

APPENDIX 'D'

ESI Statistical analysis: Maplefield School Site

Test Results

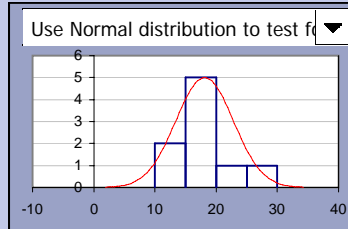
Client/client ref:
Project ref: 08.12.017

Site ref: Maplefield School

Date: 18th February 2009

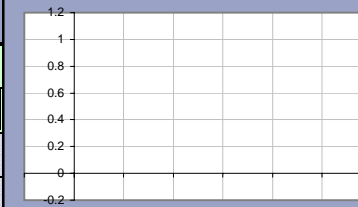
Data description: Southern section of the combined User details: Listers Geotechnical Consultants Limi

Dataset:	Arsenic (mg/kg) ▼
Sample mean, \bar{x} (mg/kg)	18.111
Sample standard deviation, s	4.7022
Sample size, n	9
Critical concentration, Cc (mg/kg)	20



Outliers & non-detects

Outliers present?	NO
Significance level	5% ▼
Outliers removed?	0
Non-detects	0



Normality test

Significance level: 5% ▼

Normal distribution

Use: Auto: One-sample t-test ▼

Test scenario:

Planning: is true mean lower than critical concentration ($\mu < C_c$)? ▼

Null hypothesis: The true mean concentration is equal to or greater than the critical concentration: $\mu \geq C_c$

Alternative hypothesis: The true mean concentration is less than the critical concentration: $\mu < C_c$

Evidence against Null hypothesis:	87%
Base decision on:	evidence level ▼
Evidence level required:	95%
Balance of probability?	N/A
Reject Null Hypothesis?	No
Not enough evidence	

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APPENDIX 'E'

CLEA 1.03 GAC Worksheets: Maplefield School Site

Report generated 18/02/09

Report title Maplefield School KS 1 to KS4 Pupils

Created by Andrew Plant at Listers Geotechnical Consultants

BASIC SETTINGS

Land Use Combined Primary and High School

Building Office (post 1970)

Receptor Female (res)

Start age class 5

End age class 16

Exposure Duration 12 years

Soil Silty clay

Exposure Pathways

Direct soil and dust ingestion
Consumption of homegrown produce
Soil attached to homegrown produce

Dermal contact with indoor dust
Dermal contact with soil

Inhalation of indoor dust
Inhalation of soil dust
Inhalation of indoor vapour
Inhalation of outdoor vapour

Land Use Combined Primary and High School

Age Class	Exposure Frequencies (days yr ⁻¹)					
	Direct soil ingestion	Consumption of homegrown produce	Dermal contact with indoor dust	Dermal contact with soil	Inhalation of dust and vapour, indoor	Inhalation of dust and vapour, outdoor
1	0	0	0	0	0	0
2	0	0	0	0	0	0
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	200	0	200	200	200	200
6	200	0	200	200	200	200
7	200	0	200	200	200	200
8	200	0	200	200	200	200
9	200	0	200	200	200	200
10	200	0	200	200	200	200
11	200	0	200	200	200	200
12	200	0	200	200	200	200
13	200	0	200	200	200	200
14	200	0	200	200	200	200
15	200	0	200	200	200	200
16	200	0	200	200	200	200
17	0	0	0	0	0	0
18	0	0	0	0	0	0

Occupation Periods (hr day ⁻¹)		Soil to skin adherence factors (mg cm ²)		Direct soil ingestion rate (g day ⁻¹)
Indoors	Outdoors	Indoor	Outdoor	
0	0	0.00	0.00	0.00
0	0	0.00	0.00	0.00
0	0	0.00	0.00	0.00
0	0	0.00	0.00	0.00
7	2	0.06	1.00	0.10
7	2	0.06	1.00	0.10
7	2	0.06	1.00	0.10
7	2	0.06	1.00	0.10
7	2	0.06	1.00	0.10
7	2	0.06	1.00	0.10
7	2	0.06	1.00	0.10
7	2	0.06	1.00	0.10
7	2	0.06	1.00	0.10
7	2	0.06	1.00	0.10
7	2	0.06	1.00	0.10
7	2	0.06	1.00	0.10
7	2	0.06	1.00	0.10
0	0	0.00	0.00	0.00
0	0	0.00	0.00	0.00

Receptor Female (res)

Age Class	Body weight (kg)	Body height (m)	Inhalation rate (m ³ day ⁻¹)	Max exposed skin factor			Consumption rates (g FW kg ⁻¹ BW day ⁻¹)					
				Indoor (m ² m ⁻²)	Outdoor (m ² m ⁻²)	Total skin area (m ²)	Green vegetables	Root vegetables	Tuber vegetables	Herbaceous fruit	Shrub fruit	Tree fruit
1	5.60	0.7	8.5	0.32	0.26	3.43E-01	7.12	10.69	16.03	1.83	2.23	3.82
2	9.80	0.8	13.3	0.33	0.26	4.84E-01	6.85	3.30	5.46	3.96	0.54	11.96
3	12.70	0.9	12.7	0.32	0.25	5.82E-01	6.85	3.30	5.46	3.96	0.54	11.96
4	15.10	0.9	12.2	0.35	0.28	6.36E-01	6.85	3.30	5.46	3.96	0.54	11.96
5	16.90	1.0	12.2	0.35	0.28	7.04E-01	3.74	1.77	3.38	1.85	0.16	4.26
6	19.70	1.1	12.2	0.33	0.26	7.94E-01	3.74	1.77	3.38	1.85	0.16	4.26
7	22.10	1.2	12.4	0.22	0.15	8.73E-01	3.74	1.77	3.38	1.85	0.16	4.26
8	25.30	1.2	12.4	0.22	0.15	9.36E-01	3.74	1.77	3.38	1.85	0.16	4.26
9	27.50	1.3	12.4	0.22	0.15	1.01E+00	3.74	1.77	3.38	1.85	0.16	4.26
10	31.40	1.3	12.4	0.22	0.15	1.08E+00	3.74	1.77	3.38	1.85	0.16	4.26
11	35.70	1.4	12.4	0.22	0.14	1.19E+00	3.74	1.77	3.38	1.85	0.16	4.26
12	41.30	1.4	13.4	0.22	0.14	1.29E+00	3.74	1.77	3.38	1.85	0.16	4.26
13	47.20	1.5	13.4	0.22	0.14	1.42E+00	3.74	1.77	3.38	1.85	0.16	4.26
14	51.20	1.6	13.4	0.22	0.14	1.52E+00	3.74	1.77	3.38	1.85	0.16	4.26
15	56.70	1.6	13.4	0.21	0.14	1.60E+00	3.74	1.77	3.38	1.85	0.16	4.26
16	59.00	1.6	13.4	0.21	0.14	1.63E+00	3.74	1.77	3.38	1.85	0.16	4.26
17	70.00	1.6	14.8	0.33	0.27	1.78E+00	2.94	1.40	1.79	1.61	0.22	2.97
18	70.90	1.6	12.0	0.33	0.27	1.80E+00	2.94	1.40	1.79	1.61	0.22	2.97

Building Office (post 1970)

Building footprint (m ²)	6.10E+02
Living space air exchange rate (hr ⁻¹)	1.00E+00
Living space height (above ground, m)	1.28E+01
Living space height (below ground, m)	0.00E+00
Pressure difference (soil to enclosed space, Pa)	5.10E+00
Foundation thickness (m)	1.50E-01
Floor crack area (cm ²)	1.98E+03
Dust loading factor (µg m ⁻³)	1.00E+02

Soil Silty clay

Porosity, Total (cm ³ cm ⁻³)	6.30E-01
Porosity, Air-Filled (cm ³ cm ⁻³)	1.20E-01
Porosity, Water-Filled (cm ³ cm ⁻³)	5.10E-01
Residual soil water content (cm ³ cm ⁻³)	2.60E-01
Saturated hydraulic conductivity (cm s ⁻¹)	1.17E-03
van Genuchten shape parameter <i>m</i> (dimensionless)	3.16E-01
Bulk density (g cm ⁻³)	9.40E-01
Threshold value of wind speed at 10m (m s ⁻¹)	7.20E+00
Empirical function (F _x) for dust model (dimensionless)	1.22E+00
Ambient soil temperature (K)	2.83E+02
Soil pH	7.00E+00
Soil Organic Matter content (%)	1.00E+00
Fraction of organic carbon (g g ⁻¹)	5.80E-03
Effective total fluid saturation (unitless)	6.76E-01
Intrinsic soil permeability (cm ²)	1.56E-08
Relative soil air permeability (unitless)	4.59E-01
Effective air permeability (cm ²)	7.18E-09

Soil - Vapour Model

Depth to top of source (no building) (cm)	10
Depth to top of source (beneath building) (cm)	65
Default soil gas ingress rate?	Yes
Soil gas ingress rate (cm ³ s ⁻¹)	3.00E+02
Building ventilation rate (cm ³ s ⁻¹)	2.17E+06
Finite vapour source model?	No
Thickness of contaminated layer (cm)	200

Air Dispersion Model

Mean annual windspeed at 10m (m s ⁻¹)	5.00
Air dispersion factor at height of 0.8m *	0.00
Air dispersion factor at height of 1.6m *	120.00
Fraction of site cover (m ² m ⁻²)	0.7

