUG-2013

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific comments for Work Order: **HK1320739**

Sample(s) were picked up from client by ALS Technichem (HK) staff in a chilled condition.

Water sample(s) analysed and reported on an as received basis.

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Signatories

Position

Authorised results for

Fung Lim Chee, Richard

General Manager

Inorganics

ALS Laboratory Group

Trading Name: **ALS Technichem (HK) Pty Ltd**

11/F., Chung Shun Knitting Centre, 1-3 Wing Yip Street, Kwai Chung, N.T., Hong Kong

Tel: +852 2610 1044 Fax: +852 2610 2021 www.alsenviro.com

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Analytical Results

Sub-Matrix: WATER

				Client sample ID	W1	W2	W1	W2	
				Client sampling date / time	[30-JUL-2013]	[30-JUL-2013]	[01-AUG-2013]	[01-AUG-2013]	
Compound	CAS Number	LOR	Unit	Client sample ID	W1	W2	W1	W2	
				HK1320739-001	HK1320739-002	HK1320739-003	HK1320739-004		
EA/ED: Physical and Aggregate Properties									
EA025: Suspended Solids (SS)	----	2	mg/L		32	17	16	12	



Laboratory Duplicate (DUP) Report

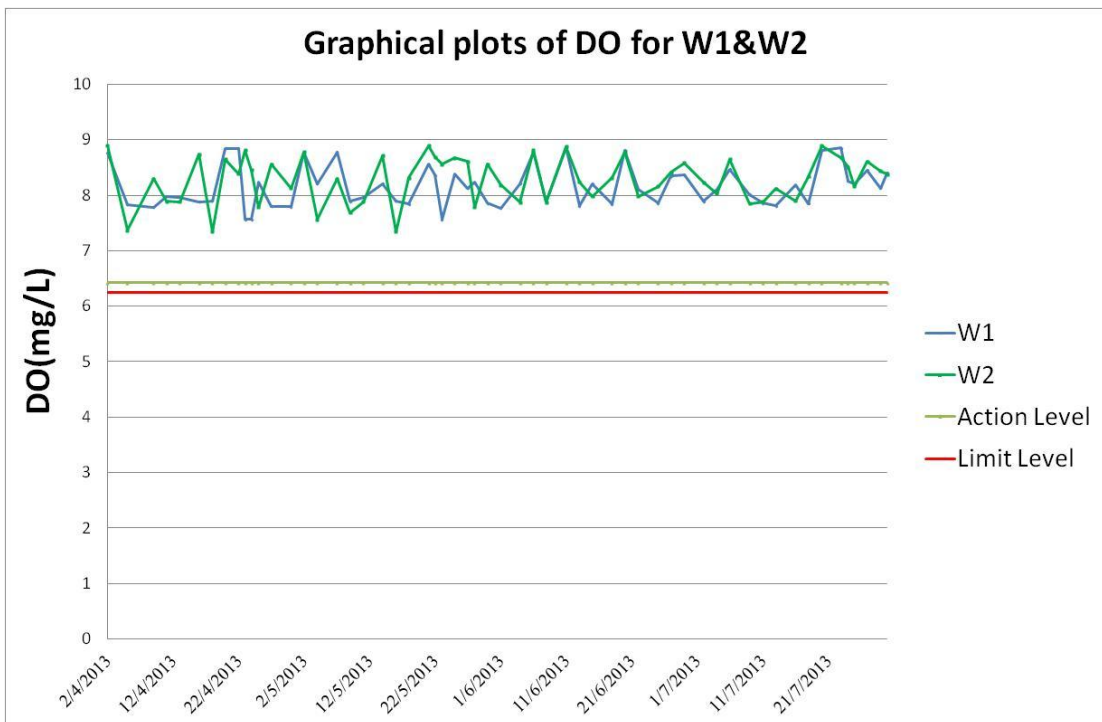
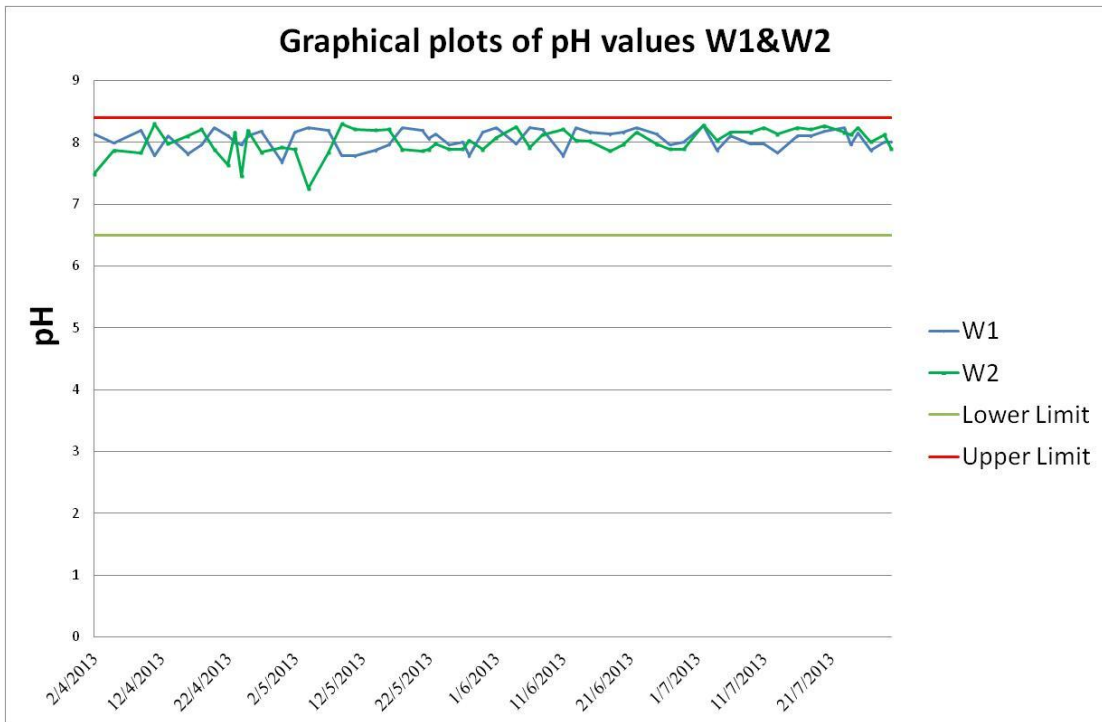
Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 2997532)								
HK1320690-001	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	8	8	0.0
HK1320739-001	W1	EA025: Suspended Solids (SS)	----	2	mg/L	32	33	3.3

