

Drainage Service Department

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

September 2012

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EXECUTIVE SUMMARY

This is the first 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 Drainage Services Department (DSD). This report concludes the impact monitoring for the activities undertaken during the period from 1st of September 2012 to 30th September 2012. The major site activities in this reporting period were mainly stream course diversion works and tree felling.

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 was conducted in the reporting period. No exceedance of A/L level was reported.

Furthermore, impact monitoring for water quality was conducted. Total 2 non-compliance events of water quality criteria were recorded in this reporting period. For the non-compliance events, no particular observation of defective site activity causing water contamination was found and the exceedance records were believed to be mainly caused by the adverse weather condition.

Impact monitoring for air quality monitoring was carried out in the reporting period. No exceedance of A/L level was reported.

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 12.3.

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 first 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 Drainage Services Department. The site layout plan is shown in **Appendix A**. The Environmental Team, Environmental Pioneers & Solutions Limited was appointed by Hip Hing 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 September 2012 to 30th September 2012. 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-01/428/2011/A)) (EP), PS and the Contractor's Environmental Management Plan (EMP).

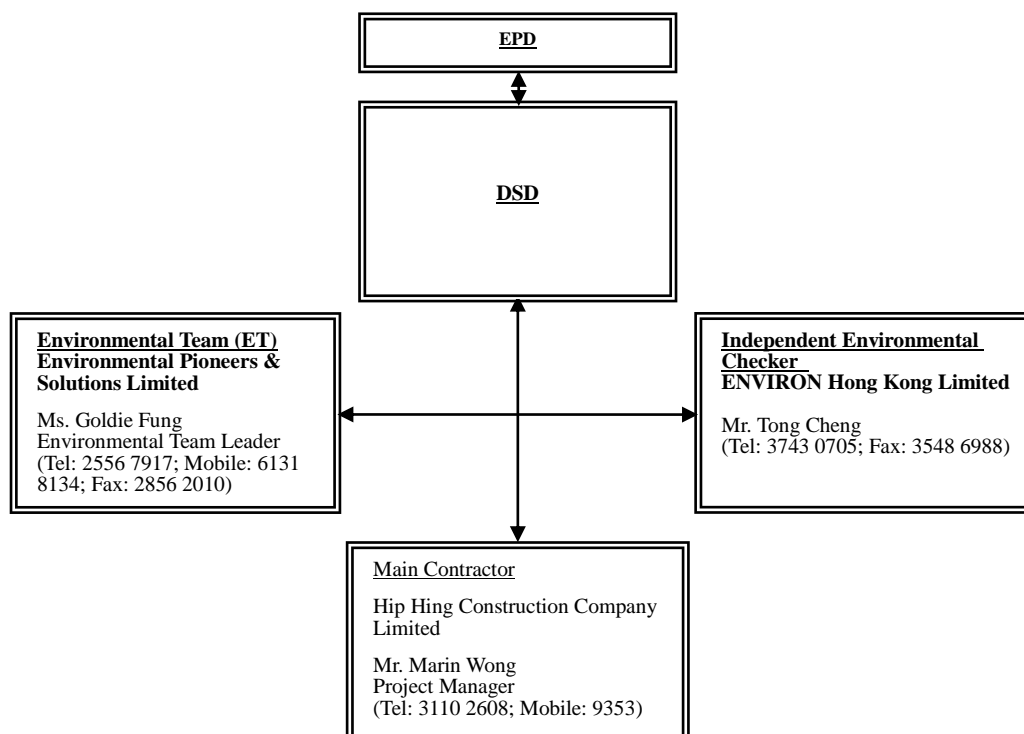
2 Project Information

Construction works of “Drainage Diversion Works for the Comprehensive Residential Development at Various Lots in DD227 & DD229, Tai Po Tsai, Sai Kung” project would be 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 Hing 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:

- Stream course diversion works (Excavation)
- Tree felling

4.2 Construction Activities for Coming Month

Proposed key construction works in the coming month will include:

- Stream course diversion works
 - Excavation
 - Rebar fixing
 - Formwork fixing
 - Concreting
 - Concrete pipe laying
- Tree felling

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 4.2.1 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 949 | IEC 651 Type 1 | 2 |
| | Svantek 955 | IEC 804 Type 1 | |
| Acoustical calibrator | Svantek SV30A | 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 Environmental Monitoring and Audit manual, 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.

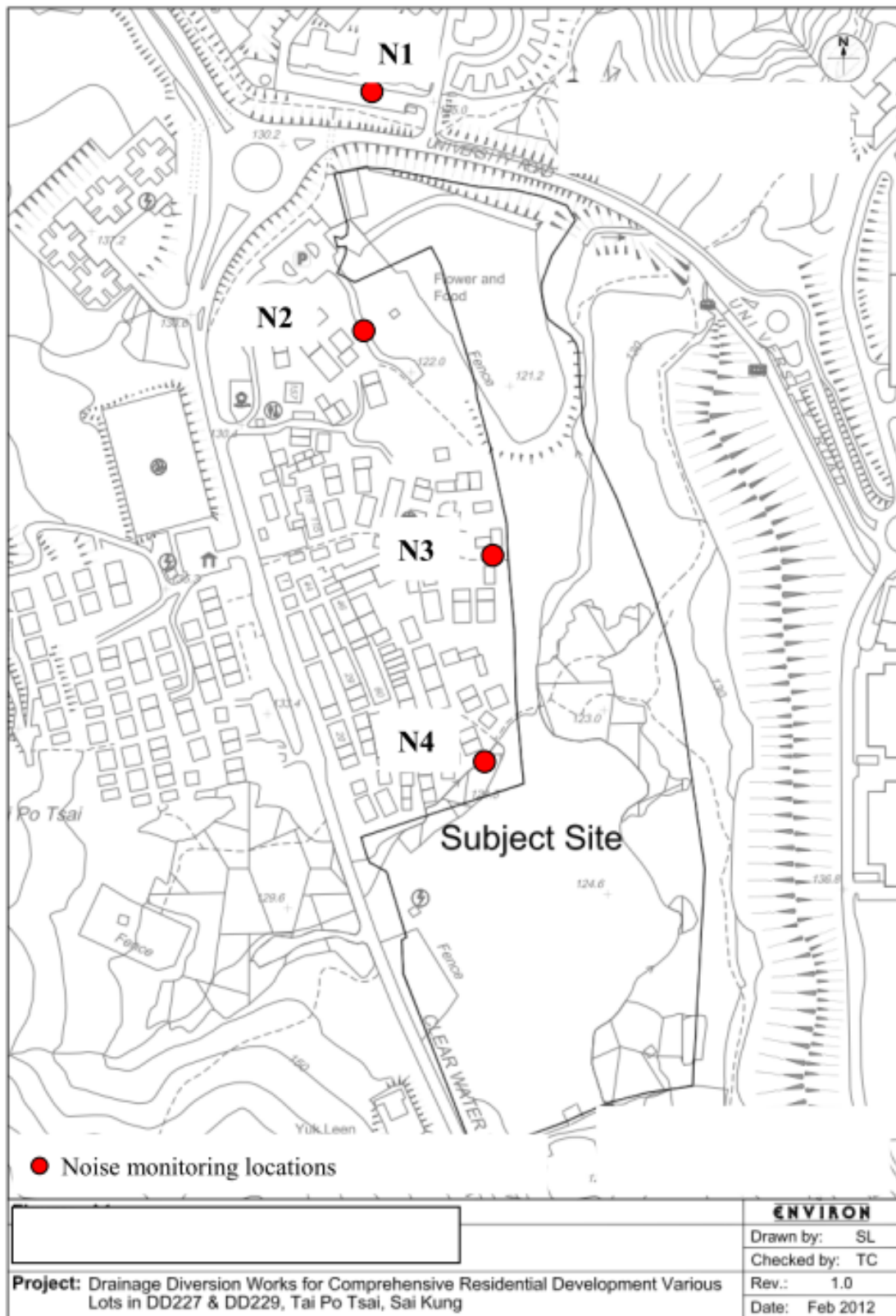


Figure 5.3.1 Impact noise monitoring locations

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 1st, 7th, 13th, 19th, 25th and 29th of September 2012.

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 62.1dB (A) and 66.5dB (A), N2 ranged between 53.5dB (A) and 62.6dB (A), N3 ranged between 55.0dB (A) and 63.8dB (A) and N4 ranged between 58.7dB (A) and 61.9dB (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 | 1-Sep-12 | 14:02 | 62.1 | 75 | N | Overcast |
| *N1 | Leq30min | 7-Sep-12 | 14:04 | 66.5 | 75 | N | Sunny |
| *N1 | Leq30min | 13-Sep-12 | 13:50 | 63.7 | 75 | N | Sunny |
| *N1 | Leq30min | 19-Sep-12 | 11:12 | 66.2 | 75 | N | Cloudy |
| *N1 | Leq30min | 25-Sep-12 | 14:02 | 66.0 | 75 | N | Sunny |
| *N1 | Leq30min | 29-Sep-12 | 13:38 | 65.2 | 75 | N | Sunny |
| *N2 | Leq30min | 1-Sep-12 | 13:28 | 59.5 | 75 | N | Overcast |
| *N2 | Leq30min | 7-Sep-12 | 11:22 | 62.6 | 75 | N | Sunny |
| *N2 | Leq30min | 13-Sep-12 | 13:19 | 59.2 | 75 | N | Sunny |
| *N2 | Leq30min | 19-Sep-12 | 11:08 | 53.5 | 75 | N | Cloudy |
| *N2 | Leq30min | 25-Sep-12 | 11:12 | 55.1 | 75 | N | Sunny |
| *N2 | Leq30min | 29-Sep-12 | 13:02 | 54.7 | 75 | N | Sunny |
| *N3 | Leq30min | 1-Sep-12 | 13:02 | 63.0 | 75 | N | Overcast |
| *N3 | Leq30min | 7-Sep-12 | 10:31 | 62.9 | 75 | N | Sunny |
| *N3 | Leq30min | 13-Sep-12 | 10:53 | 55.0 | 75 | N | Sunny |
| *N3 | Leq30min | 19-Sep-12 | 9:50 | 63.8 | 75 | N | Cloudy |
| *N3 | Leq30min | 25-Sep-12 | 10:03 | 63.4 | 75 | N | Sunny |

| | | | | | | | |
|-----|----------|-----------|-------|------|----|---|----------|
| *N3 | Leq30min | 29-Sep-12 | 9:59 | 55.1 | 75 | N | Sunny |
| N4 | Leq30min | 1-Sep-12 | 11:30 | 58.7 | 75 | N | Overcast |
| N4 | Leq30min | 7-Sep-12 | 11:06 | 59.8 | 75 | N | Sunny |
| N4 | Leq30min | 13-Sep-12 | 11:29 | 59.5 | 75 | N | Sunny |
| N4 | Leq30min | 19-Sep-12 | 10:32 | 61.1 | 75 | N | Cloudy |
| N4 | Leq30min | 25-Sep-12 | 10:37 | 61.7 | 75 | N | Sunny |
| N4 | Leq30min | 29-Sep-12 | 10:32 | 61.9 | 75 | N | Sunny |

*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 | 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. | 1. Check monitoring data submitted by ET. 2. Check Contractor's working method. | 1. Notify Contractor. | 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. |
|--|--|---|---|--|

| | | | | |
|--|---|--|---|--|
| <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. |
|--|---|--|---|--|

| | | | | |
|--|---|---|---|---|
| <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 taken. 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER | <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 actions. | <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. |
|--|---|---|---|---|

| | | | | |
|--|---|--|--|--|
| | <p>informed of the results</p> <p>8. If exceedance stops, cease additional monitoring</p> | | | |
|--|---|--|--|--|

5.7 Monitoring Schedule for the next reporting period

Noise monitoring schedule is proposed to be carried out on 5th, 11th, 17th, 22nd and 27th of October 2012.

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, model TOA-DKK WQC-24. 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 EM&A Manual (revision 3), 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 proposed 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 1st, 3rd, 5th, 7th, 10th, 12th, 14th, 17th, 19th, 21st, 24th, 26th and 28th of September 2012.

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 2 abnormal incidents of water quality (SS) was record in this reporting period as shown in table 6.5.2. ET has arranged site investigations for the abnormal incidents on same day and found that no construction activities had been commenced during the exceedance period. It was believed that the exceedance of water quality was not affected by the construction activities. Besides, the SS at the control station was also relative high in accordance with lab report. Therefore, the exceedance was believed to be mainly caused by adverse weather condition and natural fluctuation.

| | 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 | 27.02 | 24.0 | 7.3 | 6.41 | 69.5 | 14.46 |
| W2 | 26.5 | 4.7 | 7.23 | 7.33 | 78.9 | 7.23 |

Table 6.5.2 Interpretations of abnormal incidents recorded in the reporting month

| Date | Parameter | Interpretations |
|----------|-----------|--|
| 1/9/2012 | SS | Exceedance was caused by adverse weather |

| | | |
|----------|----|--|
| 7/9/2012 | SS | Exceedance was caused by adverse weather |
|----------|----|--|

6.6 Action and Limit Level for Water Quality

Based on the criteria stipulated in PS and baseline water quality monitoring data obtained, the A/L levels are shown in Table 6.6.1. 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.

| 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. |
| LIMIT LEVEL | | | | |
| <p>Exceedance for one sampling day</p> | <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 | <ol style="list-style-type: none"> 1. Discuss with ET and Contractor on the mitigation measures. 2. Review proposals on mitigation measures submitted by | <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 | <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. |

| | | | | |
|--|--|--|--|--|
| | <p>Contractor's working methods;</p> <p>5. Discuss mitigation measures with IEC, ER and Contractor.</p> <p>6. Ensure mitigation measures are implemented.</p> <p>7. Increase the monitoring frequency to daily until no exceedance of Limit level.</p> | <p>Contractor and advise the ER accordingly.</p> <p>3. Assess effectiveness of the implemented mitigation measures.</p> | <p>working methods.</p> <p>3. Make agreement on the mitigation measures to be implemented.</p> <p>4. Assess the effectiveness of the implemented mitigation measures.</p> | <p>4. Consider changes of working methods.</p> <p>5. Discuss with ET, IEC and ER and propose mitigation measures to IEC and ER within three working days.</p> <p>6. Implement the agreed mitigation measures.</p> |
| <p>Exceedance for more than on consecutive sampling days</p> | <p>1. Repeat in-situ measurements to confirm findings.</p> <p>2. Identify source(s) of impact.</p> <p>3. Inform EPD, IEC and Contractor.</p> <p>4. Check monitoring data, all plant, equipment and Contractor's working methods.</p> <p>5. Discuss mitigation measures with IEC, ER and Contractor.</p> <p>6. Ensure mitigation measures are implemented.</p> <p>7. Increase the monitoring frequency to daily</p> | <p>1. Discuss with ET and Contractor on the mitigation measures.</p> <p>2. Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly.</p> <p>3. Assess the effectiveness of the implemented mitigation measures.</p> | <p>1. Discuss with IEC, ET and Contractor on the proposed mitigation measures.</p> <p>2. Request Contractor to critically review the working methods.</p> <p>3. Make agreement on the mitigation measures to be implemented.</p> <p>4. Assess the effectiveness of the</p> | <p>1. Inform the ER and confirm notification of the non-compliance in writing.</p> <p>2. Rectify unacceptable practice.</p> <p>3. Check all plant and equipment.</p> <p>4. Consider changes of working methods.</p> <p>5. Discuss with ET, IEC and ER and propose mitigation measures to IEC and ER within three working days.</p> |

| | | | | |
|--|---|--|---|--|
| | <p>until no exceedance of Limit level for two consecutive days.</p> | | <p>implemented mitigation measures. 5. Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the work until no exceedance of Limit Level.</p> | <p>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.</p> |
|--|---|--|---|--|

6.7 Monitoring Schedule for Next Reporting Period

Water quality monitoring schedule is proposed to be carried out on 3rd, 5th, 8th, 10th, 12th, 15th, 17th, 19th, 22nd, 24th, 26th, 29th and 31st of October 2012.