* Air dispersion factor in g m⁻² s⁻¹ per kg m⁻³

Soil - Plant Model

	Dry weight conversion factor	Homegrown fraction		Soil loading factor	Preparation correction factor
	g DW g ⁻¹ FW	Average	High		
		dimensionless		g g ⁻¹ DW	dimensionless
Green vegetables	0.096	0.05	0.33	1.00E-03	2.00E-01
Root vegetables	0.103	0.06	0.40	1.00E-03	1.00E+00
Tuber vegetables	0.210	0.02	0.13	1.00E-03	1.00E+00
Herbaceous fruit	0.058	0.06	0.40	1.00E-03	6.00E-01
Shrub fruit	0.166	0.09	0.60	1.00E-03	6.00E-01
Tree fruit	0.157	0.04	0.27	1.00E-03	6.00E-01

Gardener type None

Report generated 18-Feb-09

Report title Maplefield School KS 1 to KS4 Pupils

Created by Andrew Plant at Listers Geotechnical Consultants

RESULTS

	Average Daily Exposure (mg kg ⁻¹ bw day ⁻¹)							Distribution by Pathway (%)							
	Direct soil ingestion	Consumption of homegrown produce and attached soil	Dermal contact with soil and dust	Inhalation of dust	Inhalation of vapour	Background (oral)	Background (inhalation)	Direct soil ingestion	Consumption of homegrown produce	Dermal contact with soil and dust	Inhalation of dust	Inhalation of vapour (indoor)	Inhalation of vapour (outdoor)	Background (oral)	Background (inhalation)
21															
22															
23															
24															
25															
26															
27															
28															
29															
30															

APPENDIX 'F'
ESI Statistical Analysis: Housing Site

Test Results

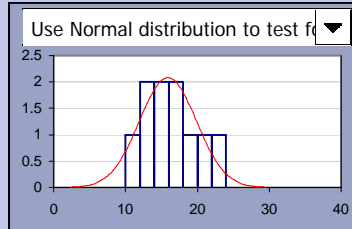
Client/client ref:
Project ref: 08.12.017

Site ref: Housing Area: Sheet One of Two
Data description: Northern section of the combined

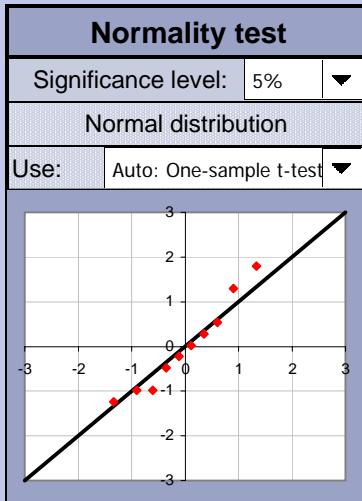
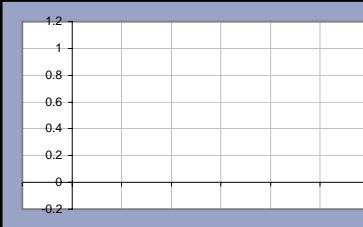
Date: 18th February 2009

User details: Listers Geotechnical Consultants Limi

Dataset: Arsenic (mg/kg)	
Sample mean, \bar{x} (mg/kg)	15.9
Sample standard deviation, s	3.9567
Sample size, n	10
Critical concentration, Cc (mg/kg)	20



Outliers & non-detects	
Outliers present?	NO
Significance level	5%
Outliers removed?	0
Non-detects	0



Test scenario: Planning: is true mean lower than critical concentration ($\mu < C_c$)?

Null hypothesis: The true mean concentration is equal to or greater than the critical concentration: $\mu \geq C_c$

Alternative hypothesis: The true mean concentration is less than the critical concentration: $\mu < C_c$

Evidence against Null hypothesis:	100%
Base decision on:	evidence level
Evidence level required:	95%
Balance of probability?	N/A
Reject Null Hypothesis?	Yes
$\mu < C_c$ (re this dataset)	

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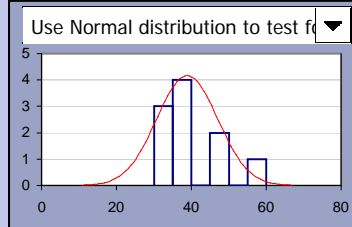
Test Results

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Project ref: 08.12.017

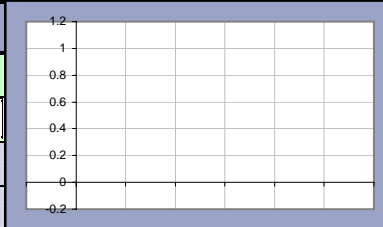
Site ref: Housing Area: Sheet One of Two
Data description: Northern section of the combined

Date: 18th February 2009
User details: Listers Geotechnical Consultants Limi

Dataset: Chromium (mg/kg)	
Sample mean, \bar{x} (mg/kg)	38.9
Sample standard deviation, s	8.1438
Sample size, n	10
Critical concentration, Cc (mg/kg)	130



Outliers & non-detects	
Outliers present?	NO
Significance level	5%
Outliers removed?	0
Non-detects	0



Normality test

Significance level: 5%

Normal distribution

Use: Auto: One-sample t-test

Test scenario: Planning: is true mean lower than critical concentration ($\mu < C_c$)?

Null hypothesis: The true mean concentration is equal to or greater than the critical concentration: $\mu \geq C_c$

Alternative hypothesis: The true mean concentration is less than the critical concentration: $\mu < C_c$

Evidence against Null hypothesis:	100%
Base decision on:	evidence level
Evidence level required:	95%
Balance of probability?	N/A
Reject Null Hypothesis?	Yes
$\mu < C_c$ (re this dataset)	

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Test Results

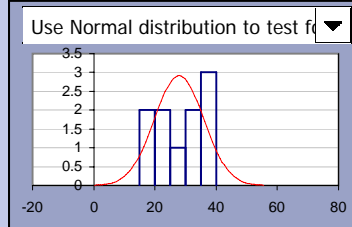
Client/client ref:
Project ref: 08.12.017

Site ref: Housing Area: Sheet One of Two
Data description: Northern section of the combined

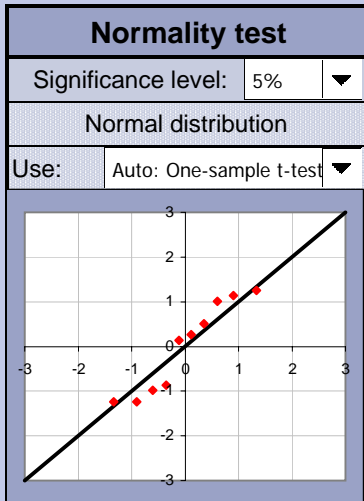
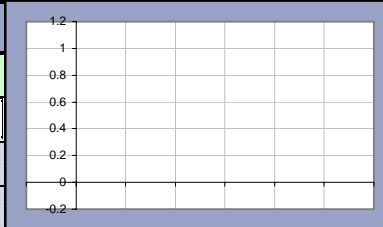
Date: 18th February 2009

User details: Listers Geotechnical Consultants Limi

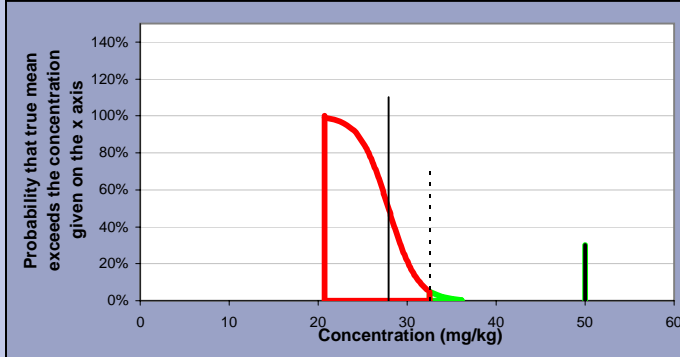
Dataset:	Nickel (mg/kg) ▼
Sample mean, \bar{x} (mg/kg)	27.9
Sample standard deviation, s	8.0201
Sample size, n	10
Critical concentration, Cc (mg/kg)	50



Outliers & non-detects	
Outliers present?	NO
Significance level	5% ▼
Outliers removed?	0
Non-detects	0



Test scenario:	Planning: is true mean lower than critical concentration ($\mu < C_c$)? ▼
Null hypothesis:	The true mean concentration is equal to or greater than the critical concentration: $\mu \geq C_c$
Alternative hypothesis:	The true mean concentration is less than the critical concentration: $\mu < C_c$



Evidence against Null hypothesis:	100%
Base decision on:	evidence level ▼
Evidence level required:	95%
Balance of probability?	N/A
Reject Null Hypothesis?	Yes
$\mu < C_c$ (re this dataset)	

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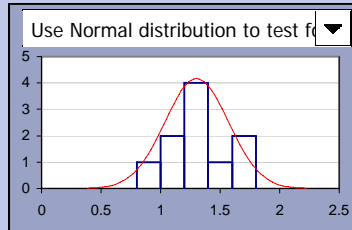
Test Results