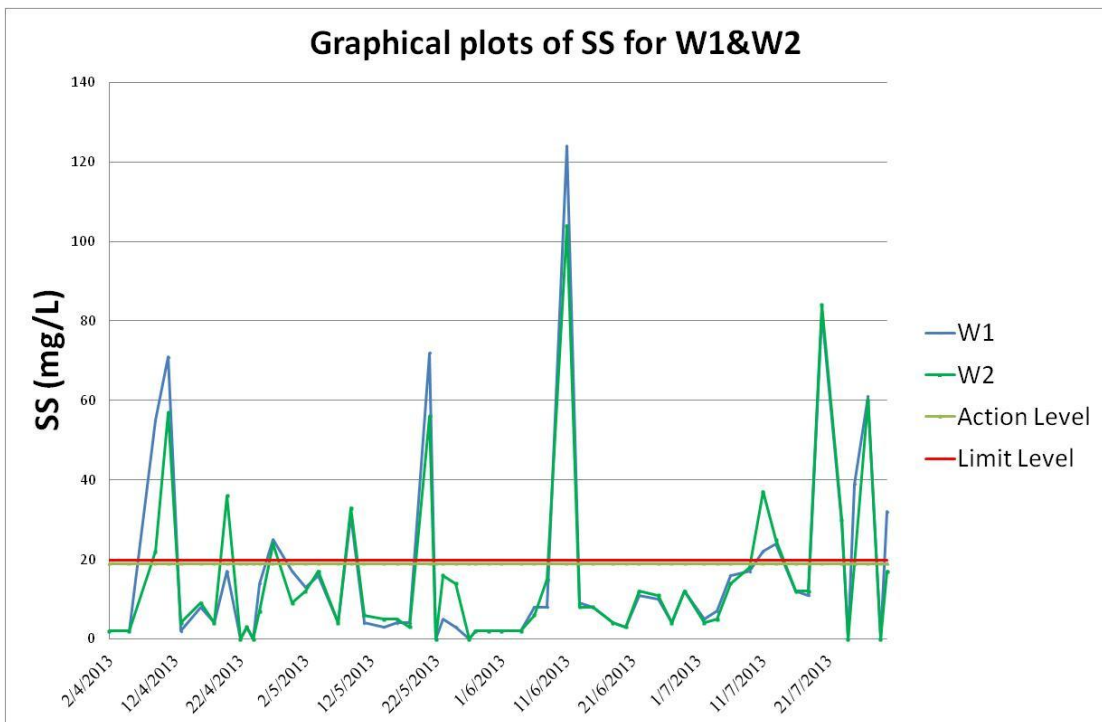
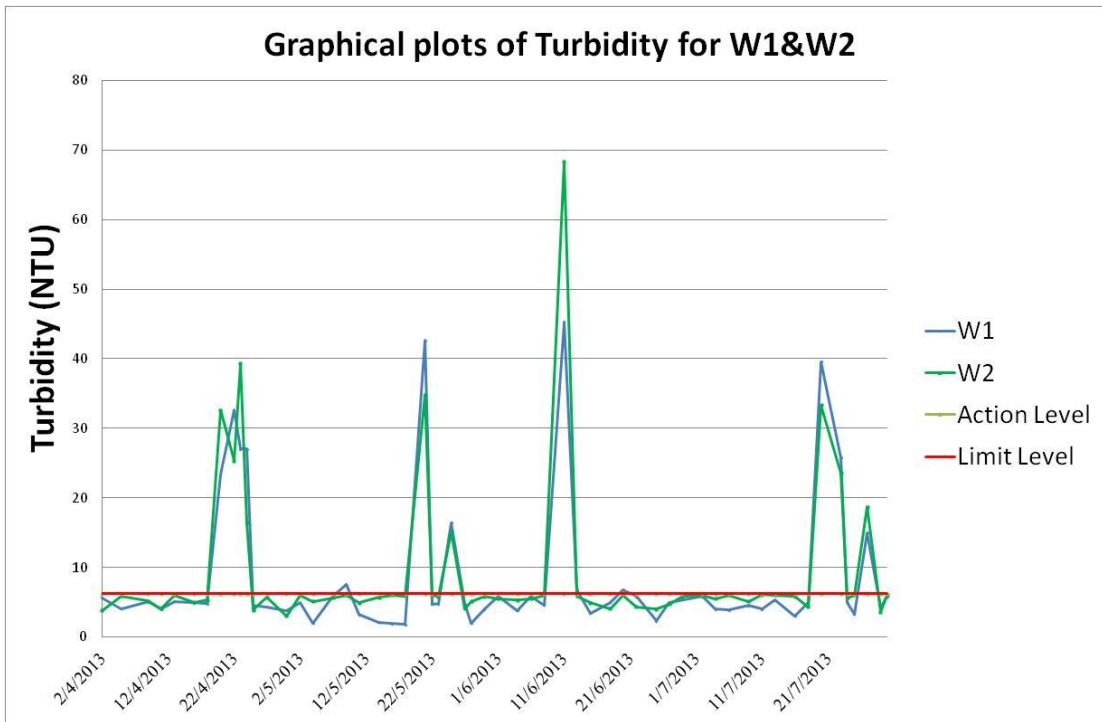
Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EA/ED: Physical and Aggregate Properties (QC Lot: 2997532)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	10 mg/L	99.0	----	86	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