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 | SIBATA/LD-3B | 1-hr TSP | 2 |
| 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 |

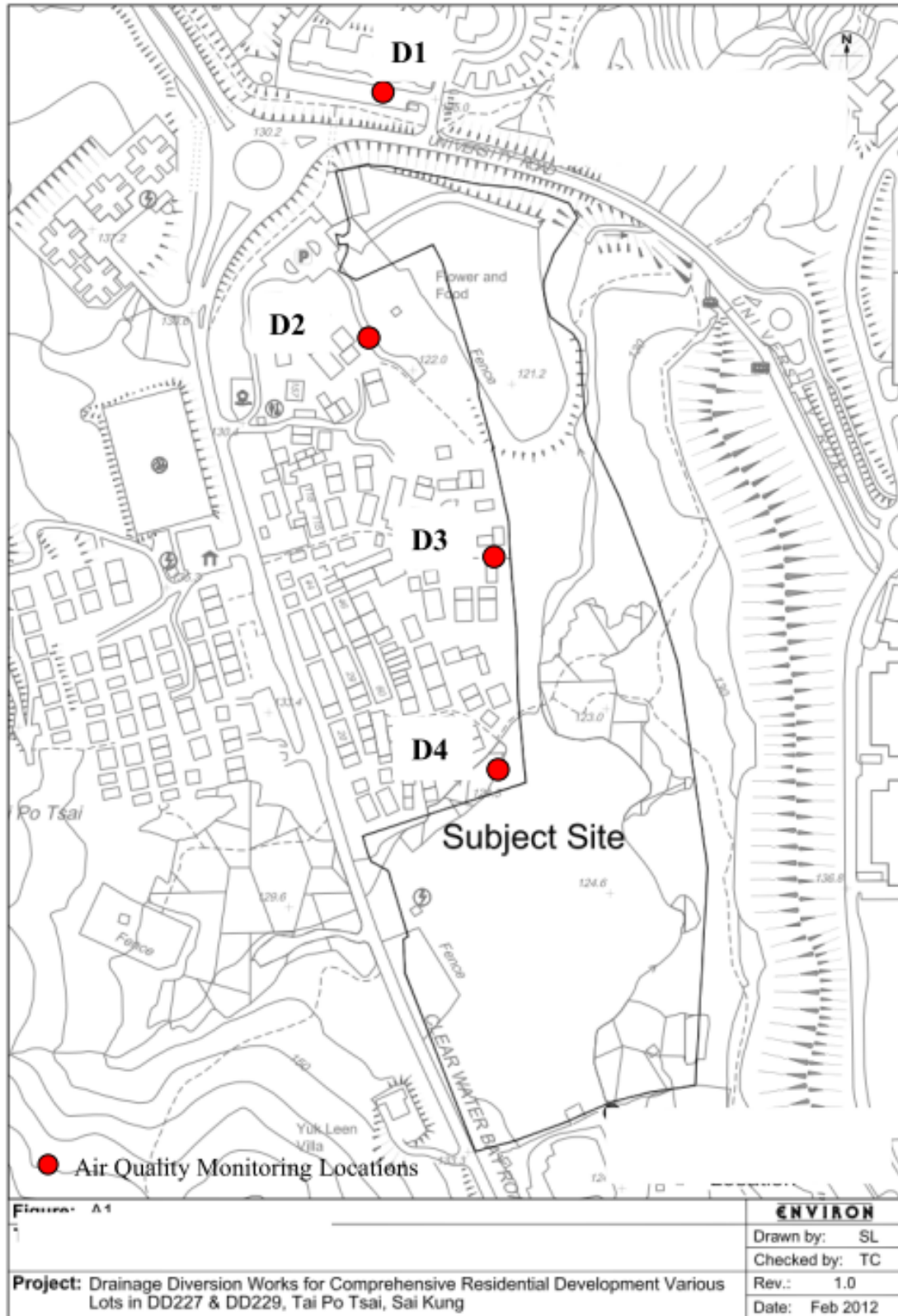


Figure 7.3.1 Air Quality Monitoring Locations

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 1st, 7th, 13th, 19th, 25th and 29th of September 2012.

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/m3) (Min – Max) | Average (µg/m3) |
|----------|------------------------------|--------------------|
| D1 | 15-83 | 47.0 |
| D2 | 20-94 | 45.2 |
| D3 | 20-79 | 46.2 |
| D4 | 17-106 | 59.1 |

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/m3) (Min – Max) | Average (µg/m3) |
|----------|------------------------------|--------------------|
| D1 | 25.0-99.1 | 63.8 |
| D2 | 17.3-85.8 | 45.9 |
| D3 | 24.6-93.8 | 58.1 |
| D4 | 26.8-86.1 | 51.1 |

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"> 1. Identify source, investigate the cause s 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. |
| Exceedance for two or more consecutive samples | <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, | <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 proposal if appropriate. |

| | | | | |
|--|--|---|--|--|
| | cease additional monitoring. | | | |
| LIMIT LEVEL | | | | |
| Exceedance for one sample | <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 result. | <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. |
| Exceedance for two or more consecutive samples | <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 | <ol style="list-style-type: none"> 1. Discuss amongst ER, ET and Contractor on the potential remedial actions. 2. Reviews Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly. | <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 | <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 |

| | | | | |
|--|--|---|---|---|
| | <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>3. Supervisor the implementation of remedial measures.</p> | <p>be implemented.</p> <p>4. Ensure remedial measures properly implemented.</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>under control.</p> <p>5. Stop the relevant portion of works as determined by the ER until the exceedance is abated</p> |
|--|--|---|---|---|

7.7 Monitoring Schedule for Next Reporting Period

1-hr TSP and 24-hrs TSP monitoring schedule is proposed to be carried out on 5th, 11th, 17th, 22nd and 27th of October 2012.

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 and transplanted trees. The tree protection zone has enough space to prevent the construction activities to damage the trees. And, the felled trees were also removed accordingly.

As the construction activities do not affect the existing river conditions, the water flow in the existing river within the site is 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 2 abnormal incidents of water quality limits (SS) were recorded in this reporting month according to the established level. ET has arranged site investigations for the abnormal incidents on same day and found that no construction activities had been commenced during the exceedance period. It was believed that the exceedance of water quality was not affected by the construction activities. Besides, the SS at the control station was also relative high in accordance with lab report. Therefore, the exceedance was believed to be mainly caused by adverse weather condition and natural fluctuation.

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

Table 9.1 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'000m3) | (in'000m3) | (in'000m3) | (in'000m3) | (in'000m3) | (in'000m3) | (in'000kg) | (in'000kg) | (in'000kg) | (in'000kg) | (in'000kg) |
| Sep 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | | | | | | | | | | |
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| | | | | | | | | | | | |
| Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 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'000m3) | (in'000m3) | (in'000m3) | (in'000m3) | (in'000m3) | (in'000m3) | (in'000kg) | (in'000kg) | (in'000kg) | (in'000kg) | (in'000kg) |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

11 Status of Permits and Licenses

Table 10.1 is the updated status of environmental related permits/ license obtained for the construction activities

| Table 10.1 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 & | N/A | Superseded by VEP |
| EP | EP428/2011/A | 1 June 2012 | DD229, | | Valid |
| FEP | FEP-01/428/2011/A | 9 July 2012 | Tai Po Tsai, Sai Kung | | Valid |
| Discharge License | N/A | N/A | N/A | | N/A |
| Registration as a Chemical Waste Producer | 349704 | 27 Sep 2012 | Various Lots in DD227 & DD229, Tai Po Tsai, Sai Kung | | Valid |
| Waste Disposal | N/A | 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.

| Table 11.1 Summary of Formal Complaints received | | | | |
|--|-------|-------|-----|--------|
| | Noise | Water | Air | Others |
| September 2012 | 0 | 0 | 0 | 0 |
| Total | 0 | 0 | 0 | 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 5th, 12th, 19th and 27th of September 2012. 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 12.1.

Table 12.1 Summary results of site inspections findings

| Date | Findings | Identification | Advice from ET | Action taken | Closing date | Remarks |
|-----------|---|----------------|----------------|--------------|--------------|---------|
| 5 Sep 12 | No major environmental deficiency is observed | N/A | N/A | N/A | N/A | N/A |
| 12 Sep 12 | No major environmental deficiency is observed | N/A | N/A | N/A | N/A | N/A |
| 19 Sep 12 | No major environmental deficiency is | N/A | N/A | N/A | N/A | N/A |

| Date | Findings | Identification | Advice from ET | Action taken | Closing date | Remarks |
|-----------|-------------|--|--|--|--------------|---------|
| | observed | | | | | |
| 27 Sep 12 | Observation | As excavation works were carried out, excavated material was not covered with tarpaulin. | Contractor was reminded that excavated material should be covered with tarpaulin for the dust suppression after the completion of works of each day. | To be followed during next inspection. | N/A | N/A |

13.2 Compliance with Legal and Contractual Requirement

There was no non-compliance recorded for the month of September 2012.

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
- 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

Stream course diversion works and tree felling 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 Project Proponent, Contractor and the ET on weekly basis. Also monthly site meeting and inspection audits with the above parties and IEC were carried out on 27th of September 2012.

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

Impact monitoring for water quality was conducted. Total 2 non-compliance events of water quality criteria were recorded in this reporting period. For the non-compliance events, ET has arranged site investigations for the abnormal incidents on same day and found that no construction activities had been commenced during the exceedance period. It was believed that the exceedance of water quality was not affected by the construction activities. Besides, the SS at the control station was also relative high in accordance with lab report. Therefore, the exceedance was believed to be mainly caused by adverse weather condition and natural fluctuation.

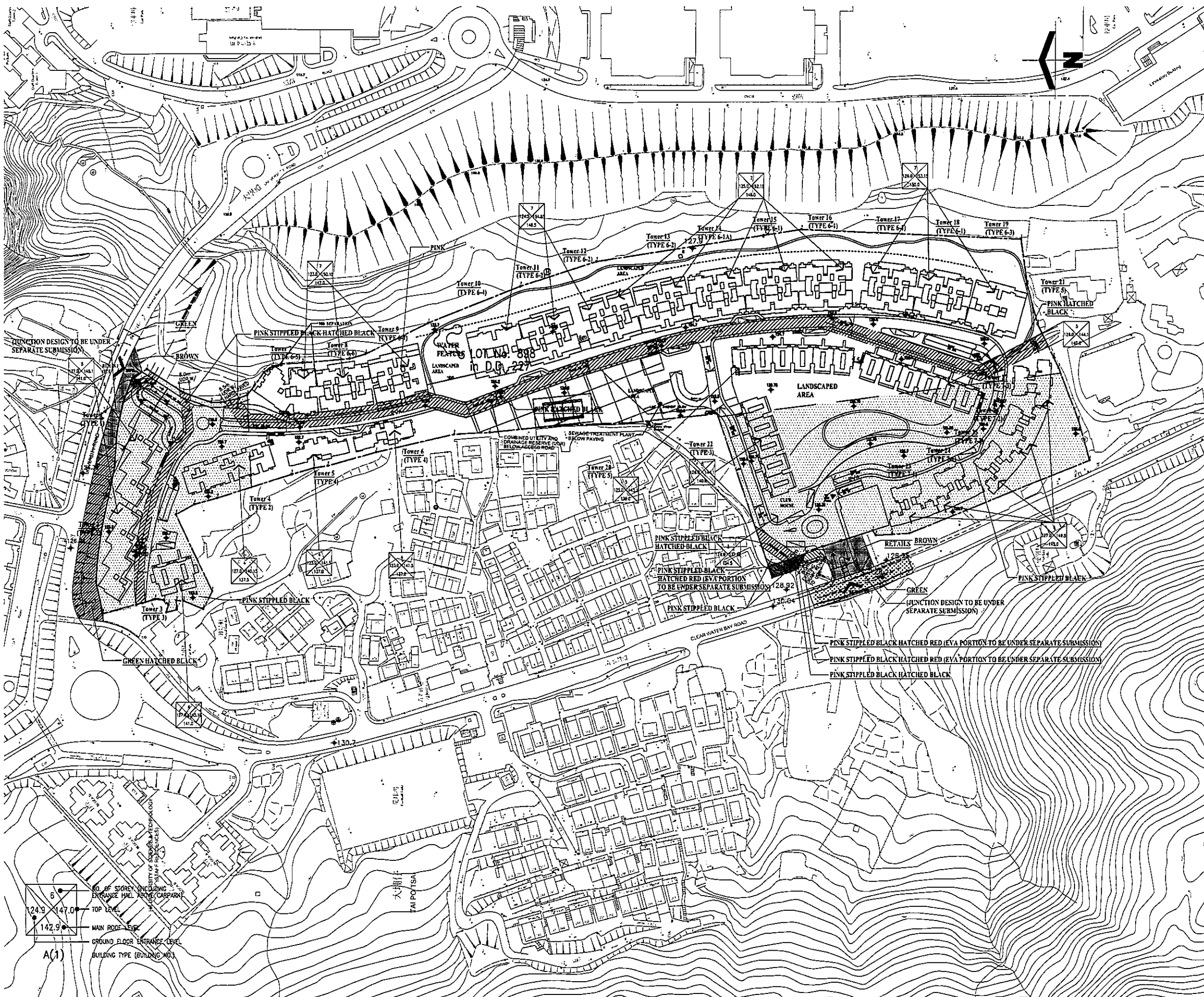
Also, there was no notification of summons, formal prosecution or complaints being recorded during the reporting period.

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 requirement.

Appendix A

Construction Master Programme and Site Location Plan



B.D. REFERENCE NUMBER:

NOTES
 1. DO NOT SCALE DRAWING, DIMENSIONS AND LEVELS ARE TO BE FOLLOWED.
 2. READ THIS DRAWING IN CONNECTION WITH GENERAL ARCHITECTURAL, PLUMBING, STRUCTURAL, ELECTRICAL AND OTHER RELATED SERVICES. THE ARCHITECT SHALL BE NOTIFIED IMMEDIATELY BY ANY DISCREPANCY FOUND THEREIN.
 3. COPYRIGHT BY THE DRAWING RECEIVED BY ARCHITECT.

| REVISIONS | |
|-----------|----------|
| NO. | REVISION |
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HONG TUNG & PARTNERS LIMITED
 ARCHITECTS & PLANNERS
 8th Floor, Cheong Cheong & Tseung Wang, Hong Kong
 Telephone: (852) 2812 1128 www.hongtung.com

PROJECT:
 PROPOSED COMPREHENSIVE
 RESIDENTIAL DEVELOPMENT
 AT TAI PO TSAI, SAI KUNG,
 N.T., LOT 698 IN D.D.227

TITLE:
 MASTER LAYOUT 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 | 3743 0705 | 3548 6988 |
| Hip Hing 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. 21290

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. : Q20468

Date of receipt : 2-Mar-12

Item Tested

Description : Sound Level Calibrator

Manufacturer : Svantek

Model : SV30A

Serial No. : 7908

Test Conditions

Date of Test : 5-Mar-12

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 Class 1 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 | 15136 | NIM-PRC & SCL-HKSAR |
| S041 | Universal Counter | 15610 | 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: 7-Mar-12

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. 21290

Page 2 of 2 Pages

Results :

1. Level Accuracy

| UUT Nominal Value (dB) | Measured Value (dB) | IEC 942 Class 1 Spec. |
|------------------------|---------------------|-----------------------|
| 94 | 94.10 | ± 0.3 dB |
| 114 | 114.18 | |

Uncertainty : ± 0.1 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 : < 0.8 %

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 : 1001 hPa.

----- END -----



Calibration Certificate

Certificate No. **21289**

Page 1 of 3 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. : Q20468

Date of receipt : 2-Mar-12

Item Tested

Description : Digital Sound Level Meter

Manufacturer : SVAN

Model : 949

Serial No. : 8571

Test Conditions

Date of Test : 5-Mar-12

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 651 Type 1 & IEC 804 Type 1 specification after adjustment.