Client/client ref:
Project ref: 08.12.017

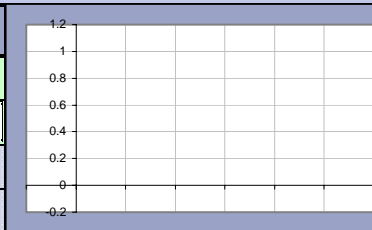
Site ref: Housing Area: Sheet One of Two
Data description: Northern section of the combined

Date: 18th February 2009
User details: Listers Geotechnical Consultants Limi

Dataset:	Lead (log mg/kg) ▼
Sample mean, \bar{x} (log mg/kg)	1.3027
Sample standard deviation, s	0.2669
Sample size, n	10
Critical concentration, C_c (log mg/kg)	2.6532



Outliers & non-detects	
Outliers present?	NO
Significance level	5% ▼
Outliers removed?	0
Non-detects	0



Normality test

Significance level: 5% ▼

Normal distribution

Use: Auto: One-sample t-test ▼

Test scenario: Planning: is true mean lower than critical concentration ($\mu < C_c$)? ▼

Null hypothesis: The true mean concentration is equal to or greater than the critical concentration: $\mu \geq C_c$

Alternative hypothesis: The true mean concentration is less than the critical concentration: $\mu < C_c$

Evidence against Null hypothesis:	100%
Base decision on:	evidence level ▼
Evidence level required:	95%
Balance of probability?	N/A
Reject Null Hypothesis?	Yes
$\mu < C_c$ (re this dataset)	

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Test Results

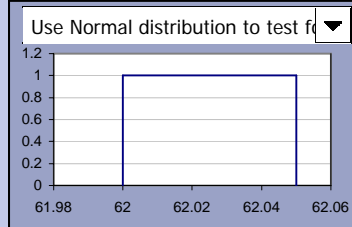
Client/client ref:
Project ref: 08.12.017

Site ref: Housing Area: Sheet One of Two
Data description: Northern section of the combined

Date: 18th February 2009
User details: Listers Geotechnical Consultants Limi

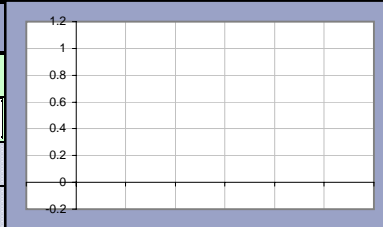
Dataset: Outlier TP20: Arsenic (mg/kg) ▼

Sample mean, \bar{x} (mg/kg)	62
Sample standard deviation, s	0
Sample size, n	1
Critical concentration, C_c (mg/kg)	20



Outliers & non-detects

Outliers present?	NO
Significance level	5% ▼
Outliers removed?	0
Non-detects	0



Normality test

Significance level: 5% ▼

Single value distribution

Use: Auto: Chebychev ▼

Test scenario: Planning: is true mean lower than critical concentration ($\mu < C_c$)? ▼

Null hypothesis: The true mean concentration is equal to or greater than the critical concentration: $\mu \geq C_c$

Alternative hypothesis: The true mean concentration is less than the critical concentration: $\mu < C_c$

Evidence against Null hypothesis:	0%
Base decision on:	evidence level ▼
Evidence level required:	95%
Balance of probability?	N/A
Reject Null Hypothesis?	No
$\mu \geq C_c$	

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Test Results

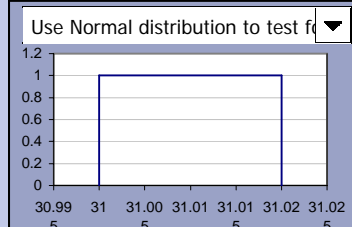
Client/client ref:
Project ref: 08.12.017

Site ref: Housing Area: Sheet One of Two
Data description: Northern section of the combined

Date: 18th February 2009
User details: Listers Geotechnical Consultants Limi

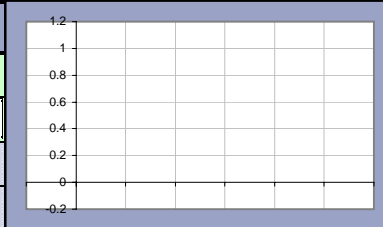
Dataset: Outlier TP18: Arsenic (mg/kg) ▼

Sample mean, \bar{x} (mg/kg)	31
Sample standard deviation, s	0
Sample size, n	1
Critical concentration, C_c (mg/kg)	20



Outliers & non-detects

Outliers present?	NO
Significance level	5% ▼
Outliers removed?	0
Non-detects	0



Normality test

Significance level: 5% ▼

Single value distribution

Use: Auto: Chebychev ▼

Test scenario: Planning: is true mean lower than critical concentration ($\mu < C_c$)? ▼

Null hypothesis: The true mean concentration is equal to or greater than the critical concentration: $\mu \geq C_c$

Alternative hypothesis: The true mean concentration is less than the critical concentration: $\mu < C_c$

Evidence against Null hypothesis:	0%
Base decision on:	evidence level ▼
Evidence level required:	95%
Balance of probability?	N/A
Reject Null Hypothesis?	No
$\mu \geq C_c$	

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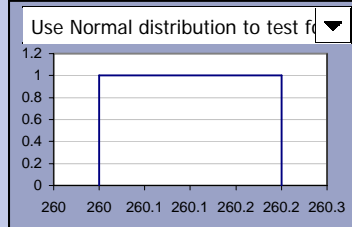
Test Results

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Project ref: 08.12.017

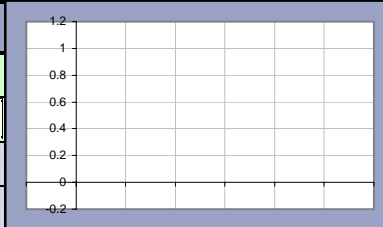
Site ref: Housing Area: Sheet One of Two
Data description: Northern section of the combined

Date: 18th February 2009
User details: Listers Geotechnical Consultants Limi

Dataset:	Outlier TP5: Chromium
Sample mean, \bar{x}	260
Sample standard deviation, s	0
Sample size, n	1
Critical concentration, Cc	130



Outliers & non-detects	
Outliers present?	NO
Significance level	5%
Outliers removed?	0
Non-detects	0



Normality test

Significance level: 5%

Single value distribution

Use: Auto: Chebychev

Test scenario: Planning: is true mean lower than critical concentration ($\mu < C_c$)?

Null hypothesis: The true mean concentration is equal to or greater than the critical concentration: $\mu \geq C_c$

Alternative hypothesis: The true mean concentration is less than the critical concentration: $\mu < C_c$

Evidence against Null hypothesis:	0%
Base decision on:	evidence level
Evidence level required:	95%
Balance of probability?	N/A
Reject Null Hypothesis?	No
$\mu \geq C_c$	

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Test Results

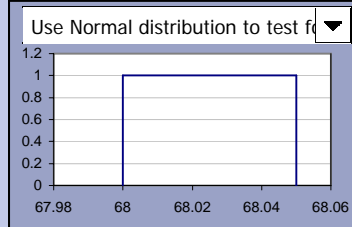
Client/client ref:
Project ref: 08.12.017

Site ref: Housing Area: Sheet One of Two
Data description: Northern section of the combined

Date: 18th February 2009
User details: Listers Geotechnical Consultants Limi

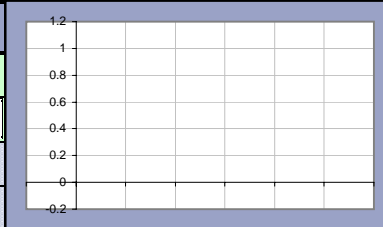
Dataset: Outlier TP20: Chromium (mg/ ▼)

Sample mean, \bar{x} (mg/kg)	68
Sample standard deviation, s	0
Sample size, n	1
Critical concentration, Cc (mg/kg)	130



Outliers & non-detects

Outliers present?	NO
Significance level	5% ▼
Outliers removed?	0
Non-detects	0



Normality test

Significance level: 5% ▼

Single value distribution

Use: Auto: Chebychev ▼

Test scenario: Planning: is true mean lower than critical concentration ($\mu < C_c$)? ▼

Null hypothesis: The true mean concentration is equal to or greater than the critical concentration: $\mu \geq C_c$

Alternative hypothesis: The true mean concentration is less than the critical concentration: $\mu < C_c$

Evidence against Null hypothesis:	100%
Base decision on:	evidence level ▼
Evidence level required:	95%
Balance of probability?	N/A
Reject Null Hypothesis?	Yes
$\mu < C_c$ (re this dataset)	

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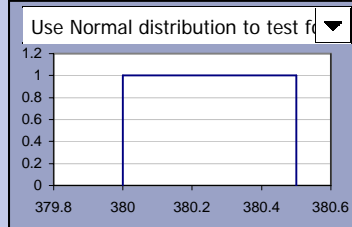
Test Results

Client/client ref:
Project ref: 08.12.017

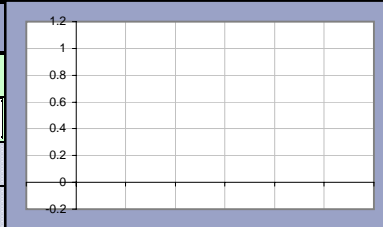
Site ref: Housing Area: Sheet One of Two
Data description: Northern section of the combined

Date: 18th February 2009
User details: Listers Geotechnical Consultants Limi

Dataset:	Outlier TP20: Nickel (mg/kg) ▼
Sample mean, \bar{x} (mg/kg)	380
Sample standard deviation, s	0
Sample size, n	1
Critical concentration, C_c (mg/kg)	50



