

MTR Corporation Limited

HONG KONG SECTION OF GUANGZHOU –  
SHENZHEN – HONG KONG EXPRESS RAIL LINK  
(No. EP-349/2009/B)

Remediation Report for  
Kwai Chung Ventilation Building Works Area  
(Site H)

Verified by:   
Position: Independent Environmental Checker  
Date: 9 September 2011

MTR Corporation Limited

HONG KONG SECTION OF GUANGZHOU –  
SHENZHEN – HONG KONG EXPRESS RAIL LINK  
(No. EP-349/2009/B)

Remediation Report for  
Kwai Chung Ventilation Building Works Area  
(Site H)

Certified by:



Position:



Environmental Team Leader

Date:

- 7 SEP 2011

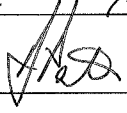
Dragages – Bouygues Joint Venture

**MTRC Express Rail Link Contract 821  
Shek Yum to Mei Lai Road Tunnels**

**Land Contamination Assessment at  
Kwai Chung Ventilation Works Area**

**Remediation Report for Kwai Chung  
Ventilation Building Works Area (Site H)**

September 2011

|                      | Name         | Signature                                                                                 |
|----------------------|--------------|-------------------------------------------------------------------------------------------|
| Prepared & Checked:  | Chan Ka Ming | pp.  |
| Reviewed & Approved: | David Paton  |      |

Version: 1 Date: 15 September 2011

This report is prepared for Dragages – Bouygues Joint Venture and is given for its sole benefit in relation to and pursuant to MTRC Express Rail Link Contract 821 XRL Contract 821 Shek Yum to Mei Lai Road Tunnels and may not be disclosed to, quoted to or relied upon by any person other than Dragages – Bouygues Joint Venture and MTRC without our prior written consent. No person (other than Dragages – Bouygues Joint Venture) into whose possession a copy of this report comes may rely on this report without our express written consent and Dragages – Bouygues Joint Venture may not rely on it for any purpose other than as described above.

AECOM Asia Co. Ltd.  
11/F, Grand Central Plaza, Tower 2, 138 Shatin Rural Committee Road, Shatin, NT, Hong Kong  
Tel: (852) 2893 1551 Fax: (852) 2891 0305 [www.aecom.com](http://www.aecom.com)

## Table of Contents

|                                                                         | Page     |
|-------------------------------------------------------------------------|----------|
| <b>1 INTRODUCTION.....</b>                                              | <b>1</b> |
| 1.1 Background information .....                                        | 1        |
| 1.2 Objectives .....                                                    | 1        |
| <b>2 ESTIMATED EXTENT AND QUATITY OF SOIL CONTAMINATION .....</b>       | <b>2</b> |
| <b>3 CONFIRMATORY TESTING AND EXCAVATION OF CONTAMINATED SOIL.....</b>  | <b>3</b> |
| 3.1 Assessment Criteria as Specified in the approved supp CAR/RAP ..... | 3        |
| 3.2 Excavation and Confirmatory Sampling .....                          | 3        |
| <b>4 SOIL REMEDIATION.....</b>                                          | <b>5</b> |
| 4.1 Remediation Goal as Specified in the CAR/RAP .....                  | 5        |
| 4.2 Remediation Works Summary .....                                     | 5        |
| <b>5 CONCLUSIONS.....</b>                                               | <b>6</b> |

## List of Tables

|           |                                                                                                                                                 |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| Table 2.1 | Estimated Volume of Contaminated Soil identified in the approved supp CAR/RAP                                                                   |
| Table 3.1 | Details of Soil Samples Collected For Confirmatory Sampling                                                                                     |
| Table 3.2 | Parameters, Detection Limits, Reference Methods and Assessment Criteria for Confirmatory Tests on bis-(2-Ethylhexyl)phthalate Contaminated Soil |
| Table 4.1 | Parameters, Detection Limits, Reference Methods and Assessment Criteria for Remediation Goal on bis-(2-Ethylhexyl)phthalate Contaminated Soil   |

## List of Figures

Figure XRL/821/001 As-built Excavation Extent and Confirmatory Sampling Locations

## Appendices

|            |                                       |
|------------|---------------------------------------|
| Appendix A | Detailed Confirmatory Testing Results |
| Appendix B | Detailed Soil Testing Results         |
| Appendix C | Photographic log                      |

## **1 INTRODUCTION**

### **1.1 Background information**

- 1.1.1 The Hong Kong Section of Guangzhou-Shenzhen-Hong Kong Express Rail Link (XRL) will be a 26-km long underground rail line on a dedicated track that runs from the terminus located in West Kowloon to the boundary at Huanggang. The project is a designated project under Items A.2, A.4, A.7 and Q.1 of Part 1, Schedule 2 of the Environmental Impact Assessment Ordinance (EIAO).
- 1.1.2 In accordance with the EIAO, an Environmental Impact Assessment (EIA) for the Hong Kong Section of XRL was conducted and approved on 28 September 2009 (Register No. AEIAR-143/2009) and an Environmental Permit (EP) No. EP-349/2009 was granted by the Director of Environmental Protection (DEP) on 16 October 2009. The EP (No. EP-349/2009) was then amended under application for Variation of an Environmental Permit No. VEP-323/2010 and has been replaced by Environmental Permit No. EP-349/2009/A on 27 September 2010. The EP (No. EP-349/2009/A) was then further amended under application for Variation of an Environmental Permit No. VEP-323/2010 and has been replaced by Environmental Permit No. EP-349/2009/B on 24 January 2011.
- 1.1.3 During the time of the EIA study, Site H, a scrap yard located at Kwai Chung Ventilation Building Works Area (KCV) was identified as an area with potential land contamination concerns. The location of Site H is shown in **Figure XRL/821/001**. Land Contamination Assessment including submission of Contamination Assessment Plan (CAP), Contamination Assessment Report (CAR) and Remediation Action Plan (RAP) has been carried out during the EIA on Site H. A total of 6 boreholes were proposed to assess the potential land contamination impacts due to dumping and scrap packing activities undertaken within the site.
- 1.1.4 Based on the findings of site investigation, one sample collected at 0.5m from sampling location H-02 was found to have a concentration of bis-(2-Ethylhexyl)phthalate exceeding the relevant RBRG.. A supplementary Contamination Assessment Report and Remediation Action Plan (supp CAR/RAP) was prepared in accordance with The "Guidance Note for Contaminated Land Assessment and Remediation" (Guidance Note) and "Guidance Manual for Use of Risk-based Remediation Goals for Contaminated Land Management" (Guidance Manual). The supp CAR/RAP was submitted and subsequently endorsed by EPD. A technical note was also submitted to summarize all findings of soil confirmatory sampling and to confirm the extent of contamination on May 2011.
- 1.1.5 AECOM Asia Company Limited (AECOM) was commissioned by Dragages-Bouygues Joint Venture (DBJV) as the land contamination specialist to supervise the excavation, soil confirmatory sampling works and remediation works in accordance with the approved supp CAR/RAP, and prepare this Remediation Report (RR).