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> |
|----------------------|--------------------------|------------------|---------------------|
| S017A | Multi-Function Generator | 07279 | SCL-HKSAR |
| S024 | Sound Level Calibrator | 15136 | 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: 7-Mar-12

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. 21289

Page 2 of 3 Pages

Results :

1. SPL Accuracy

| Level Range | UUT Setting | | | Applied Value (dB) | UUT Reading (dB) | |
|-------------|---------------|--------|----------|--------------------|------------------|--------------|
| | Octave Filter | Weight | Response | | Before adjust | After adjust |
| 105 dB | OFF | A | Fast | 94.0 | *92.0 | 94.0 |
| | | | Slow | | -- | 94.0 |
| | | C | Fast | | -- | 94.0 |
| 130 dB | OFF | A | Fast | 94.0 | -- | 94.0 |
| | | | Slow | | -- | 94.0 |
| | | C | Fast | | -- | 94.0 |
| | OFF | A | Fast | 114.0 | -- | 114.1 |
| | | | Slow | | -- | 114.1 |
| | | C | Fast | | -- | 114.1 |

IEC 651 Type 1 Spec. : ± 0.7 dB

Uncertainty : ± 0.1 dB

2. Level Stability : 0.0 dB

IEC 651 Type 1 Spec. : ± 0.3 dB

Uncertainty : ± 0.01 dB

3. Linearity

3.1 Level Linearity

| UUT Range (dB) | Applied Value (dB) | UUT Reading (dB) | Variation (dB) | IEC 651 Type 1 Spec. (inside Primary) |
|----------------|--------------------|------------------|----------------|---------------------------------------|
| 130 | 114.0 | 114.0 | 0.0 | ± 0.7 dB |
| | 104.0 | 104.0 | 0.0 | |
| | 94.0 | 94.0 (Ref.) | -- | |
| 105 | 84.0 | 84.0 | 0.0 | |
| | 74.0 | 74.0 | 0.0 | |
| | 64.0 | 64.0 | 0.0 | |
| | 54.0 | 54.0 | 0.0 | |

Uncertainty : ± 0.1 dB



Calibration Certificate

Certificate No. 21289

Page 3 of 3 Pages

3.2 Differential level linearity

| UUT Range (dB) | Applied Value (dB) | UUT Reading (dB) | Variation (dB) | IEC 651 Type 1 Spec. |
|----------------|--------------------|------------------|----------------|----------------------|
| 130 | 84.0 | 84.0 | 0.0 | ± 0.4 dB |
| | 94.0 | 94.0 (Ref.) | 0.0 | |
| | 95.0 | 95.0 | 0.0 | ± 0.2 dB |

Uncertainty : ± 0.1 dB

4. Frequency Weighting

A weighting

| Frequency | Attenuation (dB) | IEC 651 Type 1 Spec. |
|-----------|------------------|----------------------------|
| 31.5 Hz | -40.4 | - 39.4 dB, ± 1.5 dB |
| 63 Hz | -27.2 | - 26.2 dB, ± 1.5 dB |
| 125 Hz | -17.0 | - 16.1 dB, ± 1 dB |
| 250 Hz | -9.4 | - 8.6 dB, ± 1 dB |
| 500 Hz | -2.6 | - 3.2 dB, ± 1 dB |
| 1 kHz | 0.0 (Ref) | 0 dB, ± 1 dB |
| 2 kHz | +1.8 | + 1.2 dB, ± 1 dB |
| 4 kHz | +1.8 | + 1.0 dB, ± 1 dB |
| 8 kHz | -0.4 | - 1.1 dB, + 1.5 dB ~ -3 dB |
| 16 kHz | -6.3 | - 6.6 dB, + 3 dB ~ -∞ |

Uncertainty : ± 0.1 dB

5. Time Averaging

| Applied Burst duty Factor | Applied Leq. Value (dB) | UUT Reading (dB) | IEC 804 Type 1 Spec. |
|---------------------------|-------------------------|------------------|----------------------|
| continuous | 50.0 | -- | -- |
| 1/10 | 50.0 | 50.2 | ± 0.5 dB |
| 1/10 ² | 50.0 | 49.8 | |
| 1/10 ³ | 50.0 | 50.1 | ± 1.0 dB |
| 1/10 ⁴ | 50.0 | 49.9 | |

Uncertainty : ± 0.1 dB

Remarks : 1. UUT : Unit-Under-Test

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

3. Atmospheric Pressure : 1 001 hPa.

4. *Out of specification.

----- END -----

FACTORY CALIBRATION DATA OF THE SVAN 955 No. 27301

with preamplifier SVANTEK type SV12L No. 25734 and microphone ACO type 7052E No. 49607

1. CALIBRATION (electrical)

LEVEL METER; Characteristic: Z; $f_{sm}=1000\text{Hz}$

| Nominal result [dB] | Indication [dB] | Error [dB] |
|---------------------|-----------------|------------|
| 114.0 | 114.0 | 0.0 |

2. CALIBRATION* (acoustical)

LEVEL METER; Range: High; Reference frequency: 1000Hz; Sound Pressure Level: 113.89 dB.

| Characteristic | Correct value [dB] | Indication [dB] | Error [dB] |
|----------------|--------------------|-----------------|------------|
| Z | 113.63 | 113.56 | -0.07 |
| A | 113.63 | 113.58 | -0.05 |
| C | 113.63 | 113.58 | -0.05 |

Calibration measured with the microphone ACO type 7052E No. 49607. Calibration factor: 1.16 dB.

3. LINEARITY TEST* (electrical)

LEVEL METER; Characteristic: A; $f_{sm}=31.5\text{ Hz}$

| Nominal result [dB] | 25.0 | 26.0 | 28.0 | 30.0 | 40.0 | 60.0 | 80.0 | 98.0 |
|---------------------|------|------|------|------|------|------|------|------|
| Error [dB] | 0.2 | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 |

LEVEL METER; Characteristic: A; $f_{sm}=1000\text{ Hz}$

| Nominal result [dB] | 25.0 | 26.0 | 28.0 | 30.0 | 40.0 | 60.0 | 80.0 | 100.0 | 120.0 | 138.0 |
|---------------------|------|------|------|------|------|------|------|-------|-------|-------|
| Error [dB] | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | -0.1 | 0.0 | 0.0 | 0.0 | 0.0 |

LEVEL METER; Characteristic: A; $f_{sm}=8000\text{ Hz}$

| Nominal result [dB] | 25.0 | 26.0 | 28.0 | 30.0 | 40.0 | 60.0 | 80.0 | 100.0 | 120.0 | 137.0 |
|---------------------|------|------|------|------|------|------|------|-------|-------|-------|
| Error [dB] | 0.2 | 0.2 | 0.2 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

4. TONEBURST RESPONSE* (electrical)

LEVEL METER; Characteristic: A; $f_{sm}=4000\text{ Hz}$; Burst duration: 2s;

Steady level nominal result = 135dB

| Result | Detector | Duration [ms] | 1000 | 500 | 200 | 100 | 50 | 20 | 10 | 5 | 2 | 1 | 0.5 | 0.25 |
|--------|----------|-----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| MAX | Fast | Indication [dB] | 135.0 | 134.9 | 134.0 | 132.4 | 130.2 | 126.7 | 123.8 | 120.9 | 117.0 | 113.9 | 110.9 | 107.9 |
| | | Error [dB] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -0.1 | 0.0 | 0.0 | -0.1 | -0.1 | -0.1 |
| | Slow | Indication [dB] | 132.9 | 130.9 | 127.5 | 124.7 | 121.8 | 117.9 | 114.9 | 111.9 | 107.9 | - | - | - |
| | | Error [dB] | -0.1 | 0.0 | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 | - | - | - |
| SEL | - | Indication [dB] | 135.0 | 132.0 | 128.0 | 125.0 | 122.0 | 118.0 | 115.0 | 112.0 | 108.0 | 104.9 | 101.9 | 98.9 |
| | | Error [dB] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -0.1 | -0.1 | -0.1 |

Steady level nominal result = 55dB

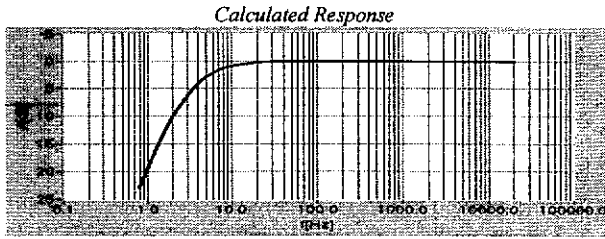
| Result | Detector | Duration [ms] | 1000 | 500 | 200 | 100 | 50 | 20 | 10 | 5 | 2 |
|--------|----------|-----------------|------|------|------|------|------|------|------|------|------|
| MAX | Fast | Indication [dB] | 55.0 | 54.9 | 54.0 | 52.4 | 50.1 | 46.7 | 43.8 | 40.9 | 36.9 |
| | | Error [dB] | 0.0 | 0.0 | 0.0 | 0.0 | -0.1 | 0.0 | -0.1 | 0.0 | -0.1 |
| | Slow | Indication [dB] | 52.9 | 50.8 | 47.4 | 44.6 | 41.7 | 37.8 | 34.8 | 31.9 | 27.8 |
| | | Error [dB] | -0.1 | -0.1 | -0.2 | -0.2 | -0.2 | -0.2 | -0.2 | -0.1 | -0.2 |
| SEL | - | Indication [dB] | 55.0 | 51.9 | 48.0 | 45.0 | 42.0 | 38.0 | 35.0 | 32.0 | 28.0 |
| | | Error [dB] | 0.0 | -0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

Steady level nominal result = 35dB

| Result | Detector | Duration [ms] | 1000 | 500 | 200 |
|--------|----------|-----------------|------|------|------|
| MAX | Fast | Indication [dB] | 35.0 | 34.9 | 34.0 |
| | | Error [dB] | 0.0 | -0.0 | 0.0 |
| | Slow | Indication [dB] | 32.9 | 30.8 | 27.4 |
| | | Error [dB] | -0.1 | -0.1 | -0.2 |
| SEL | - | Indication [dB] | 35.0 | 32.0 | 28.1 |
| | | Error [dB] | 0.0 | 0.0 | 0.1 |

5. FREQUENCY RESPONSE* (electrical)

LEVEL METER; Characteristic: Z; Nominal result (1kHz)=135 dB;



Measured Response (f-frequency, A-attenuation)

| f [Hz] | A [dB] | f [Hz] | A [dB] | f [Hz] | A [dB] |
|--------|--------|--------|--------|--------|--------|
| 10 | 0.9 | 63 | 0.0 | 4000 | 0.0 |
| 12.5 | 0.6 | 125 | 0.0 | 8000 | 0.1 |
| 16 | 0.4 | 250 | 0.0 | 16000 | 0.0 |
| 20 | 0.3 | 500 | 0.0 | 20000 | 0.2 |
| 25 | 0.2 | 1000 | 0.0 | | |
| 31.5 | 0.1 | 2000 | 0.0 | | |

All frequencies are nominal center values for the 1/3 octave band

6. INTERNAL NOISE LEVEL* (electrical - compensated)

LEVEL METER; Backlight – off; Calibration factor: 0dB

| Characteristic | Z | A | C |
|-----------------|------|------|------|
| Indication [dB] | ≤ 25 | ≤ 14 | ≤ 15 |

* measured with preamplifier SVANTEK type SV12L No. 25734.

7. INTERNAL NOISE LEVEL (acoustical - compensated)

LEVEL METER; Range: LOW; Backlight – off

| Characteristic | A |
|-----------------|-----|
| Indication [dB] | <15 |

Noise measured in special chamber, with reference microphone G.R.A.S type 40AN No. 73421

ENVIRONMENTAL CONDITIONS

| Temperature | Relative humidity | Ambient pressure |
|-------------|-------------------|------------------|
| 24.2 °C | 14 % | 1027 hPa |

TEST EQUIPMENT

| Item | Manufacturer | Model | Serial no. | Description |
|------|--------------|-----------|------------|---|
| 1. | SVANTEK | SVAN 401 | 87 | Signal generator |
| 2. | SVANTEK | SVAN 912A | 6120 | Sound & Vibration Analyser |
| 3. | KEITHLEY | 2000 | 0910165 | Digital multimeter |
| 4. | SVANTEK | SV30A | 5369 | Acoustic calibrator |
| 5. | SVANTEK | ST02 | - | Microphone equivalent electrical impedance (18pF) |

CONFORMITY & TEST DECLARATION

1. Herewith Svantek company declares that this instrument has been calibrated and tested in compliance with the internal ISO9001 procedures and meets all specification given in the Manual(s) or respectively surpass them.
2. The acoustic calibration was performed using the Sound Calibrator and is traceable to the GUM (Central Office of Measures) reference standard - sound level calibrator type 4231 No 2292773.
3. The information appearing on this sheet has been compiled specifically for this instrument. This form is produced with advanced equipment & procedures which permit comprehensive quality assurance verification of all data supplied herein.
4. This calibration sheet shall not be reproduced except in full, without written permission of the SVANTEK Ltd.

Calibration specialist: Anna Talecka 

Test date: 2012-01-31



ALS Technichem (HK) Pty Ltd

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

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

WORK ORDER: HK1218289
LABORATORY: HONG KONG
DATE RECEIVED: 11/07/2012
DATE OF ISSUE: 18/07/2012

PROJECT: --

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
Description: Multi-meter
Brand Name: DKK-TOA
Model No.: WMS-24
Serial No.: 685940
Equipment No.: --
Date of Calibration: 18 July, 2012

NOTES

This is the Final Report and supersedes any preliminary report with this batch number.

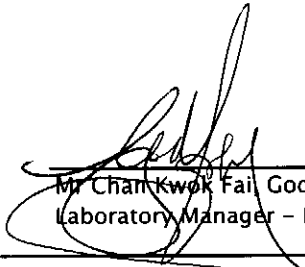
Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

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. Chan Kwok Fai, Godfrey
Laboratory Manager - Hong Kong

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Page 1 of 3

ADDRESS 11/F, Chung Shun Knitting Centre, 1-3 Wing Yip Street, Kwai Chung, N.T., Hong Kong PHONE +852 2610 1044 FAX +852 2610 2021
ALS TECHNICHEM (HK) PTY LTD Part of the ALS Laboratory Group A Campbell Brothers Limited Company

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

Work Order: HK1218289
 Date of Issue: 18/07/2012
 Client: ENVIRONMENTAL PIONEERS & SOLUTIONS LTD



Description: Multi-meter
 Brand Name: DKK-TOA
 Model No.: WMS-24
 Serial No.: 685940
 Equipment No.: --
 Date of Calibration: 18 July, 2012

Date of next Calibration: 18 October, 2012

Parameters:

Conductivity

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

| Expected Reading (uS/cm) | Displayed Reading (uS/cm) | Tolerance (%) |
|--------------------------|---------------------------|---------------|
| 142.6 | 152.0 | 6.6 |
| 6667 | 6420 | -3.7 |
| 12890 | 13500 | 4.7 |
| 58670 | 59900 | 2.1 |
| Tolerance Limit (%) | | 10.0 |

Dissolved Oxygen

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

| Expected Reading (mg/L) | Displayed Reading (mg/L) | Tolerance (mg/L) |
|-------------------------------|--------------------------|------------------|
| 3.37 | 3.33 | -0.04 |
| 5.43 | 5.48 | 0.05 |
| 7.94 | 7.86 | -0.08 |
| Tolerance Limit (\pm mg/L) | | 0.20 |

pH Value

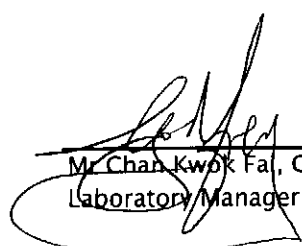
Method Ref: APHA (21st edition), 4500H:B

| Expected Reading (pH Unit) | Displayed Reading (pH Unit) | Tolerance (pH unit) |
|-------------------------------|-----------------------------|---------------------|
| 4.0 | 3.97 | -0.03 |
| 7.0 | 6.87 | -0.13 |
| 10.0 | 9.99 | -0.01 |
| Tolerance Limit (\pm 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 ($^{\circ}$ C) | Displayed Reading ($^{\circ}$ C) | Tolerance ($^{\circ}$ C) |
|----------------------------------|-----------------------------------|---------------------------|
| 13.0 | 14.2 | 1.2 |
| 20.0 | 19.8 | -0.2 |
| 39.5 | 40.4 | 0.9 |
| Tolerance Limit ($^{\circ}$ C) | | 2.0 |


 Mr. Chan Kwok Fai, Godfrey
 Laboratory Manager - Hong Kong

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

Work Order: HK1218289
Date of Issue: 18/07/2012
Client: ENVIRONMENTAL PIONEERS & SOLUTIONS LTD



Description: Multi-meter
Brand Name: DKK-TOA
Model No.: WMS-24
Serial No.: 685940
Equipment No.: --
Date of Calibration: 18 July, 2012

Date of next Calibration: 18 October, 2012

Parameters:

Turbidity

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

| Expected Reading (NTU) | Displayed Reading (NTU) | Tolerance (%) |
|------------------------|-----------------------------|---------------|
| 0 | 0.0 | -- |
| 4 | 4.2 | 5.0 |
| 40 | 38.6 | -3.5 |
| 80 | 85.3 | 6.6 |
| 400 | 409.8 | 2.5 |
| 800 | 841.8 | 5.2 |
| | Tolerance Limit ($\pm\%$) | 10.0 |

CALIBRATION CERTIFICATE

Date: January 11, 2012

| | | |
|------------------------|---|---------------------------------|
| Equipment Name | : | Laser Dust Monitor, Model LD-3B |
| Code No. | : | 080000-42 |
| Quantity | : | 1 unit |
| Serial No. | : | 095027 |
| Sensitivity | : | 0.001 mg/m ³ |
| Sensitivity Adjustment | : | 463 CPM |
| Scale Setting | : | January 5, 2012 |

We hereby certify that the above mentioned instrument has been calibrated satisfactory.