Outliers & non-detects	
Outliers present?	NO
Significance level	5% ▼
Outliers removed?	0
Non-detects	0



Normality test

Significance level: 5% ▼

Single value distribution

Use: Auto: Chebychev ▼

Test scenario: Planning: is true mean lower than critical concentration ($\mu < C_c$)? ▼

Null hypothesis: The true mean concentration is equal to or greater than the critical concentration: $\mu \geq C_c$

Alternative hypothesis: The true mean concentration is less than the critical concentration: $\mu < C_c$

Evidence against Null hypothesis:	0%
Base decision on:	evidence level ▼
Evidence level required:	95%
Balance of probability?	N/A
Reject Null Hypothesis?	No
$\mu \geq C_c$	

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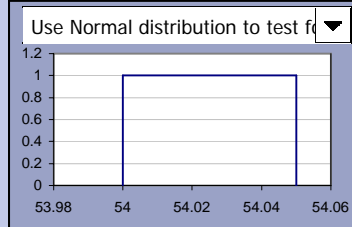
Test Results

Client/client ref:
Project ref: 08.12.017

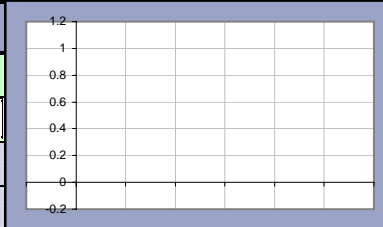
Site ref: Housing Area: Sheet One of Two
Data description: Northern section of the combined

Date: 18th February 2009
User details: Listers Geotechnical Consultants Limi

Dataset:	Outlier WS10: Nickel (mg/kg) ▼
Sample mean, \bar{x} (mg/kg)	54
Sample standard deviation, s	0
Sample size, n	1
Critical concentration, C_c (mg/kg)	50



Outliers & non-detects	
Outliers present?	NO
Significance level	5% ▼
Outliers removed?	0
Non-detects	0



Normality test

Significance level: 5% ▼

Single value distribution

Use: Auto: Chebychev ▼

Test scenario: Planning: is true mean lower than critical concentration ($\mu < C_c$)? ▼

Null hypothesis: The true mean concentration is equal to or greater than the critical concentration: $\mu \geq C_c$

Alternative hypothesis: The true mean concentration is less than the critical concentration: $\mu < C_c$

Evidence against Null hypothesis: 0%

Base decision on: evidence level ▼

Evidence level required: 95%

Balance of probability? N/A

Reject Null Hypothesis? No

$\mu \geq C_c$

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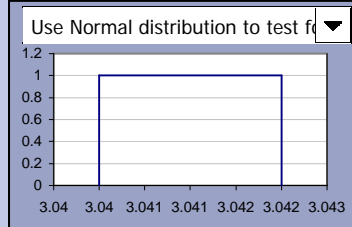
Test Results

Client/client ref:
Project ref: 08.12.017

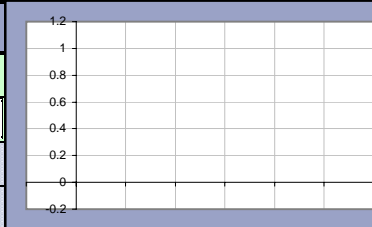
Site ref: Housing Area: Sheet One of Two
Data description: Northern section of the combined

Date: 18th February 2009
User details: Listers Geotechnical Consultants Limi

Dataset:	Outlier TP5: Lead (log mg/kg) ▼
Sample mean, \bar{x} (log mg/kg)	3.0414
Sample standard deviation, s	0
Sample size, n	1
Critical concentration, C_c (log mg/kg)	2.6532



Outliers & non-detects	
Outliers present?	NO
Significance level	5% ▼
Outliers removed?	0
Non-detects	0



Normality test

Significance level: 5% ▼

Single value distribution

Use: Auto: Chebychev ▼

Test scenario: Planning: is true mean lower than critical concentration ($\mu < C_c$)? ▼

Null hypothesis: The true mean concentration is equal to or greater than the critical concentration: $\mu \geq C_c$

Alternative hypothesis: The true mean concentration is less than the critical concentration: $\mu < C_c$

Evidence against Null hypothesis:	0%
Base decision on:	evidence level ▼
Evidence level required:	95%
Balance of probability?	N/A
Reject Null Hypothesis?	No
$\mu \geq C_c$	

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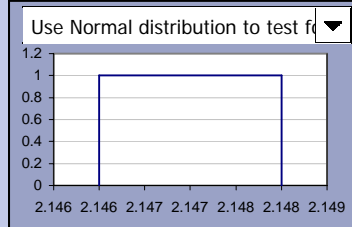
Test Results

Client/client ref:
Project ref: 08.12.017

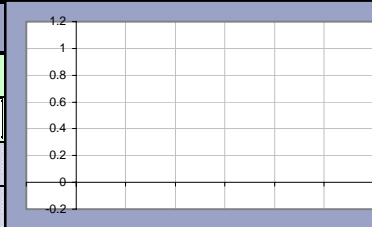
Site ref: Housing Area: Sheet One of Two
Data description: Northern section of the combined

Date: 18th February 2009
User details: Listers Geotechnical Consultants Limi

Dataset:	Outlier WS12: Lead (log mg/k ▼)
Sample mean, \bar{x} (log mg/kg)	2.1461
Sample standard deviation, s	0
Sample size, n	1
Critical concentration, C_c (log mg/kg)	2.6532



Outliers & non-detects	
Outliers present?	NO
Significance level	5% ▼
Outliers removed?	0
Non-detects	0



Normality test

Significance level: 5% ▼

Single value distribution

Use: Auto: Chebychev ▼

Test scenario: Planning: is true mean lower than critical concentration ($\mu < C_c$)? ▼

Null hypothesis: The true mean concentration is equal to or greater than the critical concentration: $\mu \geq C_c$

Alternative hypothesis: The true mean concentration is less than the critical concentration: $\mu < C_c$

Evidence against Null hypothesis:	100%
Base decision on:	evidence level ▼
Evidence level required:	95%
Balance of probability?	N/A
Reject Null Hypothesis?	Yes
$\mu < C_c$ (re this dataset)	

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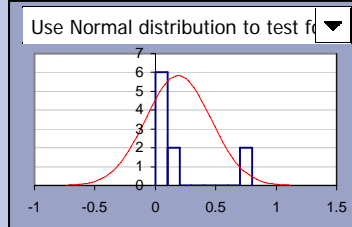
Test Results

Client/client ref:
Project ref: 08.12.017

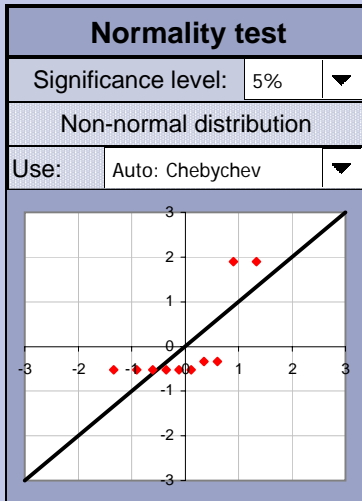
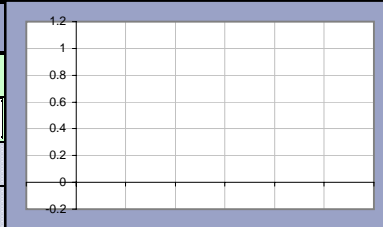
Site ref: Housing Area: Sheet Two of Two
Data description: Northern section of the combined

Date: 18th February 2009
User details: Listers Geotechnical Consultants Limi

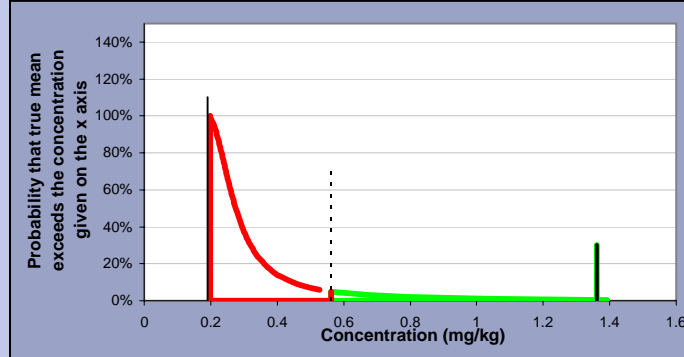
Dataset:	Benzo(a)pyrene (mg/kg) ▼
Sample mean, \bar{x} (mg/kg)	0.19
Sample standard deviation, s	0.2696
Sample size, n	10
Critical concentration, Cc (mg/kg)	1.3617



Outliers & non-detects	
Outliers present?	NO
Significance level	5% ▼
Outliers removed?	0
Non-detects	6



Test scenario:	Planning: is true mean lower than critical concentration ($\mu < C_c$)? ▼
Null hypothesis:	The true mean concentration is equal to or greater than the critical concentration: $\mu \geq C_c$
Alternative hypothesis:	The true mean concentration is less than the critical concentration: $\mu < C_c$



Evidence against Null hypothesis:	99%
Base decision on:	evidence level ▼
Evidence level required:	95%
Balance of probability?	N/A
Reject Null Hypothesis?	Yes
$\mu < C_c$ (re this dataset)	