### **1.2 Objectives**

- 1.2.1 According to Section 4.7 of the approved supp CAR/RAP, this Remediation Report (RR) is prepared to summarize findings of soil confirmatory sampling (including fieldworks and laboratory analyses), to confirm the extent of contamination based on the findings of excavation works conducted around location H-02, and to demonstrate the completion of the remediation works.
- 1.2.2 This RR is submitted for endorsement by EPD.

## 2 ESTIMATED EXTENT AND QUANTITY OF SOIL CONTAMINATION

2.1.1 The estimated quantity of contaminated soil as identified in the approved supp CAR/RAP that requires soil remediation is shown in **Table 2.1**.

**Table 2.1 Estimated Volume of Contaminated Soil identified in the approved supp CAR/RAP**

| Borehole ID                                         | Contaminant                 | Estimated Vertical Contamination Extent (m below ground) | Estimated Horizontal Contamination Extent (m <sup>2</sup> ) | Estimated Volume of Contaminated Soil (m <sup>3</sup> ) |
|-----------------------------------------------------|-----------------------------|----------------------------------------------------------|-------------------------------------------------------------|---------------------------------------------------------|
| H-02                                                | bis-(2-Ethylhexyl)phthalate | 0.0-0.7**                                                | 25                                                          | 17.5                                                    |
| <i>Total Estimated Volume of Contaminated Soil:</i> |                             |                                                          |                                                             | 17.5                                                    |

Note:

\*\* Presence of concrete and granite from 0.7m BBC to the termination of the borehole

### 3 CONFIRMATORY TESTING AND EXCAVATION OF CONTAMINATED SOIL

#### 3.1 Assessment Criteria as Specified in the approved supp CAR/RAP

- 3.1.1 As specified in the approved supp CAR/RAP, confirmatory soil sampling and analyses would be conducted to demonstrate that all contaminated soils have been excavated for remediation. The detail for excavation and confirmatory sampling were defined in the technical note, submitted in May 2011. Samples were collected and analyzed from the side walls and base of the excavation in accordance with procedures specified in the approved supp CAR/RAP. Details of soil samples collected for confirmatory sampling are presented in **Table 3.1**.

**Table 3.1 Details of Soil Samples Collected For Confirmatory Sampling**

| Sampling Location | Coordinates |             | Sampling Depth (m BBC) | Collection Date | Test Parameter              |
|-------------------|-------------|-------------|------------------------|-----------------|-----------------------------|
|                   | Easting     | Northing    |                        |                 |                             |
| CS1-01            | 831814.6170 | 824491.0450 | 0.5m                   | 1 February 2011 | bis-(2-Ethylhexyl)phthalate |
| CS1-02            | 831817.1179 | 824493.5450 |                        |                 |                             |
| CS1-03            | 831814.6170 | 824496.0450 |                        |                 |                             |
| CS1-04            | 831812.1179 | 824493.5450 |                        |                 |                             |
| CS1-05            | 831814.6292 | 824493.5089 | 0.7m                   |                 |                             |

- 3.1.2 The Guidance Note and Guidance Manual were used in setting the assessment criteria. As specified in the approved supp CAR/RAP, the RBRG for the Industrial land use scenario was adopted. The relevant RBRG values for the confirmatory testing are presented in **Table 3.2**.

**Table 3.2 Parameters, Detection Limits, Reference Methods and Assessment Criteria for Confirmatory Tests on bis-(2-Ethylhexyl)phthalate Contaminated Soil**

| Parameter                   | Applicable Contaminated Borehole | Detection Limit (mg/kg) | Reference Method | RBRG for Industrial (mg/kg) |
|-----------------------------|----------------------------------|-------------------------|------------------|-----------------------------|
| bis-(2-Ethylhexyl)phthalate | H-02                             | 5.0                     | USEPA 8270D      | 91.8                        |

- 3.1.3 Should the laboratory analysis indicate bis-(2-Ethylhexyl)phthalate concentrations above relevant RBRG, the excavation shall be extended in 0.5m increments in a horizontal direction. Further sampling and confirmation test shall be undertaken. The process of excavation, sampling and confirmation test shall continue until all contaminated soils are removed. Based on the approved supp CAR/RAP, the vertical extent of the excavation will be 0.7m BBC. If the analytical results are below the relevant RBRG, removal of contaminated soil should be considered complete and the open excavations then backfilled with suitable imported or reworked site materials.

#### 3.2 Excavation and Confirmatory Sampling

- 3.2.1 Excavation of the contaminated soil at H-02 was carried out as follows:

- Boundaries of contaminated soil extent were set out;
- Open cut excavation was undertaken using a backhoe under the supervision of a land contamination professional;
- Excavated soil was stored within a dedicated steel skip within the project Site; and

- Confirmatory sampling was carried out in the excavation.
- 3.2.2 The excavation work was conducted on 1 February 2011 by DBJV. The horizontal extent of the excavation was 25m<sup>2</sup> with depth of 0.7m BBC.
- 3.2.3 The confirmatory sampling locations are shown in **Figure XRL/821/001**. Four samples were collected at 0.5m BBC from the four sides of the excavation and one sample was collected from the base of the pit (0.7m) for laboratory analysis. The sampling work was carried out by DBJV under the supervision of AECOM. Based on the onsite observation, no unusual odour or staining was noted from excavated soils or collected samples.
- 3.2.4 The confirmatory soil samples were collected using stainless steel hand tools (covered with aluminium foil) and stored in glass containers provided by the laboratory. Between each sampling location, the aluminium foil covering was replaced, and the sampling tools decontaminated by thorough washing with laboratory-grade detergent and then rinsing by clean water. At each sampling point, a sufficient volume of soil sample was taken to fill the glass container.
- 3.2.5 The containers were accurately labelled and stored in ice boxes at around 4°C until delivered to the analytical laboratory. The samples were analyzed within 3 days after collection.
- 3.2.6 All of the soil samples collected for chemical analyses were analysed in accordance with the approved supp. CAR/RAP by ALS Technichem (HK) Pty. Ltd. Detailed testing results of the confirmatory sampling are attached as **Appendix A**.
- 3.2.7 Analytical results indicate that all five confirmatory soil samples (CS1-01 to CS1-05) do not exceed the assessment criteria. As such, the contaminated area has been successfully delineated. Final excavation boundaries are identified in **Figure XRL/821/001**.