- No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.





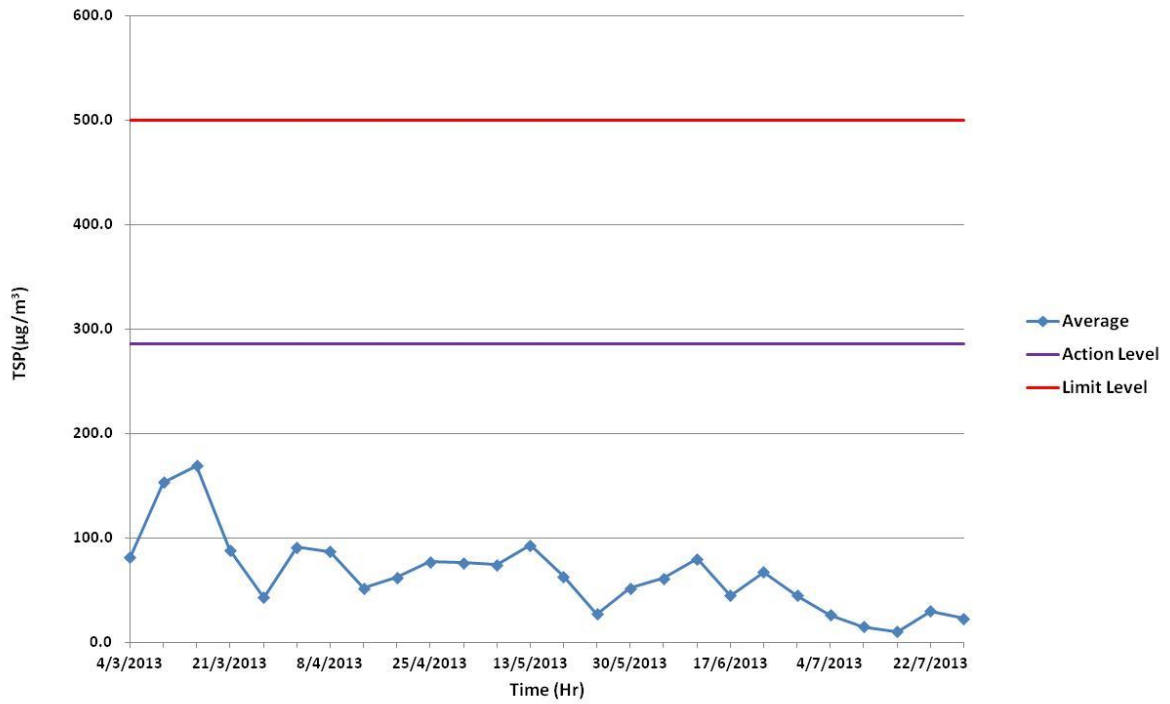
Appendix F

Air Quality Monitoring Data

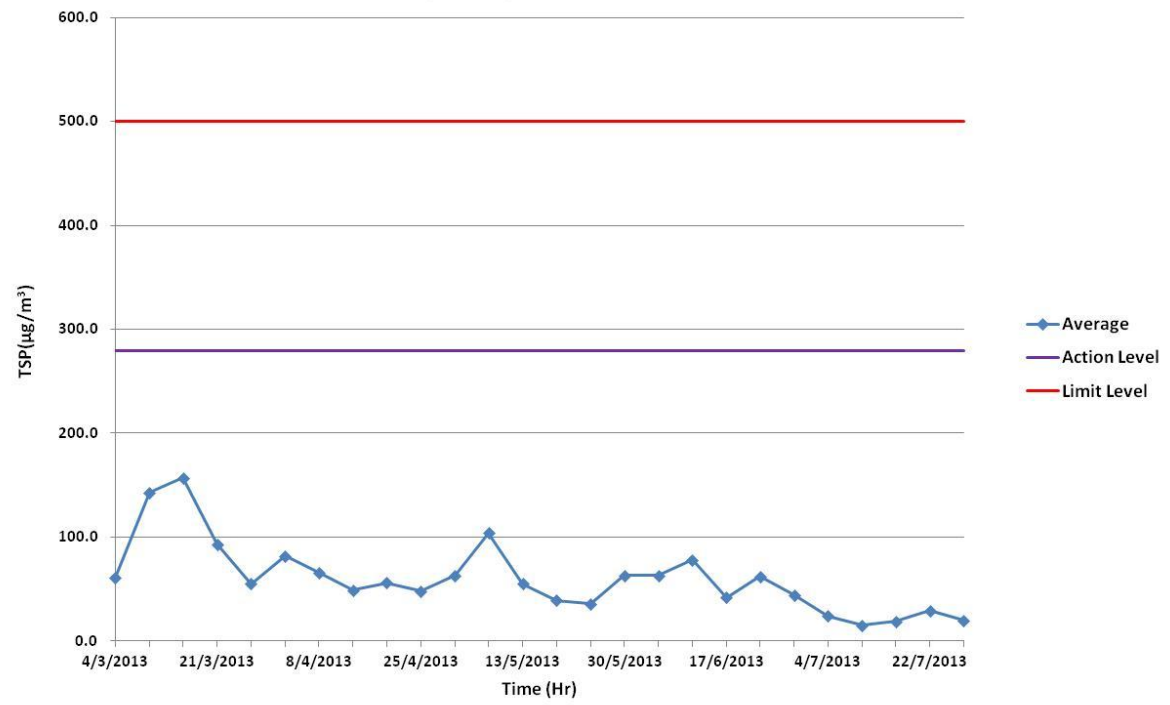
1-Hr TSP Monitoring Results

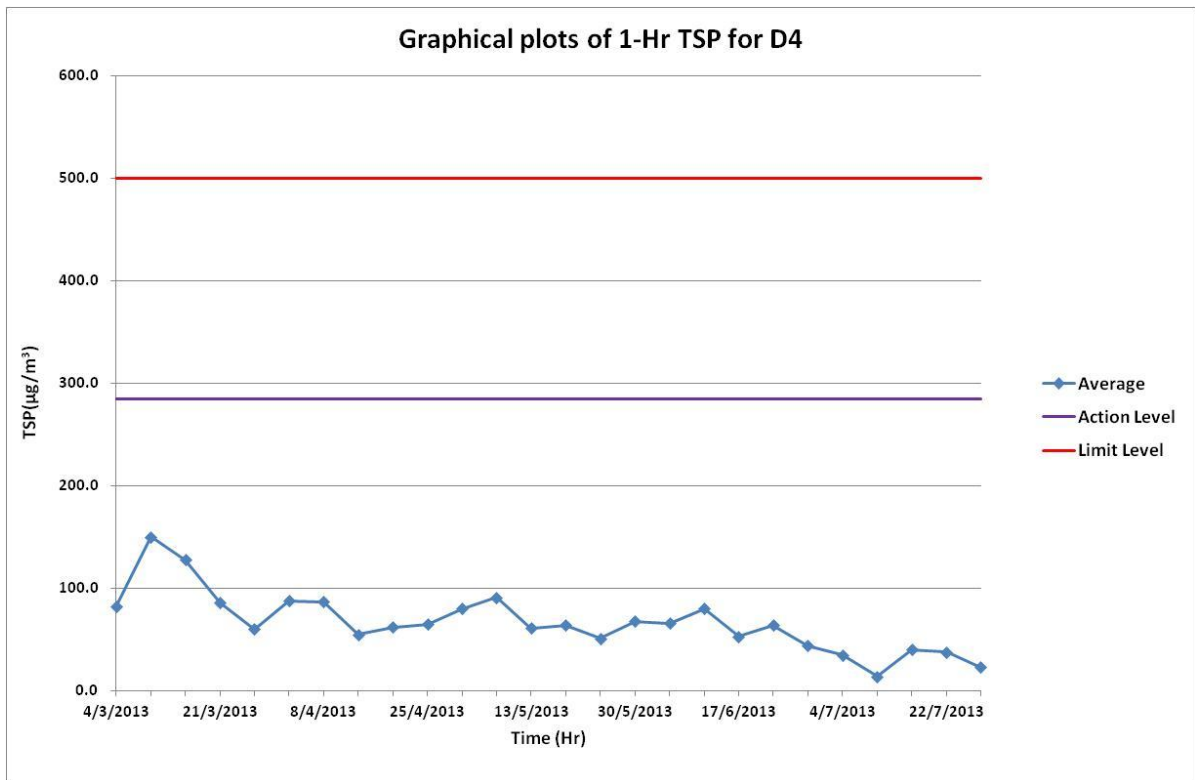
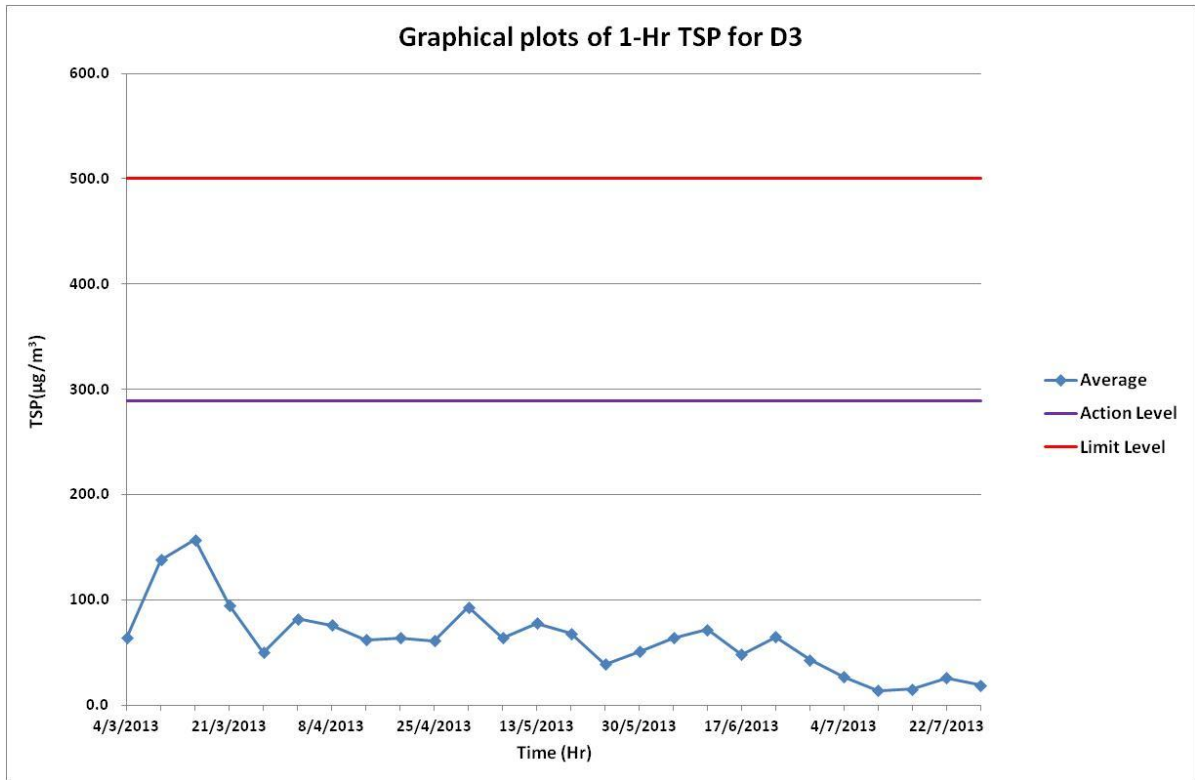
		Locations											
		D1			D2			D3			D4		
Date	Duration	Start Time	TSP Level (ug/m3)	Average (ug/m3)	Start Time	TSP