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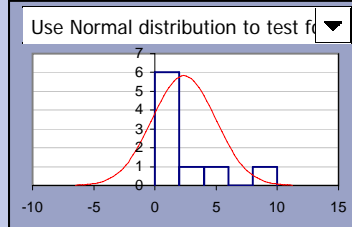
Test Results

Client/client ref:
Project ref: 08.12.017

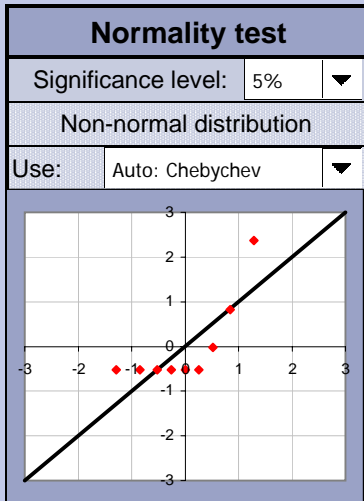
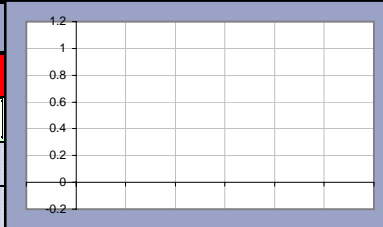
Site ref: Housing Area: Sheet Two of Two
Data description: Northern section of the combined

Date: 18th February 2009
User details: Listers Geotechnical Consultants Limi

Dataset:	Total PAH (mg/kg) ▼
Sample mean, \bar{x} (mg/kg)	2.3667
Sample standard deviation, s	2.5831
Sample size, n	9
Critical concentration, Cc (mg/kg)	25



Outliers & non-detects	
Outliers present?	YES
Significance level	5% ▼
Outliers removed?	0
Non-detects	6



Test scenario: Planning: is true mean lower than critical concentration ($\mu < C_c$)? ▼

Null hypothesis: The true mean concentration is equal to or greater than the critical concentration: $\mu \geq C_c$

Alternative hypothesis: The true mean concentration is less than the critical concentration: $\mu < C_c$

Evidence against Null hypothesis:	100%
Base decision on:	evidence level ▼
Evidence level required:	95%
Balance of probability?	N/A
Reject Null Hypothesis?	Yes
$\mu < C_c$ (re this dataset)	

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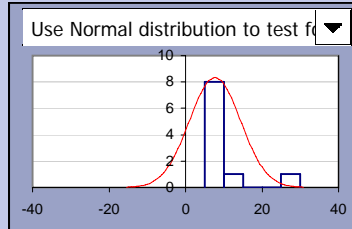
Client/client ref:
Project ref: 08.12.017

Site ref: Housing Area: Sheet Two of Two
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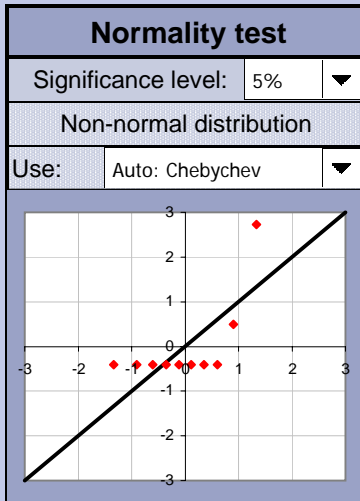
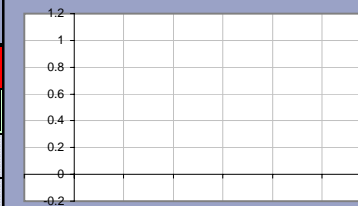
User details: Listers Geotechnical Consultants Limi

Dataset:	TPH (mg/kg) ▼
Sample mean, \bar{x} (mg/kg)	7.7
Sample standard deviation, s	6.7007
Sample size, n	10
Critical concentration, Cc (mg/kg)	175

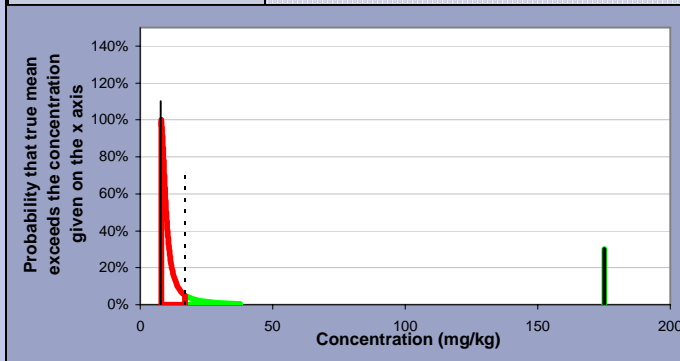


Outliers & non-detects

Outliers present?	YES
Significance level	5% ▼
Outliers removed?	0
Non-detects	8



Test scenario:	Planning: is true mean lower than critical concentration ($\mu < C_c$)? ▼
Null hypothesis:	The true mean concentration is equal to or greater than the critical concentration: $\mu \geq C_c$
Alternative hypothesis:	The true mean concentration is less than the critical concentration: $\mu < C_c$



Evidence against Null hypothesis:	100%
Base decision on:	evidence level ▼
Evidence level required:	95%
Balance of probability?	N/A
Reject Null Hypothesis?	Yes
$\mu < C_c$ (re this dataset)	

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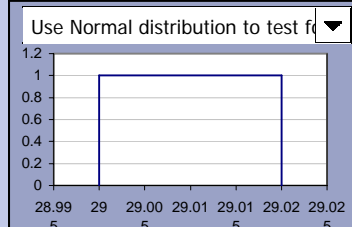
Test Results

Client/client ref:
Project ref: 08.12.017

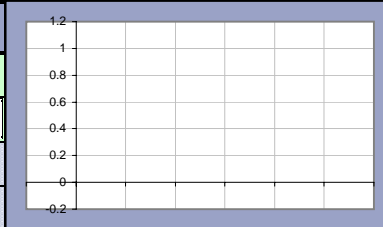
Site ref: Housing Area: Sheet Two of Two
Data description: Northern section of the combined

Date: 18th February 2009
User details: Listers Geotechnical Consultants Limi

Dataset: Outlier TP18: Benzo[a]pyrene (mg/kg)	
Sample mean, \bar{x} (mg/kg)	29
Sample standard deviation, s	0
Sample size, n	1
Critical concentration, C_c (mg/kg)	1.3617



Outliers & non-detects	
Outliers present?	NO
Significance level	5%
Outliers removed?	0
Non-detects	0



Normality test

Significance level: 5%

Single value distribution

Use: Auto: Chebychev

Test scenario: Planning: is true mean lower than critical concentration ($\mu < C_c$)?

Null hypothesis: The true mean concentration is equal to or greater than the critical concentration: $\mu \geq C_c$

Alternative hypothesis: The true mean concentration is less than the critical concentration: $\mu < C_c$

Evidence against Null hypothesis:	0%
Base decision on:	evidence level
Evidence level required:	95%
Balance of probability?	N/A
Reject Null Hypothesis?	No
$\mu \geq C_c$	

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Test Results

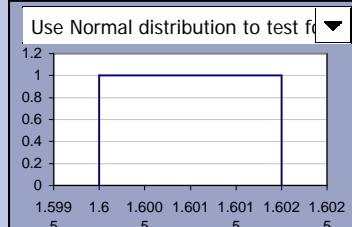
Client/client ref:
Project ref: 08.12.017

Site ref: Housing Area: Sheet Two of Two
Data description: Northern section of the combined

Date: 18th February 2009
User details: Listers Geotechnical Consultants Limi

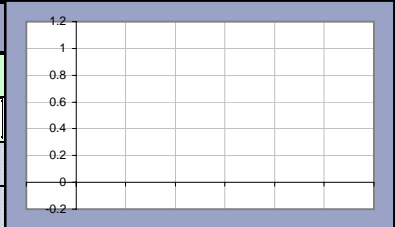
Dataset: Outlier WS12: Benzo[a]pyrene (mg/kg)

Sample mean, \bar{x} (mg/kg)	1.6
Sample standard deviation, s	0
Sample size, n	1
Critical concentration, Cc (mg/kg)	1.3617



Outliers & non-detects

Outliers present?	NO
Significance level	5%
Outliers removed?	0
Non-detects	0



Normality test

Significance level: 5%

Single value distribution

Use: Auto: Chebychev

Test scenario: Planning: is true mean lower than critical concentration ($\mu < C_c$)?