Sincerely

SIBATA SCIENTIFIC TECHNOLOGY LTD.

Kentaro Togo

Overseas Sales Division



Calibration Certificate

Certificate No. **24181**

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. : Q21644

Date of receipt : 3-Jul-12

Item Tested

Description : Laser Dust Monitor

Manufacturer : SIBATA

Model : LD-3B

Serial No. : 954254

Test Conditions

Date of Test : 5-Jul-12 ~13-Jul-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

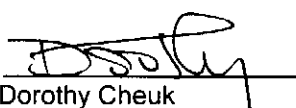
The results are shown in the attached page(s).

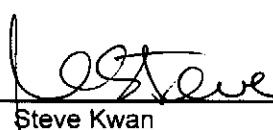
Main Test equipment used:

| <u>Equipment No.</u> | <u>Description</u> | <u>Cert. No.</u> | <u>Traceable to</u> |
|----------------------|--------------------|------------------|---------------------|
| S136B | Stop Watch | 13184 | NIM-PRC |
| S156 | Analytical Balance | 00352 | NIM-PRC |
| S201 | Std. Test Dust | 61291 | NIST |
| 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

Date: 23-Jul-12



Calibration Certificate

Certificate No. 24181

Page 2 of 2 Pages

Results :

| Applied Value ($\mu\text{g}/\text{m}^3$) | UUT Measured Value (K=1.3) ($\mu\text{g}/\text{m}^3$), (cpm) |
|--|--|
| 1225.3 | 1266.2 |

- 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 2.0 to 1.3

----- 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 - May 17, 2012 Rootsmeter S/N 0438320 Ta (K) - 294
 Operator Tisch Orifice I.D. - 1483 Pa (mm) - 754.38

| PLATE OR Run # | VOLUME START (m3) | VOLUME STOP (m3) | DIFF VOLUME (m3) | DIFF TIME (min) | METER | ORFICE |
|----------------------|-------------------------|------------------------|------------------------|-----------------------|--------------------|----------------------|
| | | | | | DIFF Hg (mm) | DIFF H2O (in.) |
| 1 | NA | NA | 1.00 | 1.4140 | 3.2 | 2.00 |
| 2 | NA | NA | 1.00 | 0.9960 | 6.4 | 4.00 |
| 3 | NA | NA | 1.00 | 0.8910 | 7.9 | 5.00 |
| 4 | NA | NA | 1.00 | 0.8510 | 8.7 | 5.50 |
| 5 | NA | NA | 1.00 | 0.7020 | 12.8 | 8.00 |

DATA TABULATION

| Vstd | (x axis) Qstd | (y axis) | Va | (x axis) Qa | (y axis) |
|-------------------------------------|------------------|----------|---------------------------|----------------|----------|
| 1.0018 | 0.7085 | 1.4185 | 0.9957 | 0.7042 | 0.8829 |
| 0.9976 | 1.0016 | 2.0061 | 0.9915 | 0.9955 | 1.2486 |
| 0.9955 | 1.1173 | 2.2429 | 0.9894 | 1.1105 | 1.3959 |
| 0.9945 | 1.1686 | 2.3524 | 0.9884 | 1.1615 | 1.4641 |
| 0.9890 | 1.4088 | 2.8371 | 0.9830 | 1.4003 | 1.7657 |
| Qstd slope (m) = 2.02742 | | | Qa slope (m) = 1.26953 | | |
| intercept (b) = -0.02027 | | | intercept (b) = -0.01262 | | |
| coefficient (r) = 0.99996 | | | coefficient (r) = 0.99996 | | |
| y axis = SQRT[H2O(Pa/760) (298/Ta)] | | | y axis = SQRT[H2O(Ta/Pa)] | | |

CALCULATIONS

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

$$Qstd = Vstd/Time$$

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

$$Qa = Va/Time$$

For subsequent flow rate calculations:

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

$$Qa = 1/m\{[\text{SQRT} H2O(Ta/Pa)] - b\}$$

TSP Sampler Calibration

SITE

Location: Tai Po Tsai Date: August 31, 2012
Sampler: TE-5170 MFC (Serial # : 1959) Tech: Sam Wong

CONDITIONS

Barometric Pressure (in Hg): 39.75 Corrected Pressure (mm Hg): 1010
Temperature (deg F): 86 Temperature (deg K): 303
Average Press. (in Hg): 39.75 Corrected Average (mm Hg): 1010
Average Temp. (deg F): 86 Average Temp. (deg K): 303

CALIBRATION ORIFICE

Make: Tisch Qstd Slope: 2.02742
Model: TE-5025A Qstd Intercept: -0.02027
Serial#: 1483 Date Certified: May 17, 2012

CALIBRATIONS

| Plate or Test # | H2O (in) | Qstd (m3/min) | I (chart) | IC (corrected) | LINEAR REGRESSION |
|-----------------|----------|---------------|-----------|----------------|----------------------|
| 1 | 12.80 | 2.027 | 64.0 | 73.16 | Slope = 35.6839 |
| 2 | 10.00 | 1.793 | 58.0 | 66.30 | Intercept = 1.3135 |
| 3 | 8.50 | 1.654 | 52.0 | 59.44 | Corr. coeff.= 0.9968 |
| 4 | 5.00 | 1.271 | 42.0 | 48.01 | |
| 5 | 3.60 | 1.080 | 34.0 | 38.86 | # 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: **August 31, 2012**
 Sampler: **TE-5170 MFC (Serial # : 2039)** Tech: **Sam Wong**

CONDITIONS

| | | | |
|------------------------------|--------------|-----------------------------|------|
| Barometric Pressure (in Hg): | 39.75 | Corrected Pressure (mm Hg): | 1010 |
| Temperature (deg F): | 86 | Temperature (deg K): | 303 |
| Average Press. (in Hg): | 39.75 | Corrected Average (mm Hg): | 1010 |
| Average Temp. (deg F): | 86 | Average Temp. (deg K): | 303 |

CALIBRATION ORIFICE

Make: **Tisch** Qstd Slope: **2.02742**
 Model: **TE-5025A** Qstd Intercept: **-0.02027**
 Serial#: **1483** Date Certified: **May 17, 2012**

CALIBRATIONS

| Plate or Test # | H2O (in) | Qstd (m3/min) | I (chart) | IC (corrected) | LINEAR REGRESSION |
|-----------------|----------|---------------|-----------|----------------|---|
| 1 | 12.60 | 2.011 | 58.0 | 66.30 | Slope = 30.8851 Intercept = 3.7657 Corr. coeff.= 0.9995 |
| 2 | 10.20 | 1.811 | 52.0 | 59.44 | |
| 3 | 8.20 | 1.624 | 47.0 | 53.72 | |
| 4 | 5.20 | 1.296 | 38.0 | 43.44 | |
| 5 | 3.40 | 1.050 | 32.0 | 36.58 | |
| | | | | | # 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: August 31, 2012
 Sampler: TE-5170 MFC (Serial # : 2040) Tech: Sam Wong

CONDITIONS

| | | | |
|------------------------------|-------|-----------------------------|------|
| Barometric Pressure (in Hg): | 39.75 | Corrected Pressure (mm Hg): | 1010 |
| Temperature (deg F): | 86 | Temperature (deg K): | 303 |
| Average Press. (in Hg): | 39.75 | Corrected Average (mm Hg): | 1010 |
| Average Temp. (deg F): | 86 | Average Temp. (deg K): | 303 |

CALIBRATION ORIFICE

| | | |
|-----------------|-----------------|--------------|
| Make: Tisch | Qstd Slope: | 2.02742 |
| Model: TE-5025A | Qstd Intercept: | -0.02027 |
| Serial#: 1483 | Date Certified: | May 17, 2012 |

CALIBRATIONS

| Plate or Test # | H2O (in) | Qstd (m3/min) | I (chart) | IC (corrected) | LINEAR REGRESSION |
|--------------------|-------------|------------------|--------------|-------------------|----------------------|
| 1 | 12.30 | 1.987 | 58.0 | 66.30 | |
| 2 | 9.80 | 1.775 | 52.0 | 59.44 | Slope = 31.9102 |
| 3 | 8.00 | 1.605 | 47.0 | 53.72 | Intercept = 2.5897 |
| 4 | 5.40 | 1.320 | 38.0 | 43.44 | Corr. coeff.= 0.9980 |
| 5 | 3.10 | 1.003 | 31.0 | 35.43 | # 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: **August 31, 2012**
 Sampler: **TE-5170 MFC (Serial # : 2042)** Tech: **Sam Wong**

CONDITIONS

| | | | |
|------------------------------|--------------|-----------------------------|------|
| Barometric Pressure (in Hg): | 39.75 | Corrected Pressure (mm Hg): | 1010 |
| Temperature (deg F): | 86 | Temperature (deg K): | 303 |
| Average Press. (in Hg): | 39.75 | Corrected Average (mm Hg): | 1010 |
| Average Temp. (deg F): | 86 | Average Temp. (deg K): | 303 |

CALIBRATION ORIFICE

| | | | |
|------------------------|--|-----------------|---------------------|
| Make: Tisch | | Qstd Slope: | 2.02742 |
| Model: TE-5025A | | Qstd Intercept: | -0.02027 |
| Serial#: 1483 | | Date Certified: | May 17, 2012 |

CALIBRATIONS

| Plate or Test # | H2O (in) | Qstd (m3/min) | I (chart) | IC (corrected) | LINEAR REGRESSION |
|-----------------|----------|---------------|-----------|----------------|-----------------------|
| 1 | 12.00 | 1.963 | 56.0 | 64.01 | |
| 2 | 9.80 | 1.775 | 52.0 | 59.44 | Slope = 30.3773 |
| 3 | 7.60 | 1.564 | 46.0 | 52.58 | Intercept = 4.8784 |
| 4 | 5.10 | 1.283 | 38.0 | 43.44 | Corr. coeff. = 0.9992 |
| 5 | 3.10 | 1.003 | 31.0 | 35.43 | # of Observations: 5 |

Calculations

$$Qstd = 1/m[\sqrt{H20(Pa/Pstd)(Tstd/Ta)}] - b]$$

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

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:
 $1/m((I)[\sqrt{298/Tav}(Pav/760)] - b)$

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 | | 1/9/2012 | 1/9/2012 | 1/9/2012 | 1/9/2012 |
| Weather Condition | | Overcast | Overcast | Overcast | Overcast |
| Measurement Start Time (hh:mm) | | 14:02 | 13:28 | 13:02 | 11:30 |
| Measurement Time Length (mins) | | 30 mins | | 30 mins | |
| SLM Model & S/N | | SVAN 955 | | SVAN 955 | |
| Wind Speed (m/s) | | <5, Northeast | <5, East | <5, East | <5, East |
| Measurement Results | L _{eq} (dB(A)) | 62.1 | 59.5 | 63.0 | 58.7 |
| | L ₁₀ (dB(A)) | 63.8 | 59.3 | 65.7 | 61.8 |
| | L ₉₀ (dB(A)) | 59.1 | 56.2 | 52.0 | 51.4 |
| 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



1/9/2012

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

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 | | 7/9/2012 | 7/9/2012 | 7/9/2012 | 7/9/2012 |
| Weather Condition | | Sunny | Sunny | Sunny | Sunny |
| Measurement Start Time (hh:mm) | | 14:04 | 11:22 | 10:31 | 11:06 |
| 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)) | 66.5 | 62.6 | 62.9 | 59.8 |
| | L ₁₀ (dB(A)) | 68.1 | 60.0 | 62.9 | 62.8 |
| | L ₉₀ (dB(A)) | 64.3 | 49.7 | 61.3 | 51.9 |
| 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



7/9/2012

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

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 | | 13/9/2012 | 13/9/2012 | 13/9/2012 | 13/9/2012 |
| Weather Condition | | Sunny | Sunny | Sunny | Sunny |
| Measurement Start Time (hh:mm) | | 13:50 | 13:19 | 10:53 | 11:29 |
| 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, Northeast | <5, South |
| Measurement Results | L _{eq} (dB(A)) | 63.7 | 59.2 | 55.0 | 59.5 |
| | L ₁₀ (dB(A)) | 64.9 | 59.8 | 54.3 | 62.2 |
| | L ₉₀ (dB(A)) | 61.9 | 50.3 | 50.5 | 51.5 |
| 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



13/9/2012

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

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 | | 19/9/2012 | 19/9/2012 | 19/9/2012 | 19/9/2012 |
| Weather Condition | | Cloudy | Cloudy | Cloudy | Cloudy |
| Measurement Start Time (hh:mm) | | 11:12 | 11:08 | 9:50 | 10:32 |
| Measurement Time Length (mins) | | 30 mins | | 30 mins | |
| SLM Model & S/N | | SVAN 955 | | SVAN 955 | |
| Wind Speed (m/s) | | <5, Northeast | <5, East | <5, East | <5, East |
| Measurement Results | L _{eq} (dB(A)) | 66.2 | 53.5 | 63.8 | 61.1 |
| | L ₁₀ (dB(A)) | 67.5 | 54.0 | 64.0 | 64.3 |
| | L ₉₀ (dB(A)) | 65.0 | 50.9 | 63.0 | 52.8 |
| 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



19/9/2012

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

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 | | 25/9/2012 | 25/9/2012 | 25/9/2012 | 25/9/2012 |
| Weather Condition | | Sunny | Sunny | Sunny | Sunny |
| Measurement Start Time (hh:mm) | | 14:02 | 11:12 | 10:03 | 10:37 |
| 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)) | 66.0 | 55.1 | 63.4 | 61.7 |
| | L ₁₀ (dB(A)) | 67.4 | 56.3 | 63.9 | 64.9 |
| | L ₉₀ (dB(A)) | 64.4 | 53.2 | 62.2 | 54.8 |
| 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