Level (ug/m3)	Average (ug/m3)	Start Time	TSP Level (ug/m3)	Average (ug/m3)	Start Time	TSP Level (ug/m3)	Average (ug/m3)
4/7/2013	1 Hour	8:41	22	26	8:23	27	24	8:40	23	27	8:34	26	35
		9:41	28		9:23	23		9:40	28		9:34	39	
		10:41	29		10:23	21		10:40	29		10:34	39	
10/7/2013	1 Hour	8:51	13	15	8:42	15	15	8:30	9	14	8:18	15	14
		9:51	15		9:42	15		9:30	14		9:18	13	
		10:51	16		10:42	15		10:30	18		10:18	15	
16/7/2013	1 Hour	8:50	11	10	8:38	22	19	8:22	13	15	8:14	18	40
		9:50	9		9:38	19		9:22	13		9:14	17	
		10:50	10		10:38	16		10:22	19		10:14	85	
22/7/2013	1 Hour	10:10	27	30	10:16	28	29	13:16	26	26	13:21	49	38
		11:10	26		11:16	27		14:16	26		14:21	33	
		12:10	36		12:16	33		15:16	25		15:21	32	
27/7/2013	1 Hour	10:16	24	23	10:22	20	20	13:21	18	19	13:28	26	23
		11:16	25		11:22	17		14:21	19		14:28	23	
		12:16	20		12:22	24		15:21	20		15:28	19	