Null hypothesis: The true mean concentration is equal to or greater than the critical concentration: $\mu \geq C_c$

Alternative hypothesis: The true mean concentration is less than the critical concentration: $\mu < C_c$

Evidence against Null hypothesis:	0%
Base decision on:	evidence level
Evidence level required:	95%
Balance of probability?	N/A
Reject Null Hypothesis?	No
$\mu \geq C_c$	

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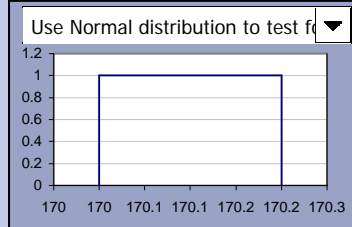
Client/client ref:
Project ref: 08.12.017

Site ref: Housing Area: Sheet Two of Two
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Date: 18th February 2009
User details: Listers Geotechnical Consultants Limi

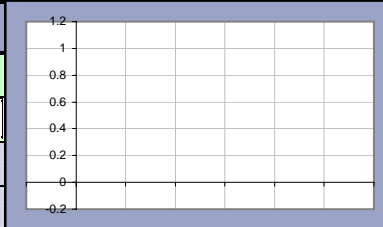
Dataset: Outlier TP5: Total PAH (mg/kg) ▼

Sample mean, \bar{x} (mg/kg)	170
Sample standard deviation, s	0
Sample size, n	1
Critical concentration, C_c (mg/kg)	25



Outliers & non-detects

Outliers present?	NO
Significance level	5% ▼
Outliers removed?	0
Non-detects	0



Normality test

Significance level: 5% ▼

Single value distribution

Use: Auto: Chebychev ▼

Test scenario: Planning: is true mean lower than critical concentration ($\mu < C_c$)? ▼

Null hypothesis: The true mean concentration is equal to or greater than the critical concentration: $\mu \geq C_c$

Alternative hypothesis: The true mean concentration is less than the critical concentration: $\mu < C_c$

Evidence against Null hypothesis:	0%
Base decision on:	evidence level ▼
Evidence level required:	95%
Balance of probability?	N/A
Reject Null Hypothesis?	No
$\mu \geq C_c$	

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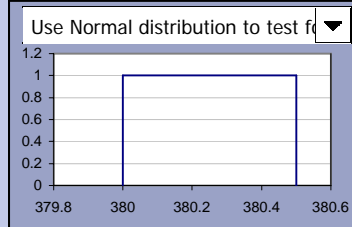
Client/client ref:
Project ref: 08.12.017

Site ref: Housing Area: Sheet Two of Two
Data description: Northern section of the combined

Date: 18th February 2009
User details: Listers Geotechnical Consultants Limi

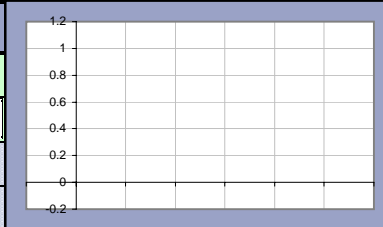
Dataset: Outlier TP18: Total PAH (mg/l) ▼

Sample mean, \bar{x} (mg/kg)	380
Sample standard deviation, s	0
Sample size, n	1
Critical concentration, Cc (mg/kg)	25



Outliers & non-detects

Outliers present?	NO
Significance level	5% ▼
Outliers removed?	0
Non-detects	0



Normality test

Significance level: 5% ▼

Single value distribution

Use: Auto: Chebychev ▼

Test scenario: Planning: is true mean lower than critical concentration ($\mu < C_c$)? ▼

Null hypothesis: The true mean concentration is equal to or greater than the critical concentration: $\mu \geq C_c$

Alternative hypothesis: The true mean concentration is less than the critical concentration: $\mu < C_c$

Evidence against Null hypothesis:	0%
Base decision on:	evidence level ▼
Evidence level required:	95%
Balance of probability?	N/A
Reject Null Hypothesis?	No
$\mu \geq C_c$	

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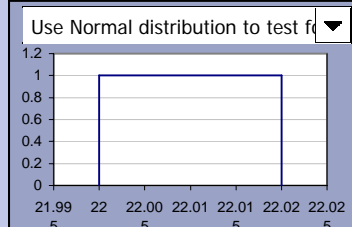
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Project ref: 08.12.017

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Data description: Northern section of the combined

Date: 18th February 2009
User details: Listers Geotechnical Consultants Limi

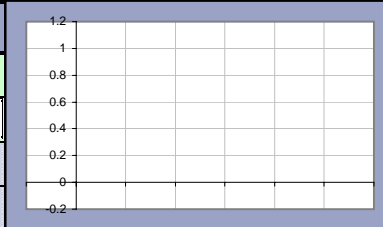
Dataset: Outlier TP20: Total PAH (mg/l) ▼

Sample mean, \bar{x} (mg/kg)	22
Sample standard deviation, s	0
Sample size, n	1
Critical concentration, Cc (mg/kg)	25



Outliers & non-detects

Outliers present?	NO
Significance level	5% ▼
Outliers removed?	0
Non-detects	0



Normality test

Significance level: 5% ▼

Single value distribution

Use: Auto: Chebychev ▼

Test scenario: Planning: is true mean lower than critical concentration ($\mu < C_c$)? ▼

Null hypothesis: The true mean concentration is equal to or greater than the critical concentration: $\mu \geq C_c$

Alternative hypothesis: The true mean concentration is less than the critical concentration: $\mu < C_c$

Evidence against Null hypothesis:	100%
Base decision on:	evidence level ▼
Evidence level required:	95%
Balance of probability?	N/A
Reject Null Hypothesis?	Yes
$\mu < C_c$ (re this dataset)	

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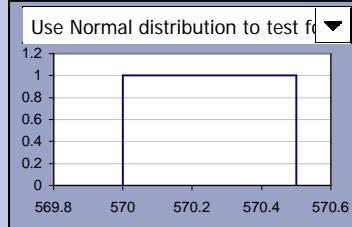
Test Results

Client/client ref:
Project ref: 08.12.017

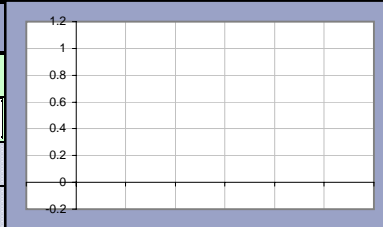
Site ref: Housing Area: Sheet Two of Two
Data description: Northern section of the combined

Date: 18th February 2009
User details: Listers Geotechnical Consultants Limi

Dataset:	Outlier TP18: TPH (mg/kg) ▼
Sample mean, \bar{x} (mg/kg)	570
Sample standard deviation, s	0
Sample size, n	1
Critical concentration, Cc (mg/kg)	175



Outliers & non-detects	
Outliers present?	NO
Significance level	5% ▼
Outliers removed?	0
Non-detects	0



Normality test

Significance level: 5% ▼

Single value distribution

Use: Auto: Chebychev ▼

Test scenario: Planning: is true mean lower than critical concentration ($\mu < C_c$)? ▼

Null hypothesis: The true mean concentration is equal to or greater than the critical concentration: $\mu \geq C_c$

Alternative hypothesis: The true mean concentration is less than the critical concentration: $\mu < C_c$

Evidence against Null hypothesis: 0%

Base decision on: evidence level ▼

Evidence level required: 95%

Balance of probability? N/A

Reject Null Hypothesis? No

$\mu \geq C_c$

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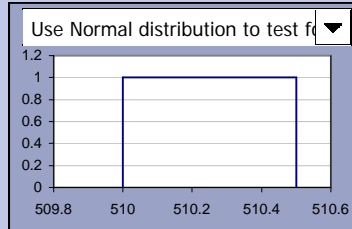
Test Results

Client/client ref:
Project ref: 08.12.017

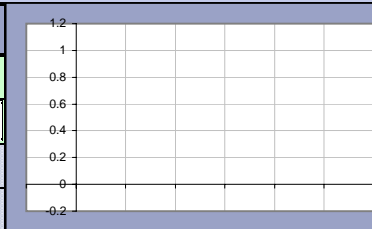
Site ref: Housing Area: Sheet Two of Two
Data description: Northern section of the combined

Date: 18th February 2009
User details: Listers Geotechnical Consultants Limi

Dataset:	Outlier TP5: TPH (mg/kg) ▼
Sample mean, \bar{x} (mg/kg)	510
Sample standard deviation, s	0
Sample size, n	1
Critical concentration, Cc (mg/kg)	175



Outliers & non-detects	
Outliers present?	NO
Significance level	5% ▼
Outliers removed?	0
Non-detects	0



Normality test

Significance level: 5% ▼

Single value distribution

Use: Auto: Chebychev ▼

Test scenario: Planning: is true mean lower than critical concentration ($\mu < C_c$)? ▼

Null hypothesis: The true mean concentration is equal to or greater than the critical concentration: $\mu \geq C_c$

Alternative hypothesis: The true mean concentration is less than the critical concentration: $\mu < C_c$

Evidence against Null hypothesis:	0%
Base decision on:	evidence level ▼
Evidence level required:	95%
Balance of probability?	N/A
Reject Null Hypothesis?	No
$\mu \geq C_c$	

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[Go to outlier test](#)

[Go to normality test](#)

APPENDIX 'G'
CLEA 1.03 GAC Worksheets: Housing Site

Report generated 18/02/09

Report title Housing Site

Created by Andrew Plant at Listers Geotechnical Consultants

BASIC SETTINGS

Land Use Residential with homegrown produce

Building Semi-detached house

Receptor Female (res)

Start age class 1

End age class 6

Exposure Duration 6 years

Soil Silty clay

Exposure Pathways

Direct soil and dust ingestion

Consumption of homegrown produce

Soil attached to homegrown produce

Dermal contact with indoor dust

Dermal contact with soil

Inhalation of indoor dust

Inhalation of soil dust

Inhalation of indoor vapour

Inhalation of outdoor vapour

Receptor Female (res)