## 4 SOIL REMEDIATION

### 4.1 Remediation Goal as Specified in the CAR/RAP

- 4.1.1 The Guidance Note and Guidance Manual were used in setting the remediation goal. As specified in the approved supp CAR/RAP, the RBRG for the Industrial land use scenario was adopted. The relevant RBRG values for the remediation goal are presented in **Table 4.1**.

**Table 4.1 Parameters, Detection Limits, Reference Methods and Assessment Criteria for Remediation Goal on bis-(2-Ethylhexyl)phthalate Contaminated Soil**

| Parameter                   | Detection Limit (mg/kg) | Reference Method | RBRG for Industrial (mg/kg) |
|-----------------------------|-------------------------|------------------|-----------------------------|
| bis-(2-Ethylhexyl)phthalate | 5.0                     | USEPA 8270D      | 91.8                        |

### 4.2 Remediation Works Summary

- 4.2.1 After the successful delineation, the approximate volume of soil requiring remediation is calculated to be 17.5m<sup>3</sup>. The actual extent of remediation is shown in **Figure XRL/821/001**.
- 4.2.2 Remediation works were carried out according to the approved supp CAR/RAP. Prior to formation of the biopile, mechanical turning of soils was undertaken to homogenise and aerate the soil to enhance aerobic conditions for optimal microbial growth.
- 4.2.3 The excavated soil was placed into a steel skip within the works area and covered with impermeable sheeting to prevent fugitive emissions and rain ingress. Biopile formation was supervised by a land contamination specialist. Photographs are presented in **Appendix C**.
- 4.2.4 The biopile was operated statically however soils were turned regularly using a backhoe excavator to enhance aerobic conditions. Based on the approved supp. CAR/RAP, soil samples were collected for analysis of bis-(2-Ethylhexyl)phthalate concentrations in order to monitor the progress of contaminant cleanup. One soil sample was proposed to be collected per 10 m<sup>3</sup> of contaminated soil; therefore, two soil samples were collected randomly at different location within the biopile on 29 June, 2011.
- 4.2.5 The two soil samples obtained to monitor clean up progress were analysed in accordance with the approved supp. CAR/RAP by ALS Technichem (HK) Pty. Ltd. Detailed testing results of the confirmatory sampling are attached as **Appendix B**.
- 4.2.6 Analytical results indicate that both soil samples (RR-01 and RR-02) do not exceed the assessment criteria. As such, further monitoring is not necessary and the remedial objectives have been successfully completed. With compliance to the assessment criteria, the treated soil is suitable to be reused on site.

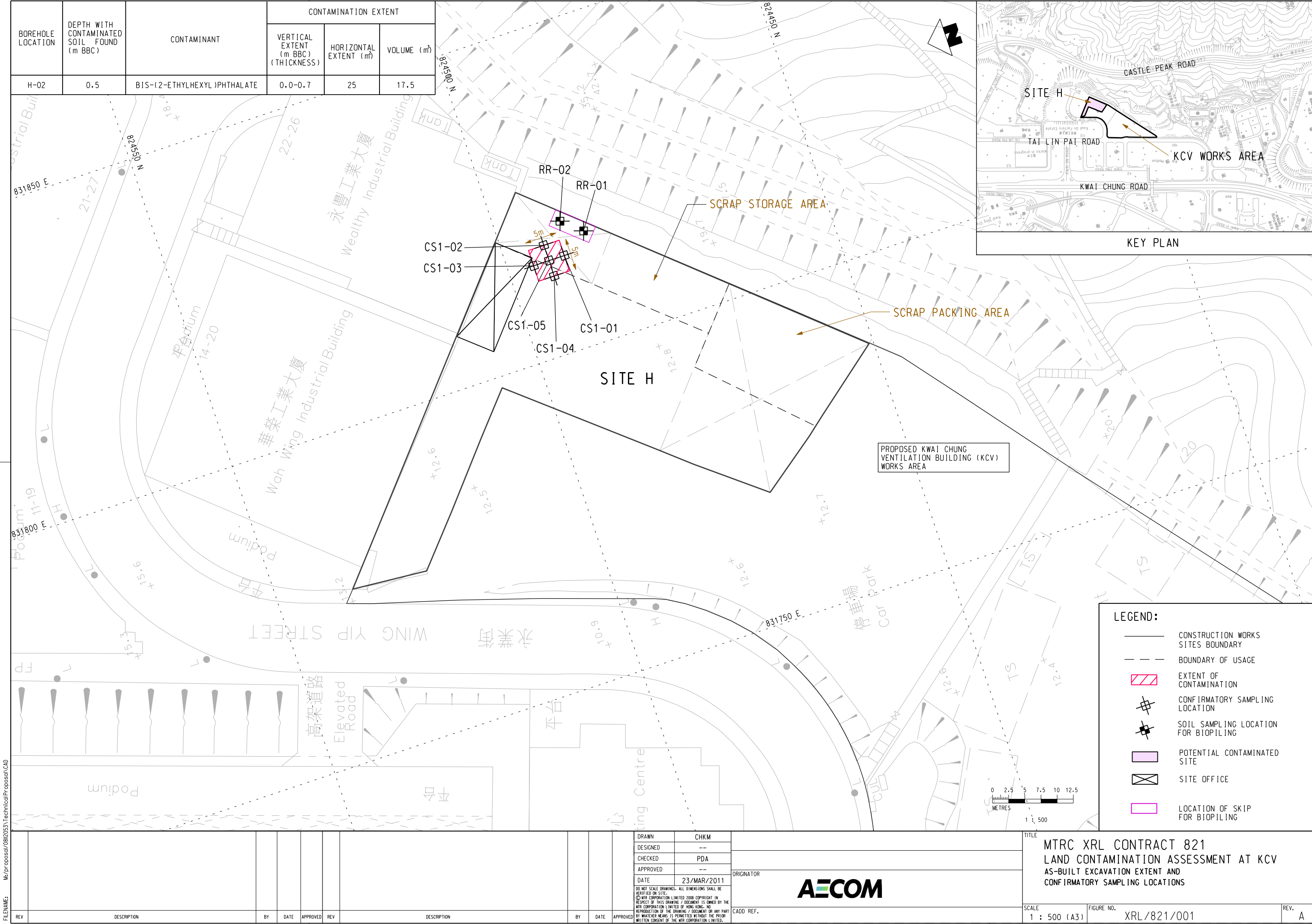
## **5 CONCLUSIONS**

- 5.1.1 Excavation, remediation and backfilling of H-02 have been carried out in accordance with the approved supp. CAR/RAP.
- 5.1.2 Of five confirmatory samples recovered from the excavation sidewalls and base, no exceedance of the industrial land use RBRGs was identified, thus confirming the vertical and horizontal extent of the impacted area requiring treatment.
- 5.1.3 An approximate in ground volume equivalent to 17.5m<sup>3</sup> of bis(2-Ethylhexyl)phthalate contaminated soil has been treated in accordance with the approved supp. CAR/RAP using biopiling methods
- 5.1.4 Remedial validation was undertaken by recovering and chemically analysing two soil samples from the biopile. Both samples confirm that bis(2-Ethylhexyl)phthalate concentrations are below the relevant land use RBRG, thus demonstrating successful completion of the remedial objectives.