Graphical plots of 1-Hr TSP for D1



Graphical plots of 1-Hr TSP for D2





D1 24-Hrs TSP Monitoring Results

Sampling Date	Paper No.	Wt. of paper (g)			Elapse Time			Flow Rate (CFM)			Total Volume (m ³)	TSP Concentration (µg/m ³)	Weather
		Initial Wt.	Final Wt.	Wt. of dust	Initial	Final	Sampling Hour	Initial	Final	Avg Flow Rate			
04/07/13	205049	3.5506	3.6032	0.0526	1635.10	1659.11	24.01	42	42	42.0	1713.32	30.7007	Sunny
10/07/13	205136	3.7113	3.7368	0.0255	1659.11	1683.12	24.01	42	42	42.0	1713.32	14.8834	Sunny
16/07/13	205140	3.7090	3.7260	0.0170	1683.12	1707.15	24.03	42	42	42.0	1714.74	9.9140	Sunny
22/07/13	205144	3.7121	3.7580	0.0459	1707.15	1731.16	24.01	42	42	42.0	1713.32	26.7901	Overcast
27/07/13	205148	3.7239	3.7822	0.0583	1731.16	1755.19	24.03	42	42	42.0	1714.74	33.9993	Overcast

D2 24-Hrs TSP Monitoring Results

Sampling Date	Paper No.	Wt. of paper (g)			Elapse Time			Flow Rate (CFM)			Total Volume (m ³)	TSP Concentration (µg/m ³)	Weather
		Initial Wt.	Final Wt.	Wt. of dust	Initial	Final	Sampling Hour	Initial	Final	Avg Flow Rate			
04/07/13	205050	3.5547	3.5965	0.0418	1422.82	1446.84	24.02	42	42	42.0	1714.03	24.3870	Sunny
10/07/13	205137	3.7203	3.7464	0.0261	1446.84	1470.87	24.03	42	42	42.0	1714.74	15.2209	Sunny
16/07/13	205141	3.7159	3.7169	0.0010	1470.87	1494.89	24.02	42	42	42.0	1714.03	0.5834	Sunny
22/07/13	205145	3.7265	3.7321	0.0056	1494.89	1518.92	24.03	42	42	42.0	1714.74	3.2658	Overcast
27/07/13	205149	3.7213	3.7390	0.0177	1518.92	1542.95	24.03	42	42	42.0	1714.74	10.3222	Overcast