Age Class	Body weight (kg)	Body height (m)	Inhalation rate (m ³ day ⁻¹)	Max exposed skin factor			Consumption rates (g FW kg ⁻¹ BW day ⁻¹)					
				Indoor (m ² m ⁻²)	Outdoor (m ² m ⁻²)	Total skin area (m ²)	Green vegetables	Root vegetables	Tuber vegetables	Herbaceous fruit	Shrub fruit	Tree fruit
1	5.60	0.7	8.5	0.32	0.26	3.43E-01	7.12	10.69	16.03	1.83	2.23	3.82
2	9.80	0.8	13.3	0.33	0.26	4.84E-01	6.85	3.30	5.46	3.96	0.54	11.96
3	12.70	0.9	12.7	0.32	0.25	5.82E-01	6.85	3.30	5.46	3.96	0.54	11.96
4	15.10	0.9	12.2	0.35	0.28	6.36E-01	6.85	3.30	5.46	3.96	0.54	11.96
5	16.90	1.0	12.2	0.35	0.28	7.04E-01	3.74	1.77	3.38	1.85	0.16	4.26
6	19.70	1.1	12.2	0.33	0.26	7.94E-01	3.74	1.77	3.38	1.85	0.16	4.26
7	22.10	1.2	12.4	0.22	0.15	8.73E-01	3.74	1.77	3.38	1.85	0.16	4.26
8	25.30	1.2	12.4	0.22	0.15	9.36E-01	3.74	1.77	3.38	1.85	0.16	4.26
9	27.50	1.3	12.4	0.22	0.15	1.01E+00	3.74	1.77	3.38	1.85	0.16	4.26
10	31.40	1.3	12.4	0.22	0.15	1.08E+00	3.74	1.77	3.38	1.85	0.16	4.26
11	35.70	1.4	12.4	0.22	0.14	1.19E+00	3.74	1.77	3.38	1.85	0.16	4.26
12	41.30	1.4	13.4	0.22	0.14	1.29E+00	3.74	1.77	3.38	1.85	0.16	4.26
13	47.20	1.5	13.4	0.22	0.14	1.42E+00	3.74	1.77	3.38	1.85	0.16	4.26
14	51.20	1.6	13.4	0.22	0.14	1.52E+00	3.74	1.77	3.38	1.85	0.16	4.26
15	56.70	1.6	13.4	0.21	0.14	1.60E+00	3.74	1.77	3.38	1.85	0.16	4.26
16	59.00	1.6	13.4	0.21	0.14	1.63E+00	3.74	1.77	3.38	1.85	0.16	4.26
17	70.00	1.6	14.8	0.33	0.27	1.78E+00	2.94	1.40	1.79	1.61	0.22	2.97
18	70.90	1.6	12.0	0.33	0.27	1.80E+00	2.94	1.40	1.79	1.61	0.22	2.97

Building Semi-detached house

Building footprint (m ²)	4.30E+01
Living space air exchange rate (hr ⁻¹)	5.00E-01
Living space height (above ground, m)	4.80E+00
Living space height (below ground, m)	0.00E+00
Pressure difference (soil to enclosed space, Pa)	3.10E+00
Foundation thickness (m)	1.50E-01
Floor crack area (cm ²)	5.25E+02
Dust loading factor (μg m ⁻³)	6.00E+01

Soil Silty clay

Porosity, Total (cm ³ cm ⁻³)	6.30E-01
Porosity, Air-Filled (cm ³ cm ⁻³)	1.20E-01
Porosity, Water-Filled (cm ³ cm ⁻³)	5.10E-01
Residual soil water content (cm ³ cm ⁻³)	2.60E-01
Saturated hydraulic conductivity (cm s ⁻¹)	1.17E-03
van Genuchten shape parameter <i>m</i> (dimensionless)	3.16E-01
Bulk density (g cm ⁻³)	9.40E-01
Threshold value of wind speed at 10m (m s ⁻¹)	7.20E+00
Empirical function (<i>F_x</i>) for dust model (dimensionless)	1.22E+00
Ambient soil temperature (K)	2.83E+02
Soil pH	7.00E+00
Soil Organic Matter content (%)	1.00E+00
Fraction of organic carbon (g g ⁻¹)	5.80E-03
Effective total fluid saturation (unitless)	6.76E-01
Intrinsic soil permeability (cm ²)	1.56E-08
Relative soil air permeability (unitless)	4.59E-01
Effective air permeability (cm ²)	7.18E-09

Soil - Vapour Model

Depth to top of source (no building) (cm)	10
Depth to top of source (beneath building) (cm)	65
Default soil gas ingress rate?	Yes
Soil gas ingress rate (cm ³ s ⁻¹)	5.00E+01
Building ventilation rate (cm ³ s ⁻¹)	2.87E+04
Finite vapour source model?	No
Thickness of contaminated layer (cm)	200

Air Dispersion Model

Mean annual windspeed at 10m (m s ⁻¹)	5.00
Air dispersion factor at height of 0.8m *	2400.00
Air dispersion factor at height of 1.6m *	0.00
Fraction of site cover (m ² m ⁻²)	0.75

* Air dispersion factor in g m⁻² s⁻¹ per kg m⁻³

Soil - Plant Model

	Dry weight conversion factor	Homegrown fraction		Soil loading factor	Preparation correction factor
	g DW g ⁻¹ FW	Average	High		
		dimensionless		g g ⁻¹ DW	dimensionless
Green vegetables	0.096	0.05	0.33	1.00E-03	2.00E-01
Root vegetables	0.103	0.06	0.40	1.00E-03	1.00E+00
Tuber vegetables	0.210	0.02	0.13	1.00E-03	1.00E+00
Herbaceous fruit	0.058	0.06	0.40	1.00E-03	6.00E-01
Shrub fruit	0.166	0.09	0.60	1.00E-03	6.00E-01
Tree fruit	0.157	0.04	0.27	1.00E-03	6.00E-01

Gardener type Average

Report generated 18-Feb-09

Report title Housing Site

Created by Andrew Plant at Listers Geotechnical Consultants

RESULTS

	Average Daily Exposure (mg kg ⁻¹ bw day ⁻¹)							Distribution by Pathway (%)							
	Direct soil ingestion	Consumption of homegrown produce and attached soil	Dermal contact with soil and dust	Inhalation of dust	Inhalation of vapour	Background (oral)	Background (inhalation)	Direct soil ingestion	Consumption of homegrown produce	Dermal contact with soil and dust	Inhalation of dust	Inhalation of vapour (indoor)	Inhalation of vapour (outdoor)	Background (oral)	Background (inhalation)
21															
22															
23															
24															
25															
26															
27															
28															
29															
30															

APPENDIX 'H'
Recorded Outliers: Housing Site

Human Health Risk Assessment: Housing Site

Summary of recorded outlier values together with the relevant SAC or 'old' SGV values for 'residential with plant uptake' end usage

Contaminant of concern	Arsenic	Chromium	Nickel	Lead	Benzo[a]pyrene	Total PAH	TPH
SAC/ 'old' SGV	20	130	50	450	1.36	25	175
Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
TP 5 at GL to 0.30m		260		1100		170	510
TP 18 at 0.10m	31				29	380	570
TP 20 at 0.10m	61	68	380		22	22	
WS 10 at 0.50m			54				
WS 12 at 0.50m				140	1.6		

In each case, the contaminant of most concern within each location has been highlighted in bold, and has been considered further in the Human Health Risk Assessment: Housing Site within the main report.

APPENDIX 'I'
CAT Waste Results

Notes - Additional Information on Risk Phrases

R1 to R6	Test for explosives except when the waste is covered by the Explosives Act 1875	Test to establish whether a substance or preparation presents a danger of explosion when submitted to the effect of a flame (thermal sensitivity), impact or friction. Undertake Test Method A14 from EC Directive 92/62/EEC
R7, R8 and R9	Test/calculation for oxides	Applicable to solid compounds that are not explosive, highly flammable, organic peroxides or combustible. A test for the compounds oxidising properties as described in Directive 92/69/EEC, Test Method A17. For organic peroxides calculate the available oxygen content (%). For liquids and oxidising materials not covered by those previously listed no testing available.
R10	R10 test flash point	Flashpoint test as per Directive 92/62/EEC, Test Method A9
R11	R11 test flash point	For liquid substances, undertake the flashpoint test as per Directive 92/62/EEC, Test Method A9. For solid substances undertake flammability test as per directive 92/62/EEC, Test Method A10
R12	R12 test flammability	Flammability of gasses test as per Directive 92/62/EEC Test Method A11.
R15	R15 test flammability	To test the flammability of a substance when in contact with water test as per Directive 92/62/EEC, Test Method A12.
R16	R16 test for explosives	Test to establish whether a substance or preparation present a danger of explosion when submitted to the effect of a flame (thermal sensitivity), impact or friction. Undertake Test Method A14 from EC Directive 92/62/EEC
R17	R17 pyrophoric test	To test the pyrophoric properties of solids and liquids test as per Directive 92/62/EEC, Test Method A13.
R18	R18 test for flammable explosive vapour air mixture	Test to establish whether a substance or preparation presents a danger of explosion when submitted to the effect of a flame (thermal sensitivity), impact or friction. Undertake Test Method A14 from EC Directive 92/62/EEC
R19	R19 test for flammable explosive peroxides	Test to establish whether a substance or preparation present a danger of explosion when submitted to the effect of a flame (thermal sensitivity), impact or friction. Undertake Test Method A14 from EC Directive 92/62/EEC
R29	R29 test or calculation	Undertake test as per Directive 92/62/EEC, Test Method A12.
R31	R31 test or calculation	Undertake testing as per Directive 92/62/EEC, Test Method A12 modified to replace water with an acid which will not cause a displacement reaction to occur. Method to measure SO ₂ evolved when a waste is in contact with an acid (see Environment Agency SWEN 068).
R32	R32 test or calculation	Undertake testing as per Directive 92/62/EEC, Test Method A12 modified to replace water with an acid which will not cause a displacement reaction to occur).
R42 and R43	No test available	No test available for sensitisation
R44	R44 test for explosives	Test to establish whether a substance or preparation present a danger of explosion when submitted to the effect of a flame (thermal sensitivity), impact or friction. Undertake Test Method A14 from EC Directive 92/62/EEC
R54 to R58	see comment	Classification of waste as ecotoxic (on the basis of terrestrial non-aquatic toxicity) is not applicable due to the lack of detailed information. Until more data becomes available R54 to R58 should not be considered when assessing the ecotoxic hazard of wastes and classifications should be based upon aquatic toxicity data. Where there is reason to believe that a waste contains substances that only have effects on the terrestrial environment, guidance on the appropriate test method should be obtained from the Environment Agency.

