ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CERTIFICATE OF ANALYSIS

Client	: CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 4
Contact	: IR POPHIL LAM	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1200787
Address	: GEOTECHNICAL PROJECTS DIVISION, GEOTECHNICAL ENGINEERING OFFICE, 23/F., KWUN TONG VIEW, 410 KWUN TONG ROAD, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: Pophilklam@cedd.gov.hk	E-mail	: Godfrey.Chan@alsglobal.com		
Telephone	: +852 2716 8609	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: AGREEMENT NO CE 61_2007 (CE) - NORTH EAST NEW TERRITORIES NEW DEVELOPMENT AREAS	Quote number	: ----	Date Samples Received	: 10-JAN-2012
Order number	: GE/2009/16.38			Issue Date	: 19-JAN-2012
C-O-C number	: H013991			No. of samples received	: 1
Site	: NDA KTN			No. of samples analysed	: 1

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*
PP Fung Lim Chee, Richard	General Manager	Inorganics

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: 12-JAN-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: **HK1200787**

Project Name: Agreement No. CE 61/2007 (CE) - North East New Territories New Development Areas. Planning an Engineering Study - Investigation, Chemical Testing.

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.

Soil sample(s) as received, digested by In-house method E-ASTM D3974-81 based on ASTM D3974-81, prior to the determination of metals.

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: KTN-ASBH OFFSITE (COREBOX 20.50M)				
				Client sampling date / time: [10-JAN-2012]				
				HK1200787-001				
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103° C)	----	0.1	%	**8.5**				
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	**811**				

Laboratory Duplicate (DUP) Report

Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report				
				LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 2121982)								
HK1200761-002	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	16.1	15.9	1.3
HK1200783-003	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	18.8	18.9	0.8
EG: Metals and Major Cations (QC Lot: 2121979)								
HK1200761-005	Anonymous	EG020: Arsenic	7440-38-2	1	mg/kg	27	26	3.9
HK1200785-001	Anonymous	EG020: Arsenic	7440-38-2	1	mg/kg	12	11	0.0

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

Matrix: SOIL

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
		LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2121979)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	90.4	----	77	109	----	----

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

Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2121979)										
HK1200761-004	Anonymous	EG020: Arsenic	7440-38-2	5 mg/kg	# Not Determined	----	75	125	----	----

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Contact	: IR POPHIL LAM	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1203251
Address	: GEOTECHNICAL PROJECTS DIVISION, GEOTECHNICAL ENGINEERING OFFICE, 23/F., KWUN TONG VIEW, 410 KWUN TONG ROAD, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: Pophilklam@cedd.gov.hk	E-mail	: Godfrey.Chan@alsglobal.com		
Telephone	: +852 2716 8609	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: AGREEMENT NO CE 61_2007 (CE) - NORTH EAST NEW TERRITORIES NEW DEVELOPMENT AREAS	Quote number	: ----	Date Samples Received	: 03-FEB-2012
Order number	: GE/2009/16.38			Issue Date	: 06-FEB-2012
C-O-C number	: ----			No. of samples received	: 1
Site	: NDA KTN			No. of samples analysed	: 1

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Signatories	*Position*	*Authorised results for*
PP Fung Lim Chee, Richard	General Manager	Inorganics

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: **HK1203251**

Project Name: Agreement No. CE 61/2007 (CE) - North East New Territories New Development Areas. Planning an Engineering Study - Investigation, Chemical Testing.

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.

Soil sample(s) as received, digested by In-house method E-ASTM D3974-81 based on ASTM D3974-81, prior to the determination of metals.

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: KTN-ASBH OFFSITE 20.5M-0				
				Client sampling date / time: [26-JAN-2012]				
				HK1203251-001				
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103° C)	----	0.1	%	**12.9**				
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	**13400**				

Laboratory Duplicate (DUP) Report

- No Laboratory Duplicate (DUP) Results are required to be reported.

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
EG: Metals and Major Cations (QC Lot: 2155213)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	96.1	----	77	109	----	----

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

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

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CERTIFICATE OF ANALYSIS

Client	: CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 5
Contact	: IR POPHIL LAM	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK1202479
Address	: GEOTECHNICAL PROJECTS DIVISION, GEOTECHNICAL ENGINEERING OFFICE, 23/F., KWUN TONG VIEW, 410 KWUN TONG ROAD, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: Pophilklam@cedd.gov.hk	E-mail	: Godfrey.Chan@alsglobal.com		
Telephone	: +852 2716 8609	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: AGREEMENT NO CE 61_2007 (CE) - NORTH EAST NEW TERRITORIES NEW DEVELOPMENT AREAS	Quote number	: ----	Date Samples Received	: 26-JAN-2012
Order number	: GE/2009/16.38			Issue Date	: 02-FEB-2012
C-O-C number	: H014801			No. of samples received	: 7
Site	: NDA KTN			No. of samples analysed	: 7

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Signatories	*Position*	*Authorised results for*
PP Fung Lim Chee, Richard	General Manager	Inorganics

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: 31-JAN-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: **HK1202479**

Project Name: Agreement No. CE 61/2007 (CE) - North East New Territories New Development Areas. Planning an Engineering Study - Investigation, Chemical Testing.

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.

Soil sample(s) as received, digested by In-house method E-ASTM D3974-81 based on ASTM D3974-81, prior to the determination of metals.

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID	KTN-ASBH OFFSITE (20.5M-1)	KTN-ASBH OFFSITE (20.5M-2)	KTN-ASBH OFFSITE (20.5M-3)	KTN-ASBH OFFSITE (20.5M-4)	KTN-ASBH OFFSITE (20.5M-5)
				Client sampling date / time	[26-JAN-2012]	[26-JAN-2012]	[26-JAN-2012]	[26-JAN-2012]	[26-JAN-2012]
					HK1202479-001	HK1202479-002	HK1202479-003	HK1202479-004	HK1202479-005
EA/ED: Physical and Aggregate Properties									
EA055: Moisture Content (dried @ 103° C)	----	0.1	%		12.3	9.6	10.1	8.3	12.5
EG: Metals and Major Cations									
EG020: Arsenic	7440-38-2	1	mg/kg		5470	469	1520	2290	826

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	Client sample ID: KTN-ASBH OFFSITE (20.5M-6)	KTN-ASBH OFFSITE (20.5M, BLACK MATERIAL)			
				Client sampling date / time: [26-JAN-2012]	[26-JAN-2012]			
				HK1202479-006	HK1202479-007			
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103° C)	----	0.1	%	12.4	8.0			
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	738	75300			

Laboratory Duplicate (DUP) Report

Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report				
				LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 2144041)								
HK1202394-021	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	<0.1	<0.1	0.0
HK1202394-027	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	<0.1	<0.1	0.0
EG: Metals and Major Cations (QC Lot: 2144711)								
HK1202479-002	KTN-ASBH OFFSITE (20.5M-2)	EG020: Arsenic	7440-38-2	1	mg/kg	469	474	1.1

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

Matrix: SOIL

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
		LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2144711)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	87.2	----	77	109	----	----

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

Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2144711)										
HK1202479-001	KTN-ASBH OFFSITE (20.5M-1)	EG020: Arsenic	7440-38-2	5 mg/kg	# Not Determined	----	75	125	----	----