---

**Figure**

---



FILENAME: M:\proposal\0810205\Technical\Proposal\CA0

---

**Appendix A**  
**Detailed Confirmatory Testing Results**

---



## CERTIFICATE OF ANALYSIS

|              |                                                                                                      |              |                                                                                               |                         |               |
|--------------|------------------------------------------------------------------------------------------------------|--------------|-----------------------------------------------------------------------------------------------|-------------------------|---------------|
| Client       | : AECOM ASIA COMPANY LIMITED                                                                         | Laboratory   | : ALS Technichem HK Pty Ltd                                                                   | Page                    | : 1 of 3      |
| Contact      | : MR KA MING CHAN                                                                                    | Contact      | : Chan Kwok Fai, Godfrey                                                                      | Work Order              | : HK1102601   |
| Address      | : 11/F, TOWER 2, GRAND CENTRAL PLAZA,<br>138 SHATIN RURAL COMMITTEE ROAD,<br>SHATIN, N.T., HONG KONG | Address      | : 11/F., Chung Shun Knitting Centre, 1 - 3 Wing<br>Yip Street,<br>Kwai Chung, N.T., Hong Kong | Amendment               | : 1           |
| E-mail       | : km.chan@aecom.com                                                                                  | E-mail       | : Godfrey.Chan@alsenviro.com                                                                  |                         |               |
| Telephone    | : ----                                                                                               | Telephone    | : +852 2610 1044                                                                              |                         |               |
| Facsimile    | : ----                                                                                               | Facsimile    | : +852 2610 2021                                                                              |                         |               |
| Project      | : XRL821 - KWAI CHUNG VENTILATION<br>BUILDING (H)                                                    | Quote number | : ----                                                                                        | Date Samples Received   | : 01-FEB-2011 |
| Order number | : 60162431-2.01                                                                                      |              |                                                                                               | Issue Date              | : 03-MAR-2011 |
| C-O-C number | : H010646                                                                                            |              |                                                                                               | No. of samples received | : 5           |
| 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: 02-FEB-2011

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: **HK1102601**

Sample(s) were received in a chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on a dry weight basis.

**This report may not be reproduced except with prior written approval from the testing laboratory.**

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

Anh Ngoc Huynh  
Fung Lim Chee, Richard

#### Position

Senior Chemist  
General Manager

#### Authorised results for

Organics  
Inorganics



## Analytical Results

Sub-Matrix: SOIL

Client sample ID

Client sampling date / time

|                                                        |            |     |       | CS1-01        | CS1-02        | CS1-03        | CS1-04        |  |
|--------------------------------------------------------|------------|-----|-------|---------------|---------------|---------------|---------------|--|
|                                                        |            |     |       | [01-FEB-2011] | [01-FEB-2011] | [01-FEB-2011] | [01-FEB-2011] |  |
| Compound                                               | CAS Number | LOR | Unit  | HK1102601-001 | HK1102601-002 | HK1102601-003 | HK1102601-004 |  |
| <b>EA/ED: Physical and Aggregate Properties</b>        |            |     |       |               |               |               |               |  |
| EA055: Moisture Content (dried @ 103°C)                | ----       | 0.1 | %     | 14.3          | 16.3          | 17.2          | 13.9          |  |
| <b>EP-075C: Phthalate Esters</b>                       |            |     |       |               |               |               |               |  |
| Bis(2-ethylhexyl)phthalate                             | 117-81-7   | 5   | mg/kg | <5            | <5            | <5            | <5            |  |
| <b>EP-075S: Acid Extractable Surrogates</b>            |            |     |       |               |               |               |               |  |
| Surrogate control limits listed at end of this report. |            |     |       |               |               |               |               |  |
| 2-Fluorophenol                                         | 367-12-4   | 0.1 | %     | 96.4          | 89.1          | 95.1          | 89.3          |  |
| Phenol-d6                                              | 13127-88-3 | 0.1 | %     | 89.8          | 85.4          | 90.9          | 86.3          |  |
| 2,4,6-Tribromophenol                                   | 118-79-6   | 0.1 | %     | 82.6          | 70.7          | 105           | 60.5          |  |
| <b>EP-075T: Base/Neutral Extractable Surrogates</b>    |            |     |       |               |               |               |               |  |
| Surrogate control limits listed at end of this report. |            |     |       |               |               |               |               |  |
| Nitrobenzene -d5                                       | 4165-60-0  | 0.1 | %     | 93.6          | 89.8          | 94.8          | 91.7          |  |
| 2-Fluorobiphenyl                                       | 321-60-8   | 0.1 | %     | 94.1          | 91.0          | 95.7          | 92.8          |  |
| 4-Terphenyl-d14                                        | 1718-51-0  | 0.1 | %     | 100           | 81.1          | 79.9          | 79.6          |  |



## Laboratory Duplicate (DUP) Report

| Matrix: SOIL                                                      |                  |                                         |            | Laboratory Duplicate (DUP) Report |       |                 |                  |         |
|-------------------------------------------------------------------|------------------|-----------------------------------------|------------|-----------------------------------|-------|-----------------|------------------|---------|
| Laboratory sample ID                                              | Client sample ID | Method: Compound                        | CAS Number | LOR                               | Unit  | Original Result | Duplicate Result | RPD (%) |
| <b>EA/ED: Physical and Aggregate Properties (QC Lot: 1653263)</b> |                  |                                         |            |                                   |       |                 |                  |         |
| HK1102601-001                                                     | CS1-01           | EA055: Moisture Content (dried @ 103°C) | ----       | 0.1                               | %     | 14.3            | 13.9             | 2.6     |
| <b>EP-075C: Phthalate Esters (QC Lot: 1650203)</b>                |                  |                                         |            |                                   |       |                 |                  |         |
| HK1102312-001                                                     | Anonymous        | Bis(2-ethylhexyl)phthalate              | 117-81-7   | 5                                 | mg/kg | <5              | <5               | 0.0     |