D3 24-Hrs TSP Monitoring Results

Sampling Date	Paper No.	Wt. of paper (g)			Elapse Time			Flow Rate (CFM)			Total Volume (m ³)	TSP Concentration (µg/m ³)	Weather
		Initial Wt.	Final Wt.	Wt. of dust	Initial	Final	Sampling Hour	Initial	Final	Avg Flow Rate			
04/07/13	205051	3.5683	3.6178	0.0495	2007.05	2031.06	24.01	42	42	42.0	1713.32	28.8913	Sunny
10/07/13	205138	3.7035	3.7174	0.0139	2031.06	2055.08	24.02	42	42	42.0	1714.03	8.1095	Sunny
16/07/13	205142	3.7026	3.7857	0.0831	2055.08	2079.10	24.02	42	42	42.0	1714.03	48.4822	Sunny
22/07/13	205146	3.7225	3.7288	0.0063	2079.10	2103.13	24.03	42	42	42.0	1714.74	3.6740	Overcast
27/07/13	205150	3.7287	3.7667	0.0380	2103.13	2127.15	24.02	42	42	42.0	1714.03	22.1700	Overcast

D4 24-Hrs TSP Monitoring Results

Sampling Date	Paper No.	Wt. of paper (g)			Elapse Time			Flow Rate (CFM)			Total Volume (m ³)	TSP Concentration (µg/m ³)	Weather
		Initial Wt.	Final Wt.	Wt. of dust	Initial	Final	Sampling Hour	Initial	Final	Avg Flow Rate			
04/07/13	205052	3.6449	3.7124	0.0675	1964.16	1988.17	24.01	42	42	42.0	1713.32	39.3973	Sunny
10/07/13	205139	3.7102	3.7564	0.0462	1988.17	2012.19	24.02	42	42	42.0	1714.03	26.9540	Sunny
16/07/13	205143	3.7060	3.9670	0.2610	2012.19	2036.22	24.03	42	42	42.0	1714.74	152.2094	Sunny
22/07/13	205147	3.7214	3.8705	0.1491	2036.22	2060.25	24.03	42	42	42.0	1714.74	86.9518	Overcast
27/07/13	205151	3.7328	3.7718	0.0390	2060.25	2084.29	24.04	42	42	42.0	1715.46	22.7345	Overcast



CERTIFICATE OF ANALYSIS

<i>Client</i>	: ENOVATIVE ENVIRONMENTAL SERVICE LTD	<i>Laboratory</i>	: ALS Technichem HK Pty Ltd	<i>Page</i>	: 1 of 2
<i>Contact</i>	: MR SAM WONG	<i>Contact</i>	: Fung Lim Chee, Richard	<i>Work Order</i>	: HK1320849
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<i>Project</i>	: ---	<i>Quote number</i>	: ---	<i>Date received</i>	: 04-JUL-2013
<i>Order number</i>	: ---			<i>Date of issue</i>	: 07-AUG-2013
<i>C-O-C number</i>	: ---			<i>No. of samples</i>	- <i>Received</i> : 20
<i>Site</i>	: ---				- <i>Analysed</i> : 20

Report Comments

This report for ALS Technichem (HK) Pty Ltd work order reference HK1320849 supersedes any previous reports with this reference. The completion date of analysis is 05-AUG-2013. Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for process purposes. Abbreviations: CAS number = Chemical Abstract Services number. LOR = Limit of reporting.

Specific comments for Work Order HK1320849 :
Sample(s) were received in an ambient condition.
Sample(s) analysed and reported on an as received basis.

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This document has been electronically signed by those names that appear on this report and are the authorised signatories. Electronic signing has been carried out in compliance with procedures specified in the 'Electronic Transactions Ordinance' of Hong Kong, Chapter 553, Section 6.

<i>Signatory</i>	<i>Position</i>	<i>Authorised results for:-</i>
Fung Lim Chee, Richard	General Manager	Inorganics