25/9/2012

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

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 | | 29/9/2012 | 29/9/2012 | 29/9/2012 | 29/9/2012 |
| Weather Condition | | Sunny | Sunny | Sunny | Sunny |
| Measurement Start Time (hh:mm) | | 13:38 | 13:02 | 9:59 | 10:32 |
| Measurement Time Length (mins) | | 30 mins | | 30 mins | |
| SLM Model & S/N | | SVAN 955 | | SVAN 955 | |
| Wind Speed (m/s) | | <5, Northeast | <5, Northeast | <5, East | <5, East |
| Measurement Results | L _{eq} (dB(A)) | 65.2 | 54.7 | 55.1 | 61.9 |
| | L ₁₀ (dB(A)) | 67.1 | 54.1 | 56.6 | 64.8 |
| | L ₉₀ (dB(A)) | 62.5 | 43.3 | 51.0 | 54.6 |
| 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

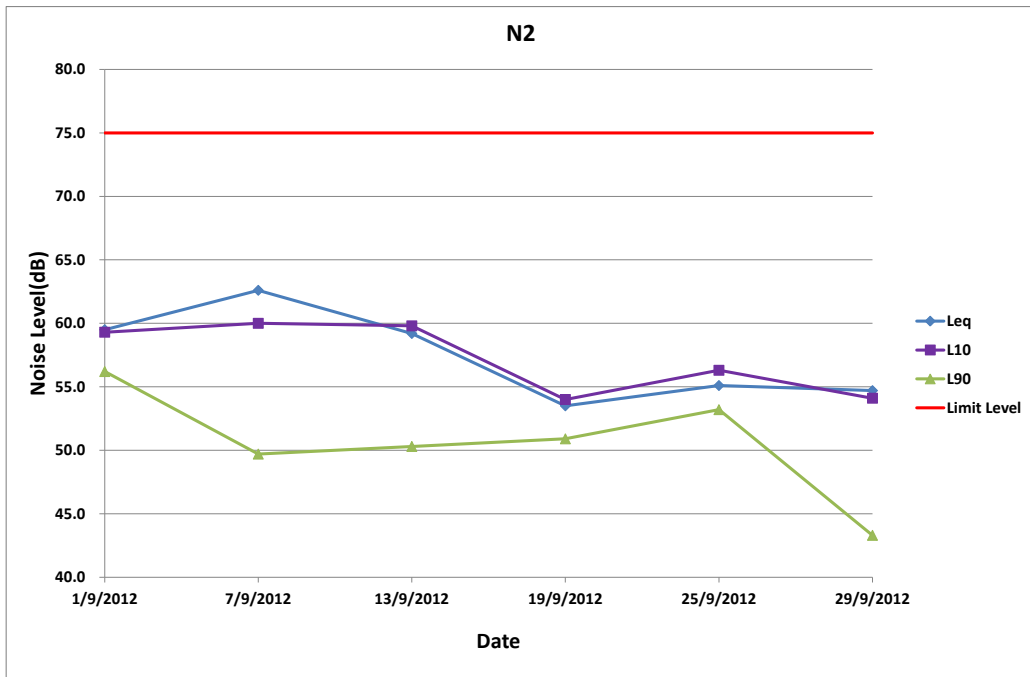
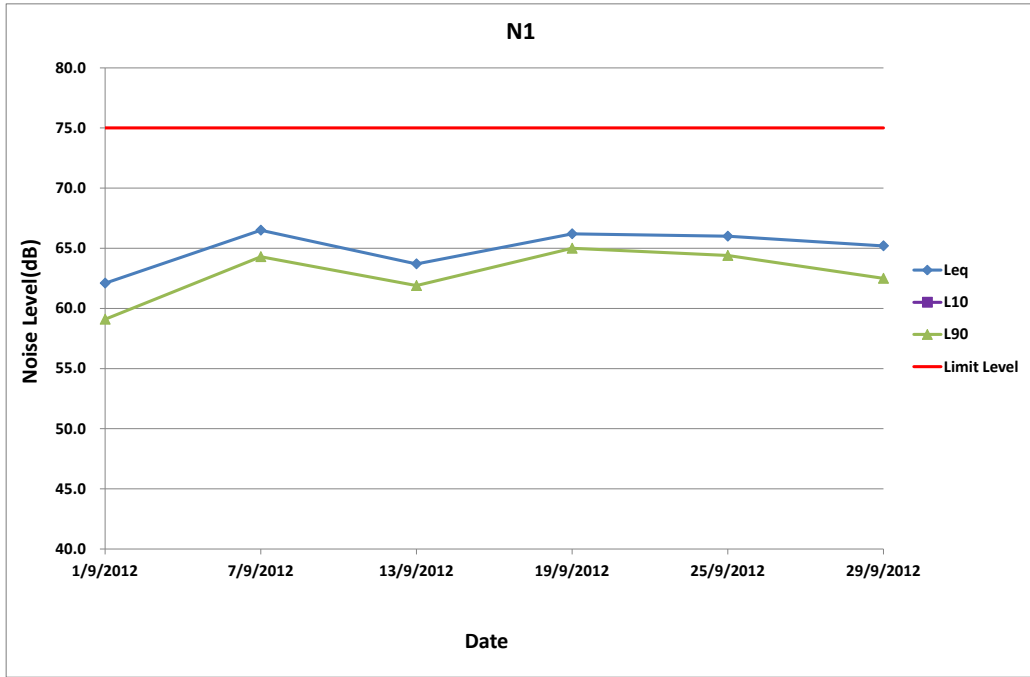
Date

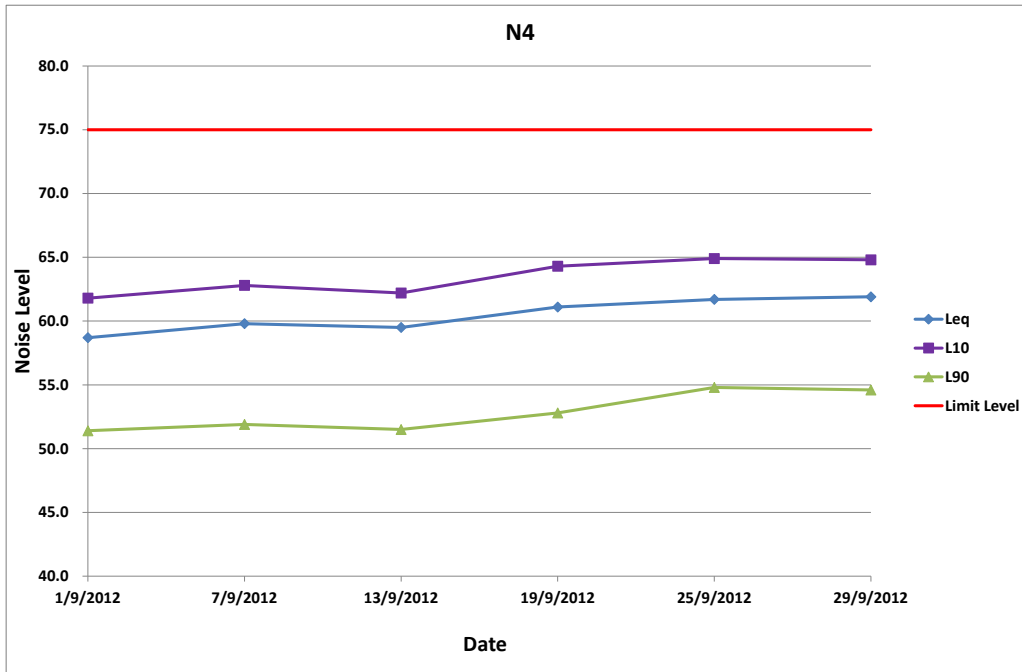
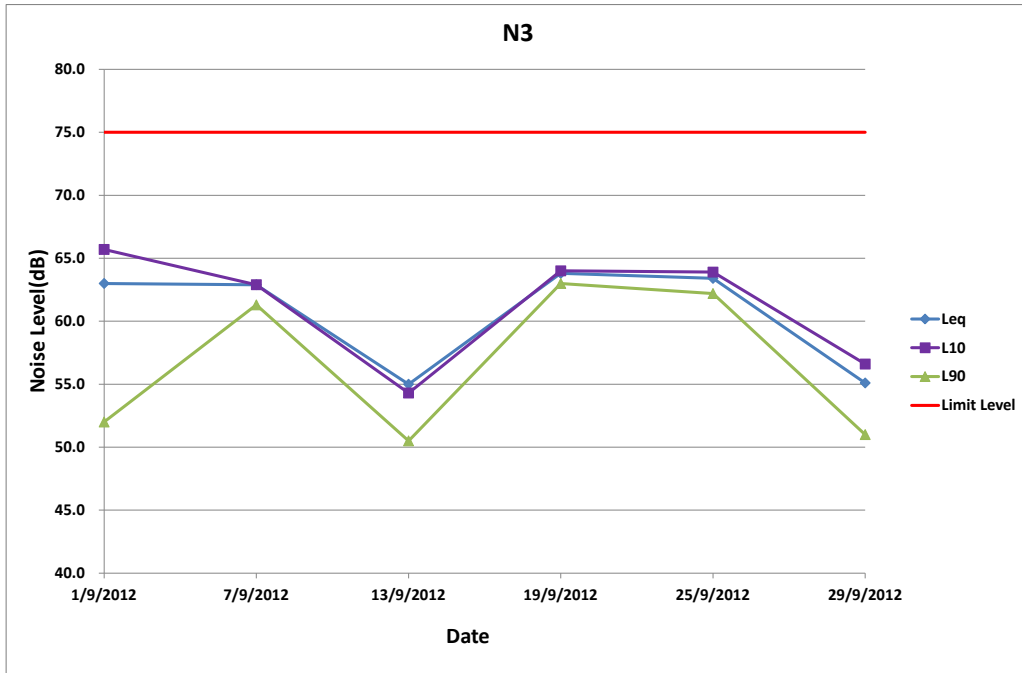
Prepared by: Lai Chi Hang



29/9/2012

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





Appendix E

Water Quality Monitoring Data

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

Date of Sampling : 1/9/2012

Weather : Rainny

| Monitoring Location | W1 | W2 |
|-------------------------|-------|-------|
| Time (hhmm) | 10:00 | 10:30 |
| Water Depth (m) | <1 | <1 |
| pH value | 7.10 | 7.20 |
| Temperature (°C) | 27.8 | 27.4 |
| Turbidity (NTU) | 21.7 | 4.3 |
| DO (mg/L) | 6.30 | 7.31 |
| DO Saturation (%) | 70% | 78% |
| Suspended Solids (mg/L) | 50.0 | 21.0 |

Remark or Observation : _____

Name

Signature

Date

Prepared By : Tsang King Yeun



1/9/2012

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

Date of Sampling : 3/9/2012

Weather : Sunny

| Monitoring Location | W1 | W2 |
|-------------------------|-------|-------|
| Time (hhmm) | 10:00 | 10:30 |
| Water Depth (m) | <1 | <1 |
| pH value | 7.00 | 7.30 |
| Temperature (°C) | 26.9 | 27.1 |
| Turbidity (NTU) | 20.9 | 5.4 |
| DO (mg/L) | 6.04 | 7.17 |
| DO Saturation (%) | 68% | 80% |
| Suspended Solids (mg/L) | 28.0 | 16.0 |


Remark or Observation : _____

Name

Signature

Date

Prepared By : Tsang King Yeun



3/9/2012

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

Date of Sampling : 5/9/2012

Weather : Sunny

| Monitoring Location | W1 | W2 |
|-------------------------|-------|-------|
| Time (hhmm) | 10:00 | 10:30 |
| Water Depth (m) | <1 | <1 |
| pH value | 7.34 | 7.10 |
| Temperature (°C) | 25.9 | 24.7 |
| Turbidity (NTU) | 22.80 | 4.7 |
| DO (mg/L) | 6.32 | 7.21 |
| DO Saturation (%) | 70% | 77% |
| Suspended Solids (mg/L) | 4.0 | 3.0 |

Remark or Observation : _____

Name

Signature

Date

Prepared By : Tsang King Yeun



5/9/2012

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

Date of Sampling : 7/9/2012

Weather : Rainny

| Monitoring Location | W1 | W2 |
|-------------------------|-------|-------|
| Time (hhmm) | 10:00 | 10:30 |
| Water Depth (m) | <1 | <1 |
| pH value | 7.00 | 7.30 |
| Temperature (°C) | 26.3 | 25.5 |
| Turbidity (NTU) | 37.6 | 6.0 |
| DO (mg/L) | 6.91 | 7.94 |
| DO Saturation (%) | 76% | 84% |
| Suspended Solids (mg/L) | 47.0 | 28.0 |

Remark or Observation : _____

Name

Signature

Date

Prepared By : Tsang King Yeun



7/9/2012

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

Date of Sampling : 10/9/2012

Weather : Sunny

| Monitoring Location | W1 | W2 |
|-------------------------|-------|-------|
| Time (hhmm) | 10:00 | 10:30 |
| Water Depth (m) | <1 | <1 |
| pH value | 7.80 | 7.50 |
| Temperature (°C) | 28.2 | 27.7 |
| Turbidity (NTU) | 29.1 | 4.9 |
| DO (mg/L) | 5.79 | 6.98 |
| DO Saturation (%) | 65% | 77% |
| Suspended Solids (mg/L) | 4.0 | 5.0 |

Remark or Observation : _____

Name

Signature

Date

Prepared By : Tsang King Yeun



10/9/2012

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

Date of Sampling : 12/9/2012

Weather : Sunny

| Monitoring Location | W1 | W2 |
|-------------------------|-------|-------|
| Time (hhmm) | 10:00 | 10:30 |
| Water Depth (m) | <1 | <1 |
| pH value | 7.50 | 7.20 |
| Temperature (°C) | 27.3 | 27.9 |
| Turbidity (NTU) | 21.1 | 4.3 |
| DO (mg/L) | 5.99 | 6.92 |
| DO Saturation (%) | 68% | 76% |
| Suspended Solids (mg/L) | 6.0 | 6.0 |

Remark or Observation : _____

Name

Signature

Date

Prepared By : Tsang King Yeun



12/9/2012

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

Date of Sampling : 14/9/2012

Weather : Sunny

| Monitoring Location | W1 | W2 |
|-------------------------|-------|-------|
| Time (hhmm) | 10:00 | 10:30 |
| Water Depth (m) | <1 | <1 |
| pH value | 7.40 | 7.00 |
| Temperature (°C) | 28.3 | 27.4 |
| Turbidity (NTU) | 19.9 | 5.0 |
| DO (mg/L) | 5.10 | 7.21 |
| DO Saturation (%) | 60% | 80% |
| Suspended Solids (mg/L) | 8.0 | 2.0 |

Remark or Observation : _____

Name

Signature

Date

Prepared By : Tsang King Yeun



14/9/2012

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

Date of Sampling : 17/9/2012

Weather : Sunny

| Monitoring Location | W1 | W2 |
|-------------------------|-------|-------|
| Time (hhmm) | 10:00 | 10:30 |
| Water Depth (m) | <1 | <1 |
| pH value | 7.10 | 6.90 |
| Temperature (°C) | 26.9 | 26.3 |
| Turbidity (NTU) | 20.1 | 4.9 |
| DO (mg/L) | 5.67 | 7.10 |
| DO Saturation (%) | 60% | 77% |
| Suspended Solids (mg/L) | 3.0 | 3.0 |

Remark or Observation : _____

Name

Signature

Date

Prepared By : Tsang King Yeun



17/9/2012

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

Date of Sampling : 19/9/2012

Weather : Sunny

| Monitoring Location | W1 | W2 |
|-------------------------|-------|-------|
| Time (hhmm) | 10:00 | 10:30 |
| Water Depth (m) | <1 | <1 |
| pH value | 7.50 | 7.00 |
| Temperature (°C) | 27.7 | 26.3 |
| Turbidity (NTU) | 31.3 | 4.4 |
| DO (mg/L) | 7.45 | 7.59 |
| DO Saturation (%) | 77% | 80% |
| Suspended Solids (mg/L) | 2.0 | 2.0 |