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

| Matrix: SOIL                                |            | Method Blank (MB) Report |       |        | Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report |                    |      |                     |      |         |               |
|---------------------------------------------|------------|--------------------------|-------|--------|------------------------------------------------------------------------------------|--------------------|------|---------------------|------|---------|---------------|
|                                             |            |                          |       |        | Spike Concentration                                                                | Spike Recovery (%) |      | Recovery Limits (%) |      | RPD (%) |               |
| Method: Compound                            | CAS Number | LOR                      | Unit  | Result |                                                                                    | LCS                | DCS  | Low                 | High | Value   | Control Limit |
| EP-075C: Phthalate Esters (QC Lot: 1650203) |            |                          |       |        |                                                                                    |                    |      |                     |      |         |               |
| Bis(2-ethylhexyl)phthalate                  | 117-81-7   | 5.0                      | mg/kg | <5     | 0.25 mg/kg                                                                         | 80.0               | ---- | 56                  | 120  | ----    | ----          |

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

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

## Surrogate Control Limits

| Sub-Matrix: SOIL                                    |            | Recovery Limits (%) |      |
|-----------------------------------------------------|------------|---------------------|------|
| Compound                                            | CAS Number | Low                 | High |
| <b>EP-075S: Acid Extractable Surrogates</b>         |            |                     |      |
| 2-Fluorophenol                                      | 367-12-4   | 25                  | 121  |
| Phenol-d6                                           | 13127-88-3 | 24                  | 113  |
| 2,4,6-Tribromophenol                                | 118-79-6   | 20                  | 122  |
| <b>EP-075T: Base/Neutral Extractable Surrogates</b> |            |                     |      |
| Nitrobenzene -d5                                    | 4165-60-0  | 23                  | 120  |
| 2-Fluorobiphenyl                                    | 321-60-8   | 30                  | 115  |
| 4-Terphenyl-d14                                     | 1718-51-0  | 20                  | 137  |



## CERTIFICATE OF ANALYSIS

|              |                                                                                                      |              |                                                                                               |                         |               |
|--------------|------------------------------------------------------------------------------------------------------|--------------|-----------------------------------------------------------------------------------------------|-------------------------|---------------|
| Client       | : AECOM ASIA COMPANY LIMITED                                                                         | Laboratory   | : ALS Technichem HK Pty Ltd                                                                   | Page                    | : 1 of 3      |
| Contact      | : MR KA MING CHAN                                                                                    | Contact      | : Chan Kwok Fai, Godfrey                                                                      | Work Order              | : HK1105054   |
| Address      | : 11/F, TOWER 2, GRAND CENTRAL PLAZA,<br>138 SHATIN RURAL COMMITTEE ROAD,<br>SHATIN, N.T., HONG KONG | Address      | : 11/F., Chung Shun Knitting Centre, 1 - 3 Wing<br>Yip Street,<br>Kwai Chung, N.T., Hong Kong |                         |               |
| E-mail       | : km.chan@aecom.com                                                                                  | E-mail       | : Godfrey.Chan@alsenviro.com                                                                  |                         |               |
| Telephone    | : ----                                                                                               | Telephone    | : +852 2610 1044                                                                              |                         |               |
| Facsimile    | : ----                                                                                               | Facsimile    | : +852 2610 2021                                                                              |                         |               |
| Project      | : XRL821 - KWAI CHUNG VENTILATION<br>BUILDING (H)                                                    | Quote number | : ----                                                                                        | Date Samples Received   | : 01-FEB-2011 |
| Order number | : 60162431-2.01                                                                                      |              |                                                                                               | Issue Date              | : 04-MAR-2011 |
| C-O-C number | : H010646                                                                                            |              |                                                                                               | No. of samples received | : 1           |
| Site         | : ----                                                                                               |              |                                                                                               | No. of samples analysed | : 1           |

### 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-MAR-2011

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: **HK1105054**

Sample(s) were received in a chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on a dry weight basis.

**This report may not be reproduced except with prior written approval from the testing laboratory.**

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

Anh Ngoc Huynh  
Fung Lim Chee, Richard

#### Position

Senior Chemist  
General Manager

#### Authorised results for

Organics  
Inorganics



## Analytical Results

Sub-Matrix: SOIL

Client sample ID

Client sampling date / time

|                                                        |                   |            |             |                      |  |  |  |  |
|--------------------------------------------------------|-------------------|------------|-------------|----------------------|--|--|--|--|
|                                                        |                   |            |             | <b>CS1-05</b>        |  |  |  |  |
|                                                        |                   |            |             | [01-FEB-2011]        |  |  |  |  |
| <i>Compound</i>                                        | <i>CAS Number</i> | <i>LOR</i> | <i>Unit</i> | <b>HK1105054-001</b> |  |  |  |  |
| <b>EA/ED: Physical and Aggregate Properties</b>        |                   |            |             |                      |  |  |  |  |
| EA055: Moisture Content (dried @ 103°C)                | ----              | 0.1        | %           | 16.1                 |  |  |  |  |
| <b>EP-075C: Phthalate Esters</b>                       |                   |            |             |                      |  |  |  |  |
| Bis(2-ethylhexyl)phthalate                             | 117-81-7          | 5          | mg/kg       | <5                   |  |  |  |  |
| <b>EP-075S: Acid Extractable Surrogates</b>            |                   |            |             |                      |  |  |  |  |
| Surrogate control limits listed at end of this report. |                   |            |             |                      |  |  |  |  |
| 2-Fluorophenol                                         | 367-12-4          | 0.1        | %           | 100                  |  |  |  |  |
| Phenol-d6                                              | 13127-88-3        | 0.1        | %           | 97.2                 |  |  |  |  |
| 2,4,6-Tribromophenol                                   | 118-79-6          | 0.1        | %           | 103                  |  |  |  |  |
| <b>EP-075T: Base/Neutral Extractable Surrogates</b>    |                   |            |             |                      |  |  |  |  |
| Surrogate control limits listed at end of this report. |                   |            |             |                      |  |  |  |  |
| Nitrobenzene -d5                                       | 4165-60-0         | 0.1        | %           | 102                  |  |  |  |  |
| 2-Fluorobiphenyl                                       | 321-60-8          | 0.1        | %           | 103                  |  |  |  |  |
| 4-Terphenyl-d14                                        | 1718-51-0         | 0.1        | %           | 87.0                 |  |  |  |  |



### Laboratory Duplicate (DUP) Report

| Matrix: SOIL                                |                  |                            |            | Laboratory Duplicate (DUP) Report |       |                 |                  |         |
|---------------------------------------------|------------------|----------------------------|------------|-----------------------------------|-------|-----------------|------------------|---------|
| Laboratory sample ID                        | Client sample ID | Method: Compound           | CAS Number | LOR                               | Unit  | Original Result | Duplicate Result | RPD (%) |
| EP-075C: Phthalate Esters (QC Lot: 1693035) |                  |                            |            |                                   |       |                 |                  |         |
| HK1105054-001                               | CS1-05           | Bis(2-ethylhexyl)phthalate | 117-81-7   | 5                                 | mg/kg | <5              | <5               | 0.0     |