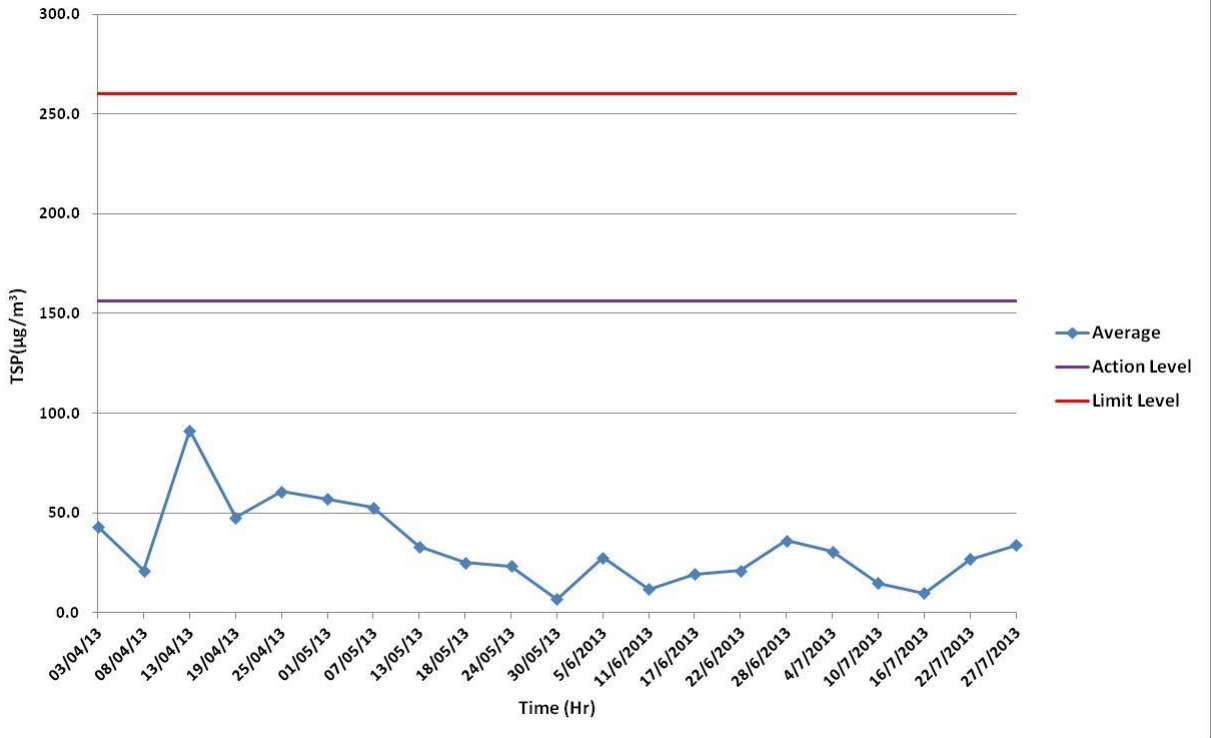


Analytical Results

Sub-Matrix: FILTER (TSP/RSP)

			Compound	HK-TSP: Total Suspended Particulates	HK-TSP: Initial Weight	HK-TSP: Final Weight		
			LOR Unit	0.0010 g	0.0010 g	0.0010 g		
Client sample ID	Client sampling date / time	Laboratory sample ID		EA/ED: Physical and Aggregate Properties	EA/ED: Physical and Aggregate Properties	EA/ED: Physical and Aggregate Properties		
205049	[04-JUL-2013]	HK1320849-001		0.0526	3.5506	3.6032		
205050	[04-JUL-2013]	HK1320849-002		0.0418	3.5547	3.5965		
205051	[04-JUL-2013]	HK1320849-003		0.0495	3.5683	3.6178		
205052	[04-JUL-2013]	HK1320849-004		0.0675	3.6449	3.7124		
205136	[10-JUL-2013]	HK1320849-005		0.0255	3.7113	3.7368		
205137	[10-JUL-2013]	HK1320849-006		0.0261	3.7203	3.7464		
205138	[10-JUL-2013]	HK1320849-007		0.0139	3.7035	3.7174		
205139	[10-JUL-2013]	HK1320849-008		0.0462	3.7102	3.7564		
205140	[16-JUL-2013]	HK1320849-009		0.0170	3.7090	3.7260		
205141	[16-JUL-2013]	HK1320849-010		0.0010	3.7159	3.7169		
205142	[16-JUL-2013]	HK1320849-011		0.0831	3.7026	3.7857		
205143	[16-JUL-2013]	HK1320849-012		0.2610	3.7060	3.9670		
205144	[22-JUL-2013]	HK1320849-013		0.0459	3.7121	3.7580		
205145	[22-JUL-2013]	HK1320849-014		0.0056	3.7265	3.7321		
205146	[22-JUL-2013]	HK1320849-015		0.0063	3.7225	3.7288		
205147	[22-JUL-2013]	HK1320849-016		0.1491	3.7214	3.8705		
205148	[27-JUL-2013]	HK1320849-017		0.0583	3.7239	3.7822		
205149	[27-JUL-2013]	HK1320849-018		0.0177	3.7213	3.7390		
205150	[27-JUL-2013]	HK1320849-019		0.0380	3.7287	3.7667		
205151	[27-JUL-2013]	HK1320849-020		0.0390	3.7328	3.7718		

Graphical plots of 24-Hrs TSP for D1



Graphical plots of 24-Hrs TSP for D2