Remark or Observation : _____

Name

Signature

Date

Prepared By : Tsang King Yeun



19/9/2012

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

Date of Sampling : 21/9/2012

Weather : Sunny

| Monitoring Location | W1 | W2 |
|-------------------------|-------|-------|
| Time (hhmm) | 10:00 | 10:30 |
| Water Depth (m) | <1 | <1 |
| pH value | 7.10 | 7.30 |
| Temperature (°C) | 26.4 | 26 |
| Turbidity (NTU) | 29.7 | 5.1 |
| DO (mg/L) | 6.90 | 7.30 |
| DO Saturation (%) | 70% | 78% |
| Suspended Solids (mg/L) | 3.0 | 2.0 |

Remark or Observation : _____

Name

Signature

Date

Prepared By : Tsang King Yeun



21/9/2012

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

Date of Sampling : 24/9/2012

Weather : Sunny

| Monitoring Location | W1 | W2 |
|-------------------------|-------|-------|
| Time (hhmm) | 10:00 | 10:30 |
| Water Depth (m) | <1 | <1 |
| pH value | 7.10 | 7.30 |
| Temperature (°C) | 25.7 | 25.1 |
| Turbidity (NTU) | 25.1 | 3.9 |
| DO (mg/L) | 7.05 | 7.41 |
| DO Saturation (%) | 70% | 78% |
| Suspended Solids (mg/L) | 4.0 | 2.0 |


Remark or Observation : _____

Name

Signature

Date

Prepared By : Tsang King Yeun



24/9/2012


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

Date of Sampling : 26/9/2012

Weather : Sunny

| Monitoring Location | W1 | W2 |
|-------------------------|-------|-------|
| Time (hhmm) | 10:00 | 10:30 |
| Water Depth (m) | <1 | <1 |
| pH value | 7.30 | 7.50 |
| Temperature (°C) | 26.9 | 25.9 |
| Turbidity (NTU) | 18.7 | 4.1 |
| DO (mg/L) | 6.37 | 7.52 |
| DO Saturation (%) | 70% | 81% |
| Suspended Solids (mg/L) | 26.0 | 2.0 |

Remark or Observation : _____

| | | |
|--------------------------------------|--|------------------|
| <u>Name</u> | <u>Signature</u> | <u>Date</u> |
| Prepared By : <u>Tsang King Yeun</u> | <u></u> | <u>26/9/2012</u> |

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

Date of Sampling : 28/9/2012

Weather : Sunny

| Monitoring Location | W1 | W2 |
|-------------------------|-------|-------|
| Time (hhmm) | 10:00 | 10:30 |
| Water Depth (m) | <1 | <1 |
| pH value | 7.70 | 7.40 |
| Temperature (°C) | 26.9 | 26.8 |
| Turbidity (NTU) | 13.5 | 3.9 |
| DO (mg/L) | 7.40 | 7.61 |
| DO Saturation (%) | 79% | 80% |
| Suspended Solids (mg/L) | 3.0 | 2.0 |

Remark or Observation : _____

Name

Signature

Date

Prepared By : Tsang King Yeun



28/9/2012



CERTIFICATE OF ANALYSIS

| | | | | | |
|--------------|--|--------------|--|-------------------------|---------------|
| Client | : ENVIRONMENTAL PIONEERS & SOLUTIONS LTD | Laboratory | : ALS Technichem HK Pty Ltd | Page | : 1 of 3 |
| Contact | : MR ALLEN CHAN | Contact | : Chan Kwok Fai, Godfrey | Work Order | : HK1223274 |
| Address | : FLAT 19A, 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 | : Godfrey.Chan@alsglobal.com | Date Samples Received | : 03-SEP-2012 |
| Telephone | : +852 2558 7699 | Telephone | : +852 2610 1044 | Issue Date | : 11-SEP-2012 |
| Facsimile | : ---- | Facsimile | : +852 2610 2021 | No. of samples received | : 4 |
| Project | : ---- | 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: 07-SEP-2012

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: **HK1223274**

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 | [01-SEP-2012] | [01-SEP-2012] | [03-SEP-2012] | [03-SEP-2012] | |
| Compound | CAS Number | LOR | Unit | | HK1223274-001 | HK1223274-002 | HK1223274-003 | HK1223274-004 | |
| EA/ED: Physical and Aggregate Properties | | | | | | | | | |
| EA025: Suspended Solids (SS) | ---- | 2 | mg/L | | 50 | 21 | 28 | 16 | |



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: 2483446) | | | | | | | | |
| HK1223234-008 | Anonymous | EA025: Suspended Solids (SS) | ---- | 2 | mg/L | 11 | 12 | 0.0 |
| HK1223249-009 | Anonymous | EA025: Suspended Solids (SS) | ---- | 2 | mg/L | 12 | 12 | 0.0 |
| EA/ED: Physical and Aggregate Properties (QC Lot: 2487802) | | | | | | | | |
| HK1223247-005 | Anonymous | EA025: Suspended Solids (SS) | ---- | 2 | mg/L | 63 | 65 | 2.7 |
| HK1223278-004 | 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: 2483446) | | | | | | | | | | | |
| EA025: Suspended Solids (SS) | ---- | 2 | mg/L | <2 | 20 mg/L | 98.0 | ---- | 85 | 113 | ---- | ---- |
| EA/ED: Physical and Aggregate Properties (QC Lot: 2487802) | | | | | | | | | | | |
| EA025: Suspended Solids (SS) | ---- | 2 | mg/L | <2 | 20 mg/L | 102 | ---- | 85 | 113 | ---- | ---- |

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 | : Chan Kwok Fai, Godfrey | Work Order | : HK1223826 |
| Address | : FLAT 19A, 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 | : Godfrey.Chan@alsglobal.com | Date Samples Received | : 07-SEP-2012 |
| Telephone | : +852 2558 7699 | Telephone | : +852 2610 1044 | Issue Date | : 17-SEP-2012 |
| Facsimile | : ---- | Facsimile | : +852 2610 2021 | No. of samples received | : 4 |
| Project | : ---- | 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-SEP-2012

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: **HK1223826**

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 | [05-SEP-2012] | [05-SEP-2012] | [07-SEP-2012] | [07-SEP-2012] | |
| Compound | CAS Number | LOR | Unit | | HK1223826-001 | HK1223826-002 | HK1223826-003 | HK1223826-004 | |
| EA/ED: Physical and Aggregate Properties | | | | | | | | | |
| EA025: Suspended Solids (SS) | ---- | 2 | mg/L | | 4 | 3 | 47 | 28 | |



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: 2492348) | | | | | | | | |
| HK1223787-002 | Anonymous | EA025: Suspended Solids (SS) | ---- | 2 | mg/L | <2 | <2 | 0.0 |
| HK1223810-001 | Anonymous | EA025: Suspended Solids (SS) | ---- | 2 | mg/L | 8 | 8 | 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: 2492348) | | | | | | | | | | | |
| EA025: Suspended Solids (SS) | ---- | 2 | mg/L | <2 | 20 mg/L | 99.5 | ---- | 85 | 113 | ---- | ---- |

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 | : Chan Kwok Fai, Godfrey | Work Order | : HK1224566 |
| 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@epsl.com.hk | E-mail | : Godfrey.Chan@alsglobal.com | Date Samples Received | : 13-SEP-2012 |
| Telephone | : +852 2558 7699 | Telephone | : +852 2610 1044 | Issue Date | : 24-SEP-2012 |
| 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: **HK1224566**

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 | [10-SEP-2012] | [10-SEP-2012] | [12-SEP-2012] | [12-SEP-2012] | |
| Compound | CAS Number | LOR | Unit | | HK1224566-001 | HK1224566-002 | HK1224566-003 | HK1224566-004 | |
| EA/ED: Physical and Aggregate Properties | | | | | | | | | |
| EA025: Suspended Solids (SS) | ---- | 2 | mg/L | | 4 | 5 | 6 | 6 | |



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: 2501377) | | | | | | | | |
| HK1224462-014 | Anonymous | EA025: Suspended Solids (SS) | ---- | 1 | mg/L | <1 | <1 | 0.0 |
| HK1224532-001 | 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: 2501377) | | | | | | | | | | | |
| EA025: Suspended Solids (SS) | ---- | 2 | mg/L | <2 | 20 mg/L | 102 | ---- | 85 | 113 | ---- | ---- |

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 | : Chan Kwok Fai, Godfrey | Work Order | : HK1224861 |
| 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 | : Godfrey.Chan@alsglobal.com | Date Samples Received | : 17-SEP-2012 |
| Telephone | : +852 2558 7699 | Telephone | : +852 2610 1044 | Issue Date | : 25-SEP-2012 |
| 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: **HK1224861**

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 | [14-SEP-2012] | [14-SEP-2012] | [17-SEP-2012] | [17-SEP-2012] | |
| Compound | CAS Number | LOR | Unit | | HK1224861-001 | HK1224861-002 | HK1224861-003 | HK1224861-004 | |
| EA/ED: Physical and Aggregate Properties | | | | | | | | | |
| EA025: Suspended Solids (SS) | ---- | 2 | mg/L | | 8 | 2 | 3 | 3 | |



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: 2510704) | | | | | | | | |
| HK1224833-004 | Anonymous | EA025: Suspended Solids (SS) | ---- | 2 | mg/L | <2 | <2 | 0.0 |
| HK1224862-001 | Anonymous | EA025: Suspended Solids (SS) | ---- | 2 | mg/L | 341 | 333 | 2.4 |

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: 2510704) | | | | | | | | | | | |
| EA025: Suspended Solids (SS) | ---- | 2 | mg/L | <2 | 20 mg/L | 100 | ---- | 85 | 113 | ---- | ---- |

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 | : Chan Kwok Fai, Godfrey | Work Order | : HK1225364 |
| 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 | : Godfrey.Chan@alsglobal.com | Date Samples Received | : 21-SEP-2012 |
| Telephone | : +852 2558 7699 | Telephone | : +852 2610 1044 | Issue Date | : 03-OCT-2012 |
| 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: **HK1225364**

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 | [19-SEP-2012] | [19-SEP-2012] | [21-SEP-2012] | [21-SEP-2012] | |
| Compound | CAS Number | LOR | Unit | | HK1225364-001 | HK1225364-002 | HK1225364-003 | HK1225364-004 | |
| EA/ED: Physical and Aggregate Properties | | | | | | | | | |
| EA025: Suspended Solids (SS) | ---- | 2 | mg/L | | <2 | 2 | 3 | <2 | |



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: 2513426) | | | | | | | | |
| HK1225309-001 | Anonymous | EA025: Suspended Solids (SS) | ---- | 2 | mg/L | <2 | <2 | 0.0 |
| HK1225361-002 | Anonymous | EA025: Suspended Solids (SS) | ---- | 2 | 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: 2513426) | | | | | | | | | | | |
| EA025: Suspended Solids (SS) | ---- | 2 | mg/L | <2 | 20 mg/L | 99.5 | ---- | 85 | 113 | ---- | ---- |

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 | : Chan Kwok Fai, Godfrey | Work Order | : HK1225826 |
| 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 | : Godfrey.Chan@alsglobal.com | Date Samples Received | : 26-SEP-2012 |
| Telephone | : +852 2558 7699 | Telephone | : +852 2610 1044 | Issue Date | : 08-OCT-2012 |
| 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: 03-OCT-2012

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: **HK1225826**

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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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 | [24-SEP-2012] | [24-SEP-2012] | [26-SEP-2012] | [26-SEP-2012] | |
| Compound | CAS Number | LOR | Unit | | HK1225826-001 | HK1225826-002 | HK1225826-003 | HK1225826-004 | |
| EA/ED: Physical and Aggregate Properties | | | | | | | | | |
| EA025: Suspended Solids (SS) | ---- | 2 | mg/L | | 4 | <2 | 26 | <2 | |



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: 2527296) | | | | | | | | |
| HK1225775-001 | Anonymous | EA025: Suspended Solids (SS) | ---- | 2 | mg/L | <2 | <2 | 0.0 |
| HK1225816-001 | 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: 2527296) | | | | | | | | | | | |
| EA025: Suspended Solids (SS) | ---- | 2 | mg/L | <2 | 20 mg/L | 102 | ---- | 85 | 113 | ---- | ---- |

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 | : Chan Kwok Fai, Godfrey | Work Order | : HK1226337 |
| 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 | : Godfrey.Chan@alsglobal.com | | |
| Telephone | : +852 2558 7699 | Telephone | : +852 2610 1044 | | |
| Facsimile | : ---- | Facsimile | : +852 2610 2021 | | |
| Project | : TAI PO TSAI | Quote number | : ---- | Date Samples Received | : 03-OCT-2012 |
| Order number | : ---- | | | Issue Date | : 11-OCT-2012 |
| 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: 09-OCT-2012

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: **HK1226337**

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 | [28-SEP-2012] | [28-SEP-2012] | [03-OCT-2012] | [03-OCT-2012] | |
| Compound | CAS Number | LOR | Unit | | HK1226337-001 | HK1226337-002 | HK1226337-003 | HK1226337-004 | |
| EA/ED: Physical and Aggregate Properties | | | | | | | | | |
| EA025: Suspended Solids (SS) | ---- | 2 | mg/L | | 3 | <2 | 2 | <2 | |