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

| Matrix: SOIL                                |            | Method Blank (MB) Report |       |        | Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report |                    |      |                     |      |         |               |
|---------------------------------------------|------------|--------------------------|-------|--------|------------------------------------------------------------------------------------|--------------------|------|---------------------|------|---------|---------------|
|                                             |            |                          |       |        | Spike Concentration                                                                | Spike Recovery (%) |      | Recovery Limits (%) |      | RPD (%) |               |
| Method: Compound                            | CAS Number | LOR                      | Unit  | Result |                                                                                    | LCS                | DCS  | Low                 | High | Value   | Control Limit |
| EP-075C: Phthalate Esters (QC Lot: 1693035) |            |                          |       |        |                                                                                    |                    |      |                     |      |         |               |
| Bis(2-ethylhexyl)phthalate                  | 117-81-7   | 5.0                      | mg/kg | <5     | 0.25 mg/kg                                                                         | 77.4               | ---- | 56                  | 120  | ----    | ----          |

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

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

### Surrogate Control Limits

| Sub-Matrix: SOIL                             |            | Recovery Limits (%) |      |
|----------------------------------------------|------------|---------------------|------|
| Compound                                     | CAS Number | Low                 | High |
| EP-075S: Acid Extractable Surrogates         |            |                     |      |
| 2-Fluorophenol                               | 367-12-4   | 25                  | 121  |
| Phenol-d6                                    | 13127-88-3 | 24                  | 113  |
| 2,4,6-Tribromophenol                         | 118-79-6   | 20                  | 122  |
| EP-075T: Base/Neutral Extractable Surrogates |            |                     |      |
| Nitrobenzene -d5                             | 4165-60-0  | 23                  | 120  |
| 2-Fluorobiphenyl                             | 321-60-8   | 30                  | 115  |
| 4-Terphenyl-d14                              | 1718-51-0  | 20                  | 137  |

---

**Appendix B**  
**Detailed Soil Testing Results**

---



## CERTIFICATE OF ANALYSIS

|              |                                                                                                     |              |                                                                                               |                         |               |
|--------------|-----------------------------------------------------------------------------------------------------|--------------|-----------------------------------------------------------------------------------------------|-------------------------|---------------|
| Client       | : AECOM ASIA COMPANY LIMITED                                                                        | Laboratory   | : ALS Technichem HK Pty Ltd                                                                   | Page                    | : 1 of 3      |
| Contact      | : MR KA MING CHAN                                                                                   | Contact      | : Chan Kwok Fai, Godfrey                                                                      | Work Order              | : HK1114673   |
| Address      | : 11/F, TOWER 2, GRAND CENTRAL PLAZA,<br>138 SHATIN RURAL COMMITTEE ROAD,<br>SHATIN, N.T. HONG KONG | Address      | : 11/F., Chung Shun Knitting Centre, 1 - 3 Wing<br>Yip Street,<br>Kwai Chung, N.T., Hong Kong |                         |               |
| E-mail       | : km.chan@aecom.com                                                                                 | E-mail       | : Godfrey.Chan@alsenviro.com                                                                  |                         |               |
| Telephone    | : +852 3922 9350                                                                                    | Telephone    | : +852 2610 1044                                                                              |                         |               |
| Facsimile    | : ----                                                                                              | Facsimile    | : +852 2610 2021                                                                              |                         |               |
| Project      | : XRL821 - KWAI CHUNG VENTILATION<br>BUILDING WORKS AREA (SITE H)                                   | Quote number | : ----                                                                                        | Date Samples Received   | : 29-JUN-2011 |
| Order number | : 60162431-2.01                                                                                     |              |                                                                                               | Issue Date              | : 13-JUL-2011 |
| C-O-C number | : H015196                                                                                           |              |                                                                                               | No. of samples received | : 1           |
| Site         | : ----                                                                                              |              |                                                                                               | No. of samples analysed | : 1           |

### 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: 04-JUL-2011

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: **HK1114673**

Sample(s) were received in an ambient condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on a dry weight basis.

**This report may not be reproduced except with prior written approval from the testing laboratory.**

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

Anh Ngoc Huynh

Senior Chemist

Organics

Fung Lim Chee, Richard

General Manager

Inorganics



## Analytical Results

Sub-Matrix: SOIL

Client sample ID

RR-01

Client sampling date / time

29-JUN-2011 16:00

| Compound                                               | CAS Number | LOR | Unit  | HK1114673-001 |  |  |  |  |
|--------------------------------------------------------|------------|-----|-------|---------------|--|--|--|--|
| <b>EA/ED: Physical and Aggregate Properties</b>        |            |     |       |               |  |  |  |  |
| EA055: Moisture Content (dried @ 103°C)                | ----       | 0.1 | %     | 9.9           |  |  |  |  |
| <b>EP-075C: Phthalate Esters</b>                       |            |     |       |               |  |  |  |  |
| Bis(2-ethylhexyl)phthalate                             | 117-81-7   | 5   | mg/kg | 5             |  |  |  |  |
| <b>EP-075S: Acid Extractable Surrogates</b>            |            |     |       |               |  |  |  |  |
| Surrogate control limits listed at end of this report. |            |     |       |               |  |  |  |  |
| 2-Fluorophenol                                         | 367-12-4   | 0.1 | %     | 76.8          |  |  |  |  |
| Phenol-d6                                              | 13127-88-3 | 0.1 | %     | 71.1          |  |  |  |  |
| 2,4,6-Tribromophenol                                   | 118-79-6   | 0.1 | %     | 72.2          |  |  |  |  |
| <b>EP-075T: Base/Neutral Extractable Surrogates</b>    |            |     |       |               |  |  |  |  |
| Surrogate control limits listed at end of this report. |            |     |       |               |  |  |  |  |
| Nitrobenzene -d5                                       | 4165-60-0  | 0.1 | %     | 70.1          |  |  |  |  |
| 2-Fluorobiphenyl                                       | 321-60-8   | 0.1 | %     | 81.6          |  |  |  |  |
| 4-Terphenyl-d14                                        | 1718-51-0  | 0.1 | %     | 83.2          |  |  |  |  |