Laboratory Duplicate (DUP) Report

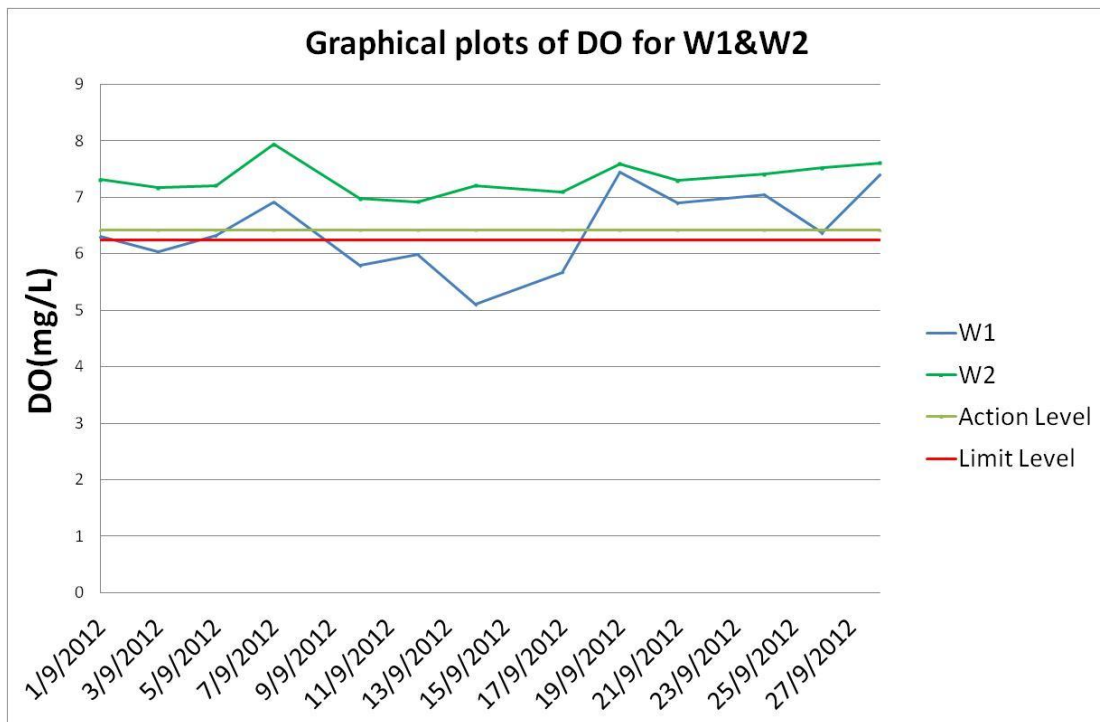
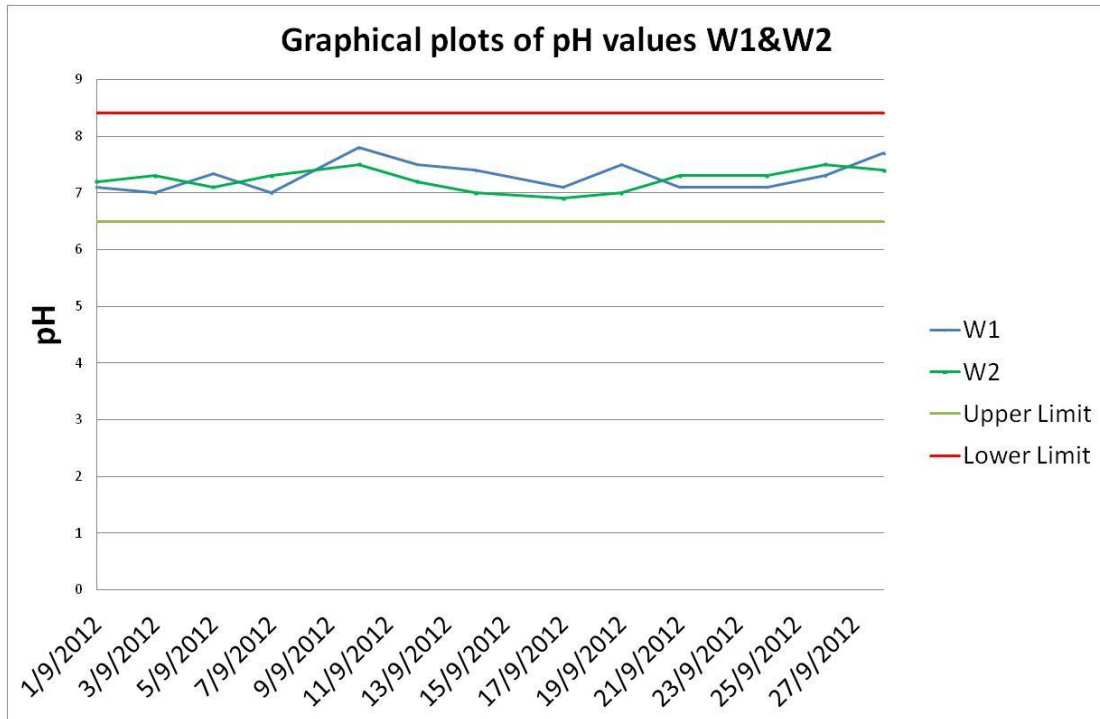
| Matrix: WATER | | | | Laboratory Duplicate (DUP) Report | | | | |
|---|------------------|------------------------------|------------|-----------------------------------|------|-----------------|------------------|---------|
| Laboratory sample ID | Client sample ID | Method: Compound | CAS Number | LOR | Unit | Original Result | Duplicate Result | RPD (%) |
| EA/ED: Physical and Aggregate Properties (QC Lot: 2534433) | | | | | | | | |
| HK1226318-006 | Anonymous | EA025: Suspended Solids (SS) | ---- | 2 | mg/L | 27 | 29 | 5.9 |
| HK1226337-001 | W1 | EA025: Suspended Solids (SS) | ---- | 2 | mg/L | 3 | 3 | 0.0 |
| EA/ED: Physical and Aggregate Properties (QC Lot: 2537117) | | | | | | | | |
| HK1226337-003 | W1 | EA025: Suspended Solids (SS) | ---- | 2 | mg/L | 2 | 2 | 0.0 |
| HK1226576-001 | Anonymous | EA025: Suspended Solids (SS) | ---- | 2 | mg/L | 52 | 53 | 2.1 |

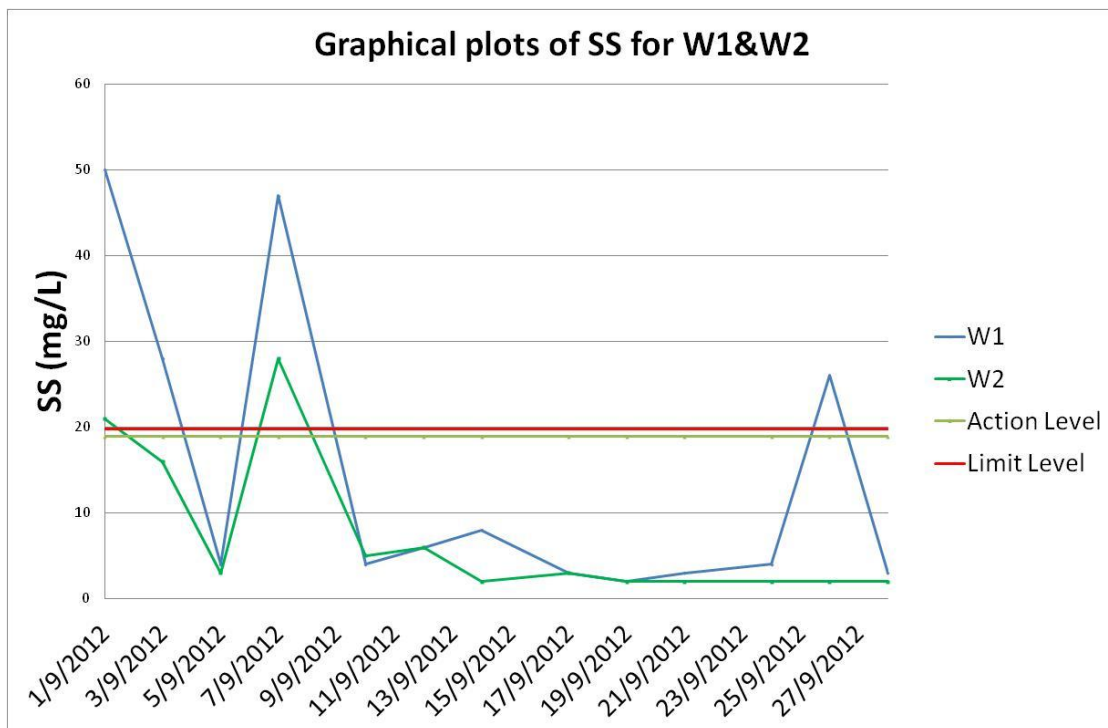
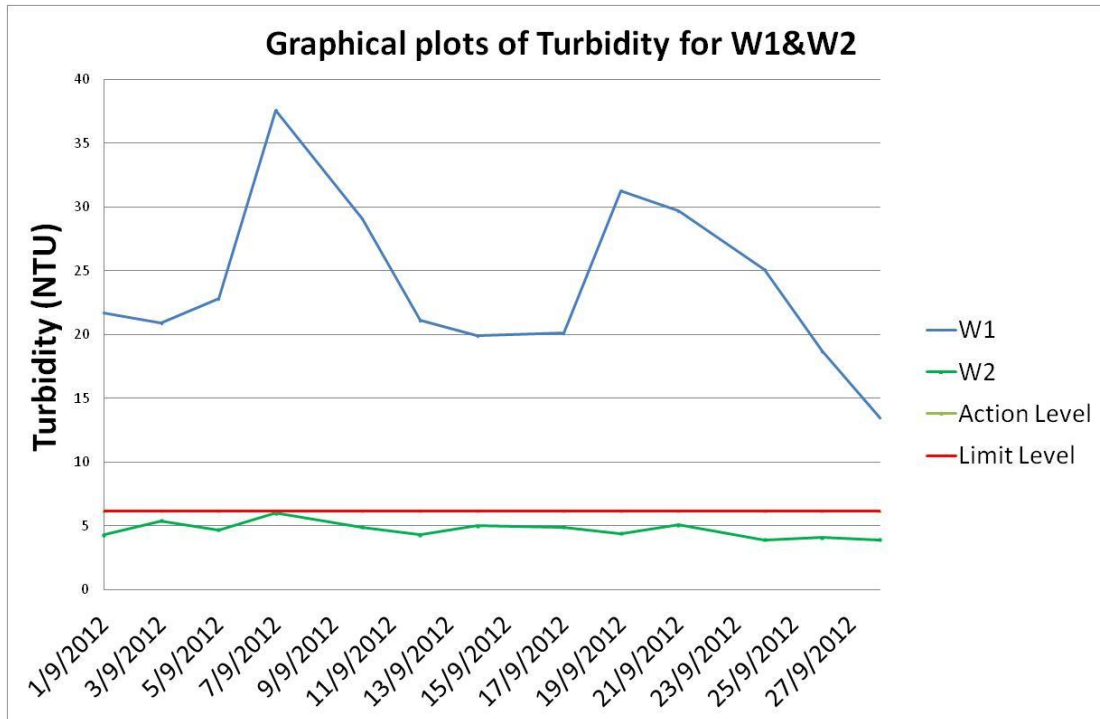
Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

| 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: 2534433) | | | | | | | | | | | |
| EA025: Suspended Solids (SS) | ---- | 2 | mg/L | <2 | 20 mg/L | 100 | ---- | 85 | 113 | ---- | ---- |
| EA/ED: Physical and Aggregate Properties (QC Lot: 2537117) | | | | | | | | | | | |
| EA025: Suspended Solids (SS) | ---- | 2 | mg/L | <2 | 20 mg/L | 101 | ---- | 85 | 113 | ---- | ---- |

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

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



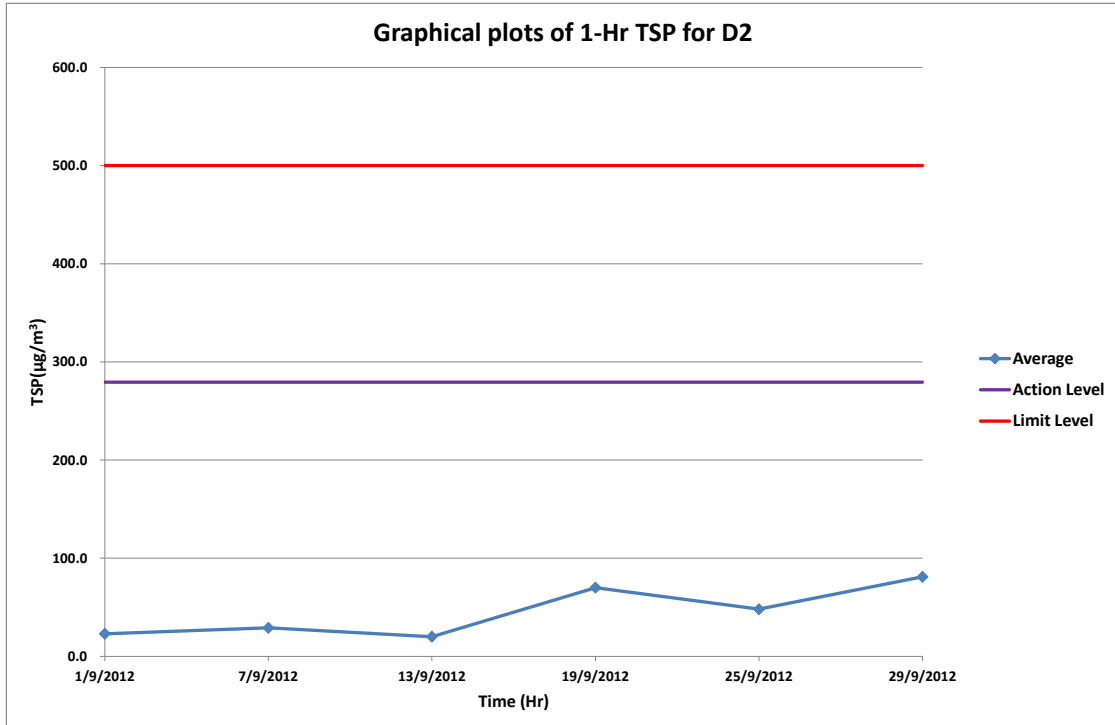
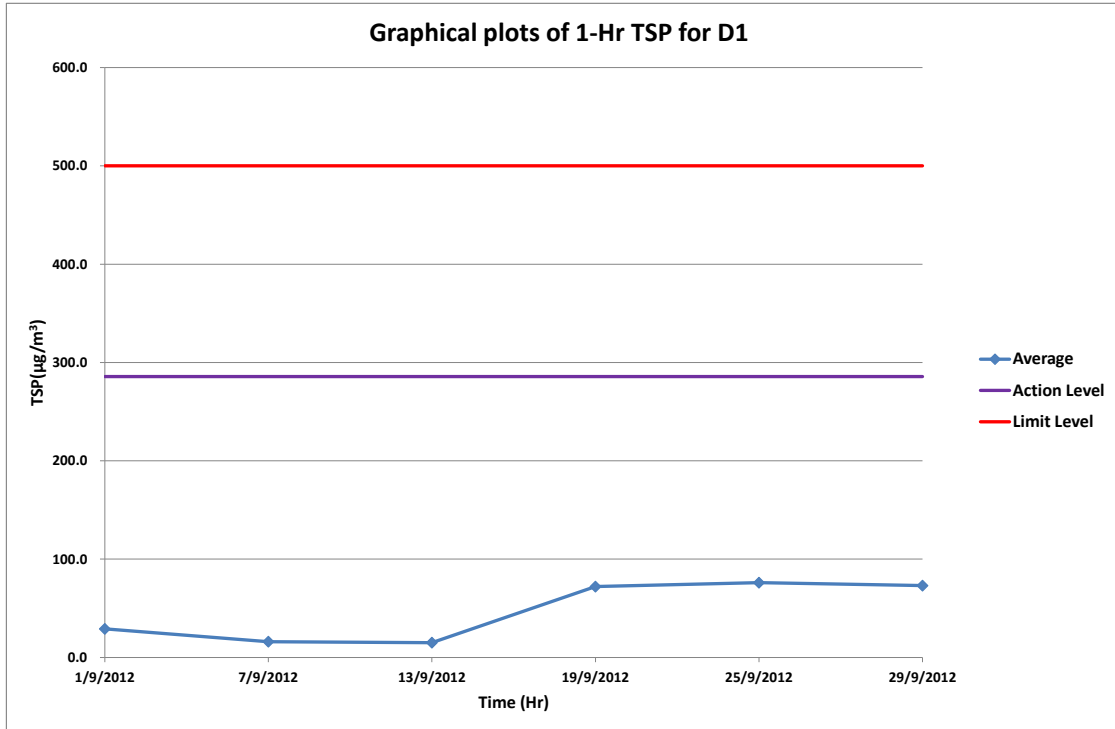