### Laboratory Duplicate (DUP) Report

| Matrix: SOIL                                                      |                  |                                         |            | Laboratory Duplicate (DUP) Report |       |                 |                  |         |
|-------------------------------------------------------------------|------------------|-----------------------------------------|------------|-----------------------------------|-------|-----------------|------------------|---------|
| Laboratory sample ID                                              | Client sample ID | Method: Compound                        | CAS Number | LOR                               | Unit  | Original Result | Duplicate Result | RPD (%) |
| <b>EA/ED: Physical and Aggregate Properties (QC Lot: 1856442)</b> |                  |                                         |            |                                   |       |                 |                  |         |
| HK1114597-001                                                     | Anonymous        | EA055: Moisture Content (dried @ 103°C) | ----       | 0.1                               | %     | 18.8            | 19.2             | 2.4     |
| <b>EP-075C: Phthalate Esters (QC Lot: 1849814)</b>                |                  |                                         |            |                                   |       |                 |                  |         |
| HK1114566-001                                                     | Anonymous        | Bis(2-ethylhexyl)phthalate              | 117-81-7   | 5                                 | mg/kg | <5              | <5               | 0.0     |

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

| Matrix: <b>SOIL</b>                         |  | Method Blank (MB) Report |            |       | Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report |                    |        |                     |     |         |      |       |
|---------------------------------------------|--|--------------------------|------------|-------|------------------------------------------------------------------------------------|--------------------|--------|---------------------|-----|---------|------|-------|
|                                             |  |                          |            |       | Spike Concentration                                                                | Spike Recovery (%) |        | Recovery Limits (%) |     | RPD (%) |      |       |
|                                             |  | Method: Compound         | CAS Number | LOR   |                                                                                    | Unit               | Result | LCS                 | DCS | Low     | High | Value |
| EP-075C: Phthalate Esters (QC Lot: 1849814) |  |                          |            |       |                                                                                    |                    |        |                     |     |         |      |       |
| Bis(2-ethylhexyl)phthalate                  |  | 117-81-7                 | 5.0        | mg/kg | <5                                                                                 | 0.25 mg/kg         | 103    | ----                | 56  | 120     | ---- | ----  |

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

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

### Surrogate Control Limits

| Sub-Matrix: SOIL                                    |            | Recovery Limits (%) |      |
|-----------------------------------------------------|------------|---------------------|------|
| Compound                                            | CAS Number | Low                 | High |
| <b>EP-075S: Acid Extractable Surrogates</b>         |            |                     |      |
| 2-Fluorophenol                                      | 367-12-4   | 25                  | 121  |
| Phenol-d6                                           | 13127-88-3 | 24                  | 113  |
| 2,4,6-Tribromophenol                                | 118-79-6   | 20                  | 122  |
| <b>EP-075T: Base/Neutral Extractable Surrogates</b> |            |                     |      |
| Nitrobenzene -d5                                    | 4165-60-0  | 23                  | 120  |
| 2-Fluorobiphenyl                                    | 321-60-8   | 30                  | 115  |
| 4-Terphenyl-d14                                     | 1718-51-0  | 20                  | 137  |



## CERTIFICATE OF ANALYSIS

|              |                                                                                                     |              |                                                                                               |                         |               |
|--------------|-----------------------------------------------------------------------------------------------------|--------------|-----------------------------------------------------------------------------------------------|-------------------------|---------------|
| Client       | : AECOM ASIA COMPANY LIMITED                                                                        | Laboratory   | : ALS Technichem HK Pty Ltd                                                                   | Page                    | : 1 of 3      |
| Contact      | : MR KA MING CHAN                                                                                   | Contact      | : Chan Kwok Fai, Godfrey                                                                      | Work Order              | : HK1114675   |
| Address      | : 11/F, TOWER 2, GRAND CENTRAL PLAZA,<br>138 SHATIN RURAL COMMITTEE ROAD,<br>SHATIN, N.T. HONG KONG | Address      | : 11/F., Chung Shun Knitting Centre, 1 - 3 Wing<br>Yip Street,<br>Kwai Chung, N.T., Hong Kong |                         |               |
| E-mail       | : km.chan@aecom.com                                                                                 | E-mail       | : Godfrey.Chan@alsenviro.com                                                                  |                         |               |
| Telephone    | : +852 3922 9350                                                                                    | Telephone    | : +852 2610 1044                                                                              |                         |               |
| Facsimile    | : ----                                                                                              | Facsimile    | : +852 2610 2021                                                                              |                         |               |
| Project      | : XRL821 - KWAI CHUNG VENTILATION<br>BUILDING WORKS AREA (SITE H)                                   | Quote number | : ----                                                                                        | Date Samples Received   | : 29-JUN-2011 |
| Order number | : 60162431-2.01                                                                                     |              |                                                                                               | Issue Date              | : 13-JUL-2011 |
| C-O-C number | : H015195                                                                                           |              |                                                                                               | No. of samples received | : 1           |
| Site         | : ----                                                                                              |              |                                                                                               | No. of samples analysed | : 1           |

### 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: 04-JUL-2011

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: **HK1114675**

Sample(s) were received in an ambient condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on a dry weight basis.

**This report may not be reproduced except with prior written approval from the testing laboratory.**

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

Anh Ngoc Huynh

Senior Chemist

Organics

Fung Lim Chee, Richard

General Manager

Inorganics



### Analytical Results

Sub-Matrix: SOIL

Client sample ID

RR-02

Client sampling date / time

29-JUN-2011 16:00

| Compound                                               | CAS Number | LOR | Unit  | HK1114675-001 |  |  |  |  |
|--------------------------------------------------------|------------|-----|-------|---------------|--|--|--|--|
| <b>EA/ED: Physical and Aggregate Properties</b>        |            |     |       |               |  |  |  |  |
| EA055: Moisture Content (dried @ 103°C)                | ----       | 0.1 | %     | 12.4          |  |  |  |  |
| <b>EP-075C: Phthalate Esters</b>                       |            |     |       |               |  |  |  |  |
| Bis(2-ethylhexyl)phthalate                             | 117-81-7   | 5   | mg/kg | 6             |  |  |  |  |
| <b>EP-075S: Acid Extractable Surrogates</b>            |            |     |       |               |  |  |  |  |
| Surrogate control limits listed at end of this report. |            |     |       |               |  |  |  |  |
| 2-Fluorophenol                                         | 367-12-4   | 0.1 | %     | 67.0          |  |  |  |  |
| Phenol-d6                                              | 13127-88-3 | 0.1 | %     | 62.2          |  |  |  |  |
| 2,4,6-Tribromophenol                                   | 118-79-6   | 0.1 | %     | 67.1          |  |  |  |  |
| <b>EP-075T: Base/Neutral Extractable Surrogates</b>    |            |     |       |               |  |  |  |  |
| Surrogate control limits listed at end of this report. |            |     |       |               |  |  |  |  |
| Nitrobenzene -d5                                       | 4165-60-0  | 0.1 | %     | 61.2          |  |  |  |  |
| 2-Fluorobiphenyl                                       | 321-60-8   | 0.1 | %     | 72.5          |  |  |  |  |
| 4-Terphenyl-d14                                        | 1718-51-0  | 0.1 | %     | 71.3          |  |  |  |  |