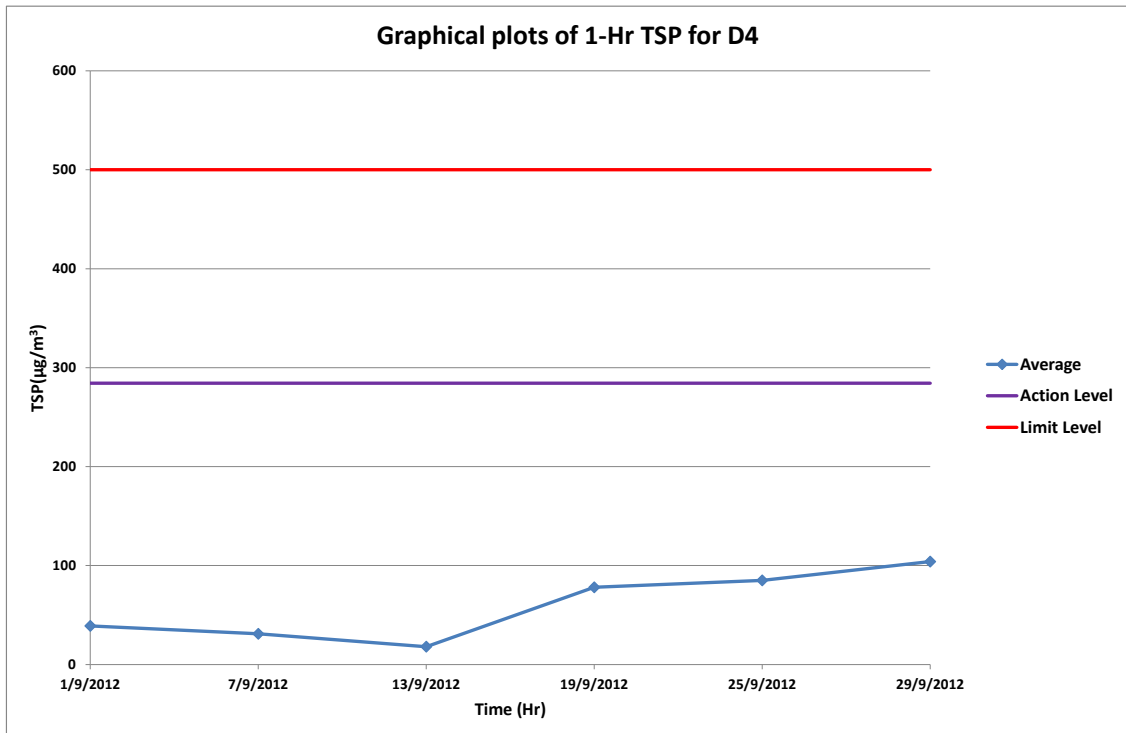
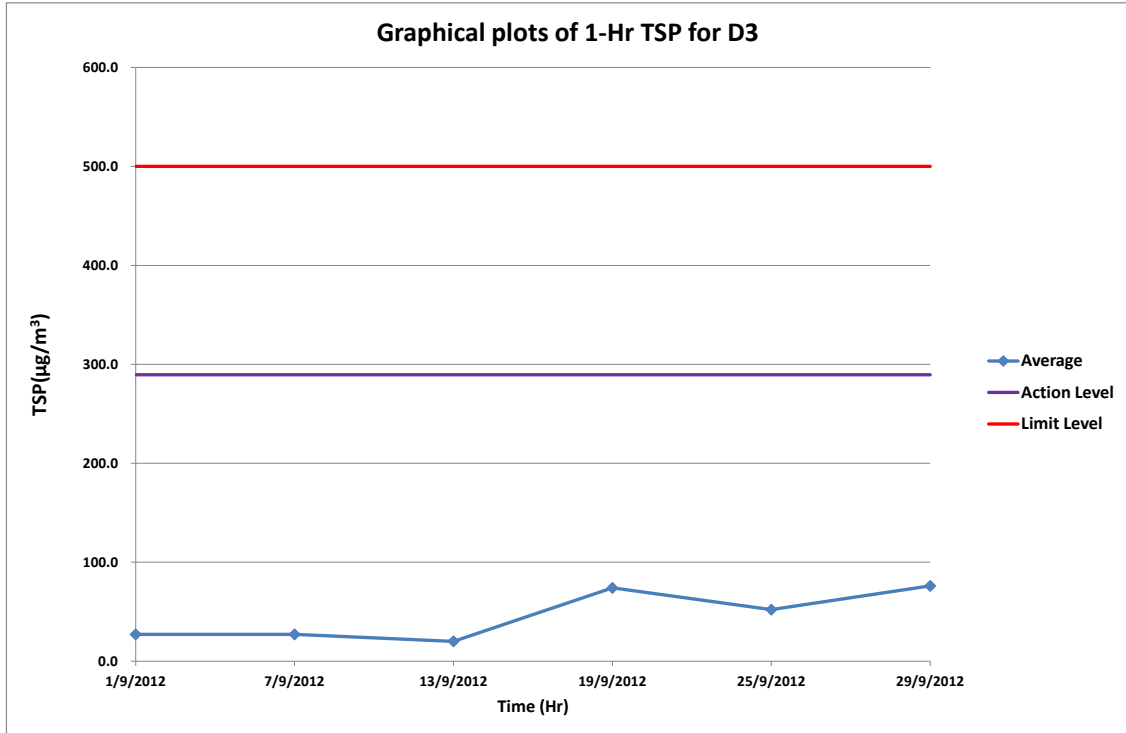
Appendix F

Air Quality Monitoring Data

1-Hr TSP Monitoring Results

| | | Location | | | | | | | | | | | |
|-----------|----------|------------|--------------------------------|---------|------------|--------------------------------|---------|------------|--------------------------------|---------|------------|--------------------------------|---------|
| | | D1 | | | D2 | | | D3 | | | D4 | | |
| Date | Duration | Start Time | TSP Level (µg/m ³) | Average | Start Time | TSP Level (µg/m ³) | Average | Start Time | TSP Level (µg/m ³) | Average | Start Time | TSP Level (µg/m ³) | Average |
| 1/9/2012 | 1 Hour | 12:27 | 31 | 29 | 12:24 | 25 | 23 | 9:16 | 25 | 27 | 9:02 | 34 | 39 |
| | | 13:27 | 29 | | 13:24 | 22 | | 10:16 | 27 | | 10:02 | 37 | |
| | | 14:27 | 28 | | 14:24 | 23 | | 11:16 | 30 | | 11:02 | 47 | |
| 7/9/2012 | 1 Hour | 11:48 | 15 | 16 | 11:43 | 21 | 29 | 8:37 | 40 | 27 | 8:30 | 52 | 31 |
| | | 12:48 | 15 | | 12:43 | 20 | | 9:37 | 22 | | 9:30 | 22 | |
| | | 13:48 | 17 | | 13:43 | 46 | | 10:37 | 20 | | 10:30 | 18 | |
| 13/9/2012 | 1 Hour | 12:00 | 16 | 15 | 11:57 | 21 | 20 | 8:56 | 21 | 20 | 8:49 | 19 | 18 |
| | | 13:00 | 15 | | 12:57 | 20 | | 9:56 | 20 | | 9:49 | 17 | |
| | | 14:00 | 15 | | 13:57 | 20 | | 10:56 | 20 | | 10:49 | 17 | |
| 19/9/2012 | 1 Hour | 11:53 | 78 | 72 | 11:50 | 77 | 70 | 8:49 | 79 | 74 | 8:42 | 79 | 78 |
| | | 12:53 | 78 | | 12:50 | 74 | | 9:49 | 74 | | 9:42 | 78 | |
| | | 13:53 | 61 | | 13:50 | 60 | | 10:49 | 69 | | 10:42 | 77 | |
| 25/9/2012 | 1 Hour | 11:58 | 73 | 76 | 11:54 | 46 | 48 | 8:45 | 59 | 52 | 8:34 | 85 | 85 |
| | | 12:58 | 76 | | 12:54 | 46 | | 9:45 | 49 | | 9:34 | 85 | |
| | | 13:58 | 80 | | 13:54 | 51 | | 10:45 | 47 | | 10:34 | 84 | |
| 29/9/2012 | 1 Hour | 11:37 | 83 | 73 | 11:32 | 94 | 81 | 8:37 | 79 | 76 | 8:29 | 106 | 104 |
| | | 12:37 | 71 | | 12:32 | 77 | | 9:37 | 74 | | 9:29 | 105 | |
| | | 13:37 | 65 | | 13:32 | 71 | | 10:37 | 76 | | 10:29 | 102 | |





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 | | | |
| 01/09/12 | 203875 | 2.7368 | 2.7773 | 0.0405 | 350.26 | 374.05 | 23.79 | 40 | 40 | 40.0 | 1616.78 | 25.0498 | Sunny |
| 07/09/12 | 203877 | 2.7287 | 2.7721 | 0.0434 | 374.05 | 398.23 | 24.18 | 40 | 40 | 40.0 | 1643.28 | 26.4105 | Sunny |
| 13/09/12 | 203881 | 2.6405 | 2.7625 | 0.1220 | 398.23 | 422.42 | 24.19 | 41 | 41 | 41.0 | 1685.06 | 72.4009 | Sunny |
| 19/09/12 | 203885 | 2.7338 | 2.8574 | 0.1236 | 422.42 | 446.58 | 24.16 | 41 | 41 | 41.0 | 1682.97 | 73.4415 | Fine |
| 25/09/12 | 203889 | 2.6748 | 2.8169 | 0.1421 | 446.58 | 470.73 | 24.15 | 40 | 40 | 40.0 | 1641.24 | 86.5807 | Sunny |
| 29/09/12 | 203893 | 2.7233 | 2.8862 | 0.1629 | 470.73 | 494.92 | 24.19 | 40 | 40 | 40.0 | 1643.96 | 99.0898 | Sunny |

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 | | | |
| 01/09/12 | 203872 | 2.7508 | 2.7822 | 0.0314 | 663.47 | 687.22 | 23.75 | 45 | 45 | 45.0 | 1815.82 | 17.2925 | Sunny |
| 07/09/12 | 203878 | 2.7516 | 2.8010 | 0.0494 | 687.22 | 711.26 | 24.04 | 45 | 45 | 45.0 | 1837.99 | 26.8772 | Sunny |
| 13/09/12 | 203882 | 2.7210 | 2.7587 | 0.0377 | 711.26 | 735.29 | 24.03 | 42 | 42 | 42.0 | 1714.74 | 21.9858 | Sunny |
| 19/09/12 | 203886 | 2.7015 | 2.8030 | 0.1015 | 735.29 | 759.26 | 23.97 | 42 | 42 | 42.0 | 1710.46 | 59.3407 | Fine |
| 25/09/12 | 203890 | 2.6558 | 2.8027 | 0.1469 | 759.26 | 783.26 | 24.00 | 42 | 42 | 42.0 | 1712.60 | 85.7759 | Sunny |
| 29/09/12 | 203894 | 2.7181 | 2.8287 | 0.1106 | 783.26 | 807.54 | 24.28 | 42 | 42 | 42.0 | 1732.58 | 63.8353 | Sunny |

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 | | | |
| 01/09/12 | 203873 | 2.6522 | 2.8127 | 0.1605 | 651.23 | 674.93 | 23.70 | 42 | 43 | 42.5 | 1711.33 | 93.7868 | Sunny |
| 07/09/12 | 203879 | 2.7279 | 2.7815 | 0.0536 | 674.93 | 699.01 | 24.08 | 41 | 41 | 41.0 | 1677.40 | 31.9542 | Sunny |
| 13/09/12 | 203883 | 2.7218 | 2.7641 | 0.0423 | 699.01 | 723.08 | 24.07 | 42 | 42 | 42.0 | 1717.60 | 24.6274 | Sunny |
| 19/09/12 | 203887 | 2.6967 | 2.8148 | 0.1181 | 723.08 | 747.13 | 24.05 | 42 | 42 | 42.0 | 1716.17 | 68.8160 | Fine |
| 25/09/12 | 203891 | 2.7113 | 2.8172 | 0.1059 | 747.13 | 771.17 | 24.04 | 43 | 43 | 43.0 | 1756.30 | 60.2972 | Sunny |
| 29/09/12 | 203895 | 2.7383 | 2.8562 | 0.1179 | 771.17 | 795.16 | 23.99 | 42 | 42 | 42.0 | 1711.89 | 68.8713 | Sunny |

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 | | | |
| 01/09/12 | 203874 | 2.7424 | 2.7893 | 0.0469 | 655.56 | 678.84 | 23.28 | 42 | 42 | 42.0 | 1661.22 | 28.2322 | Sunny |
| 07/09/12 | 203880 | 2.7386 | 2.7880 | 0.0494 | 678.84 | 702.45 | 23.61 | 42 | 42 | 42.0 | 1684.77 | 29.3215 | Sunny |
| 13/09/12 | 203884 | 2.7175 | 2.7635 | 0.0460 | 702.45 | 726.54 | 24.09 | 42 | 42 | 42.0 | 1719.02 | 26.7594 | Sunny |
| 19/09/12 | 203888 | 2.6924 | 2.8359 | 0.1435 | 726.54 | 750.57 | 24.03 | 42 | 42 | 42.0 | 1714.74 | 83.6860 | Fine |
| 25/09/12 | 203876 | 2.7081 | 2.8018 | 0.0937 | 774.63 | 798.61 | 23.98 | 44 | 44 | 44.0 | 1792.66 | 52.2687 | Sunny |
| 29/09/12 | 203896 | 2.7097 | 2.8655 | 0.1558 | 798.61 | 822.82 | 24.21 | 44 | 44 | 44.0 | 1809.85 | 86.0843 | Sunny |



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> | : Chan Kwok Fai, Godfrey | <i>Work Order</i> | : HK1226873 |
| <i>Address</i> | : ROOM 3, 12/F, NEW CITY CENTRE, KWUN TONG, KOWLOON HONG KONG | <i>Address</i> | : 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong | | |
| <i>E-mail</i> | : sam.wong@eno.com.hk | <i>E-mail</i> | : Godfrey.Chan@alsglobal.com | | |
| <i>Telephone</i> | : ---- | <i>Telephone</i> | : +852 2610 1044 | | |
| <i>Facsimile</i> | : ---- | <i>Facsimile</i> | : +852 2610 2021 | | |
| <i>Project</i> | : ---- | <i>Quote number</i> | : ---- | <i>Date received</i> | : 01-SEP-2012 |
| <i>Order number</i> | : ---- | | | <i>Date of issue</i> | : 12-OCT-2012 |
| <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 HK1226873 supersedes any previous reports with this reference. The completion date of analysis is 12-OCT-2012. 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 HK1226873 :
Sample(s) were received in an ambient condition.
Sample(s) analysed and reported on an as received basis.

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| <u>Signatory</u> | <u>Position</u> | <u>Authorised results for:-</u> |
|------------------------|-----------------|---------------------------------|
| 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 | | |
|-------------------------|------------------------------------|-----------------------------|-----------------|---|--|--|--|--|
| | | | <i>LOR Unit</i> | 0.0010 g | 0.0010 g | 0.0010 g | | |
| <i>Client sample ID</i> | <i>Client sampling date / time</i> | <i>Laboratory sample ID</i> | | EA/ED: Physical and Aggregate Properties | EA/ED: Physical and Aggregate Properties | EA/ED: Physical and Aggregate Properties | | |
| 203872 | [01-SEP-2012] | HK1226873-001 | | 0.0314 | 2.7508 | 2.7822 | | |
| 203873 | [01-SEP-2012] | HK1226873-002 | | 0.1605 | 2.6522 | 2.8127 | | |
| 203874 | [01-SEP-2012] | HK1226873-003 | | 0.0469 | 2.7424 | 2.7893 | | |
| 203875 | [01-SEP-2012] | HK1226873-004 | | 0.0405 | 2.7368 | 2.7773 | | |
| 203877 | [07-SEP-2012] | HK1226873-005 | | 0.0434 | 2.7287 | 2.7721 | | |
| 203878 | [07-SEP-2012] | HK1226873-006 | | 0.0494 | 2.7516 | 2.8010 | | |
| 203879 | [07-SEP-2012] | HK1226873-007 | | 0.0536 | 2.7279 | 2.7815 | | |
| 203880 | [07-SEP-2012] | HK1226873-008 | | 0.0494 | 2.7386 | 2.7880 | | |
| 203881 | [13-SEP-2012] | HK1226873-009 | | 0.1220 | 2.6405 | 2.7625 | | |
| 203882 | [13-SEP-2012] | HK1226873-010 | | 0.0377 | 2.7210 | 2.7587 | | |
| 203883 | [13-SEP-2012] | HK1226873-011 | | 0.0423 | 2.7218 | 2.7641 | | |
| 203884 | [13-SEP-2012] | HK1226873-012 | | 0.0460 | 2.7175 | 2.7635 | | |
| 203885 | [19-SEP-2012] | HK1226873-013 | | 0.1236 | 2.7338 | 2.8574 | | |
| 203886 | [19-SEP-2012] | HK1226873-014 | | 0.1015 | 2.7015 | 2.8030 | | |
| 203887 | [19-SEP-2012] | HK1226873-015 | | 0.1231 | 2.6967 | 2.8198 | | |
| 203888 | [19-SEP-2012] | HK1226873-016 | | 0.1435 | 2.6924 | 2.8359 | | |
| 203876 | [25-SEP-2012] | HK1226873-017 | | 0.0937 | 2.7081 | 2.8018 | | |
| 203889 | [25-SEP-2012] | HK1226873-018 | | 0.1421 | 2.6748 | 2.8169 | | |
| 203890 | [25-SEP-2012] | HK1226873-019 | | 0.1469 | 2.6558 | 2.8027 | | |
| 203891 | [25-SEP-2012] | HK1226873-020 | | 0.1059 | 2.7113 | 2.8172 | | |