### Laboratory Duplicate (DUP) Report

| Matrix: SOIL                                                      |                  |                                         |            | Laboratory Duplicate (DUP) Report |       |                 |                  |         |
|-------------------------------------------------------------------|------------------|-----------------------------------------|------------|-----------------------------------|-------|-----------------|------------------|---------|
| Laboratory sample ID                                              | Client sample ID | Method: Compound                        | CAS Number | LOR                               | Unit  | Original Result | Duplicate Result | RPD (%) |
| <b>EA/ED: Physical and Aggregate Properties (QC Lot: 1856442)</b> |                  |                                         |            |                                   |       |                 |                  |         |
| HK1114597-001                                                     | Anonymous        | EA055: Moisture Content (dried @ 103°C) | ----       | 0.1                               | %     | 18.8            | 19.2             | 2.4     |
| <b>EP-075C: Phthalate Esters (QC Lot: 1849814)</b>                |                  |                                         |            |                                   |       |                 |                  |         |
| HK1114566-001                                                     | Anonymous        | Bis(2-ethylhexyl)phthalate              | 117-81-7   | 5                                 | mg/kg | <5              | <5               | 0.0     |

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

| Matrix: <b>SOIL</b>                         |  | Method Blank (MB) Report |            |       | Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report |                    |        |                     |     |         |      |       |
|---------------------------------------------|--|--------------------------|------------|-------|------------------------------------------------------------------------------------|--------------------|--------|---------------------|-----|---------|------|-------|
|                                             |  |                          |            |       | Spike Concentration                                                                | Spike Recovery (%) |        | Recovery Limits (%) |     | RPD (%) |      |       |
|                                             |  | Method: Compound         | CAS Number | LOR   |                                                                                    | Unit               | Result | LCS                 | DCS | Low     | High | Value |
| EP-075C: Phthalate Esters (QC Lot: 1849814) |  |                          |            |       |                                                                                    |                    |        |                     |     |         |      |       |
| Bis(2-ethylhexyl)phthalate                  |  | 117-81-7                 | 5.0        | mg/kg | <5                                                                                 | 0.25 mg/kg         | 103    | ----                | 56  | 120     | ---- | ----  |

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

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

### Surrogate Control Limits

| Sub-Matrix: SOIL                                    |            | Recovery Limits (%) |      |
|-----------------------------------------------------|------------|---------------------|------|
| Compound                                            | CAS Number | Low                 | High |
| <b>EP-075S: Acid Extractable Surrogates</b>         |            |                     |      |
| 2-Fluorophenol                                      | 367-12-4   | 25                  | 121  |
| Phenol-d6                                           | 13127-88-3 | 24                  | 113  |
| 2,4,6-Tribromophenol                                | 118-79-6   | 20                  | 122  |
| <b>EP-075T: Base/Neutral Extractable Surrogates</b> |            |                     |      |
| Nitrobenzene -d5                                    | 4165-60-0  | 23                  | 120  |
| 2-Fluorobiphenyl                                    | 321-60-8   | 30                  | 115  |
| 4-Terphenyl-d14                                     | 1718-51-0  | 20                  | 137  |

---

**Appendix C**  
**Photographic log**

---

## Photographic log

|                                                                                 |                                                                                      |                                                                              |
|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|------------------------------------------------------------------------------|
| <b>Client Name:</b><br>Dragages-Bouygues Joint Venture                          |                                                                                      | <b>Site Location:</b><br>Kwai Chung Ventilation Building Works Area (Site H) |
| <b>Photo No.</b><br><b>1</b>                                                    |   |                                                                              |
| <b>Direction Photo Taken:</b><br><br>East                                       |                                                                                      |                                                                              |
| <b>Description:</b><br><br>Boundaries of contaminated soil extent were set out. |                                                                                      |                                                                              |
| <b>Photo No.</b><br><b>2</b>                                                    |  |                                                                              |
| <b>Direction Photo Taken:</b><br><br>East                                       |                                                                                      |                                                                              |
| <b>Description:</b><br><br>Open cut excavation was undertaken using a backhoe.  |                                                                                      |                                                                              |

## Photographic log

|                                                        |                                                                                     |                                                                              |
|--------------------------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------|
| <b>Client Name:</b><br>Dragages-Bouygues Joint Venture |                                                                                     | <b>Site Location:</b><br>Kwai Chung Ventilation Building Works Area (Site H) |
| <b>Photo No.</b><br><b>3</b>                           |  |                                                                              |
| <b>Direction Photo Taken:</b><br>Southeast             |                                                                                     |                                                                              |
| <b>Description:</b><br>Excavated pit.                  |                                                                                     |                                                                              |

|                                                                                                                                                                   |                                                                                      |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--|
| <b>Photo No.</b><br><b>4</b>                                                                                                                                      |  |  |
| <b>Direction Photo Taken:</b><br>N/A                                                                                                                              |                                                                                      |  |
| <b>Description:</b><br>An empty steel skip was covered with impermeable sheets at the bottom. The skip would then be filled with contaminated soil for biopiling. |                                                                                      |  |

## Photographic log

|                                                                                     |                                                                                     |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| <b>Client Name:</b><br>Dragages-Bouygues Joint Venture                              | <b>Site Location:</b><br>Kwai Chung Ventilation Building Works Area (Site H)        |
| <b>Photo No.</b><br><b>5</b>                                                        |  |
| <b>Direction Photo Taken:</b><br><br>North                                          |                                                                                     |
| <b>Description:</b><br><br>Open cut excavation was being undertaken using a backhoe |                                                                                     |

|                                                                        |                                                                                      |
|------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| <b>Photo No.</b><br><b>6</b>                                           |  |
| <b>Direction Photo Taken:</b><br><br>N/A                               |                                                                                      |
| <b>Description:</b><br><br>The skip was filled with contaminated soil. |                                                                                      |

## Photographic log

|                                                                          |                                                                                     |
|--------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| <b>Client Name:</b><br>Dragages-Bouygues Joint Venture                   | <b>Site Location:</b><br>Kwai Chung Ventilation Building Works Area (Site H)        |
| <b>Photo No.</b><br>7                                                    |  |
| <b>Direction Photo Taken:</b><br>N/A                                     |                                                                                     |
| <b>Description:</b><br>The filled skip is covered by impermeable sheets. |                                                                                     |

|                                                                           |                                                                                      |
|---------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| <b>Photo No.</b><br>8                                                     |  |
| <b>Direction Photo Taken:</b><br>N/A                                      |                                                                                      |
| <b>Description:</b><br>During remediation, the soil was turned regularly. |                                                                                      |