Notes:

Testing of compounds which would be classified under H14 should only be undertaken where the hazards cannot be adequately identified. (i.e. where the waste contains a substance/s for which there is no aquatic toxicity data and/or where the waste is an uncharacterised mixture and/or there is the potential that the waste may contain unknown substances or breakdown products.

Aquatic toxicity testing should be undertaken in accordance with the Environmental Health and Safety Publication, series on Testing and Assessment No. 23 ENV/JM/MONO(2000) 6 June 2000

LABORATORY TEST REPORT

Waste Acceptance Criteria Waste Parameters

Listers Geotechnical Consultants
Slapton Hill Barn, Blakesley Road
Slapton, Towcester
Northamptonshire
NN12 8QD
FAO Andrew Plant

Results of analysis of 4 samples
received 14 January 2009
08-12-017 - Maplefield School and Housing, Near To

Report Date
27 January 2009

Login Batch No

Chemtest LIMS ID

Sample ID

Sample No

Depth

Matrix

Determinand↓

SOP↓

*

CAS No↓

Units↓

Inert waste
landfill

Limit values
Stable
non-reactive
hazardous
waste in
non-hazardous
landfill

Hazardous
waste landfill

49001

AD75182

TP5

0

SOIL

Determinand↓	SOP↓	*	CAS No↓	Units↓	Inert waste landfill	Limit values Stable non-reactive hazardous waste in non-hazardous landfill	Hazardous waste landfill	49001 AD75182 TP5 0 SOIL
Total Organic Carbon	2625	M		%	3	5	6	0.58
Loss on ignition	2610	N		%			10	4.45
Benzene	2760	M	71432	µg kg ⁻¹				<1
Toluene	2760	M	108883	µg kg ⁻¹				<1
Ethyl benzene	2760	M	100414	µg kg ⁻¹				<1
m- & p-Xylene	2760	M	1330207	µg kg ⁻¹				<1
o-Xylene	2760	M	95476	µg kg ⁻¹				<1
Total BTEX	2761	M		mg kg ⁻¹	6			<0.005
PCB 28	2810	N	7012375	mg kg ⁻¹				<0.1
PCB 52	2810	N	35693993	mg kg ⁻¹				<0.1
PCB 101	2810	N	37680732	mg kg ⁻¹				<0.1
PCB 118	2810	N	31508006	mg kg ⁻¹				<0.1
PCB 138	2810	N	35065282	mg kg ⁻¹				<0.1
PCB 153	2810	N	35065271	mg kg ⁻¹				<0.1
PCB 180	2810	N	35065293	mg kg ⁻¹				<0.1
Total PCBs (7 congeners)	2811	N		mg kg ⁻¹	1			<1
Naphthalene	2700	M	91203	mg kg ⁻¹				<0.1
Acenaphthylene	2700	M	208968	mg kg ⁻¹				0.2
Acenaphthene	2700	M	83329	mg kg ⁻¹				0.1
Fluorene	2700	M	86737	mg kg ⁻¹				0.1
Phenanthrene	2700	M	85018	mg kg ⁻¹				0.9
Anthracene	2700	M	120127	mg kg ⁻¹				0.2
Fluoranthene	2700	M	206440	mg kg ⁻¹				1.7
Pyrene	2700	M	129000	mg kg ⁻¹				1.2
Benzo[a]anthracene	2700	M	56553	mg kg ⁻¹				0.6
Chrysene	2700	M	218019	mg kg ⁻¹				0.6
Benzo[b]fluoranthene	2700	M	205992	mg kg ⁻¹				0.8
Benzo[k]fluoranthene	2700	M	207089	mg kg ⁻¹				0.6
Benzo[a]pyrene	2700	M	50328	mg kg ⁻¹				0.3
Dibenzo[a,h]anthracene	2700	M	53703	mg kg ⁻¹				0.4
Indeno[1,2,3-cd]pyrene	2700	M	193395	mg kg ⁻¹				<0.1
Benzo[g,h,i]perylene	2700	M	191242	mg kg ⁻¹				0.4
Coronene	2700	N	191071	mg kg ⁻¹				<0.1
Total (of 17) PAHs	2700	N		mg kg ⁻¹	100			8.2
pH	2010	M		-		>6		8.2
Acid Neutralisation Capacity	1015	N	ANC	mol kg ⁻¹		To evaluate	To evaluate	0.020
TPH Total WAC	2670	N		mg kg ⁻¹	500			390

All tests undertaken between 16-Jan-2009 and 26-Jan-2009

Column page 1

* Accreditation status

Report page 1 of 2

Report sample ID range AD75182 to AD75189

LABORATORY TEST REPORT

Waste Acceptance Criteria Waste Parameters

Listers Geotechnical Consultants
 Slapton Hill Barn, Blakesley Road
 Slapton, Towcester
 Northamptonshire
 NN12 8QD
 FAO Andrew Plant

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Report Date
 27 January 2009

Login Batch No

Chemtest LIMS ID

Sample ID

Sample No

Depth

Matrix

Determinand↓

SOP↓

CAS No↓

Units↓

49001

AD75183

TP9

0.8

SOIL

Determinand↓	SOP↓		CAS No↓	Units↓				
Total Organic Carbon	2625	M		%	3	5	6	0.65
Loss on ignition	2610	N		%			10	3.35
Benzene	2760	M	71432	µg kg ⁻¹				<1
Toluene	2760	M	108883	µg kg ⁻¹				<1
Ethyl benzene	2760	M	100414	µg kg ⁻¹				<1
m- & p-Xylene	2760	M	1330207	µg kg ⁻¹				<1
o-Xylene	2760	M	95476	µg kg ⁻¹				<1
Total BTEX	2761	M		mg kg ⁻¹	6			<0.005
PCB 28	2810	N	7012375	mg kg ⁻¹				<0.1
PCB 52	2810	N	35693993	mg kg ⁻¹				<0.1
PCB 101	2810	N	37680732	mg kg ⁻¹				<0.1
PCB 118	2810	N	31508006	mg kg ⁻¹				<0.1
PCB 138	2810	N	35065282	mg kg ⁻¹				<0.1
PCB 153	2810	N	35065271	mg kg ⁻¹				<0.1
PCB 180	2810	N	35065293	mg kg ⁻¹				<0.1
Total PCBs (7 congeners)	2811	N		mg kg ⁻¹	1			<1
Naphthalene	2700	M	91203	mg kg ⁻¹				<0.1
Acenaphthylene	2700	M	208968	mg kg ⁻¹				0.2
Acenaphthene	2700	M	83329	mg kg ⁻¹				0.4
Fluorene	2700	M	86737	mg kg ⁻¹				0.4
Phenanthrene	2700	M	85018	mg kg ⁻¹				2.8
Anthracene	2700	M	120127	mg kg ⁻¹				0.9
Fluoranthene	2700	M	206440	mg kg ⁻¹				4.2
Pyrene	2700	M	129000	mg kg ⁻¹				3.8
Benzo[a]anthracene	2700	M	56553	mg kg ⁻¹				1.7
Chrysene	2700	M	218019	mg kg ⁻¹				1.7
Benzo[b]fluoranthene	2700	M	205992	mg kg ⁻¹				2.6
Benzo[k]fluoranthene	2700	M	207089	mg kg ⁻¹				1.7
Benzo[a]pyrene	2700	M	50328	mg kg ⁻¹				1.4
Dibenzo[a,h]anthracene	2700	M	53703	mg kg ⁻¹				1.5
Indeno[1,2,3-cd]pyrene	2700	M	193395	mg kg ⁻¹				0.2
Benzo[g,h,i]perylene	2700	M	191242	mg kg ⁻¹				1.6
Coronene	2700	N	191071	mg kg ⁻¹				<0.1
Total (of 17) PAHs	2700	N		mg kg ⁻¹	100			25
pH	2010	M		-		>6		8.5
Acid Neutralisation Capacity	1015	N	ANC	mol kg ⁻¹		To evaluate	To evaluate	0.031
TPH Total WAC	2670	N		mg kg ⁻¹	500			< 10

All tests undertaken between 16-Jan-2009 and 26-Jan-2009

Column page 2

Report page 1 of 2

Report sample ID range AD75182 to AD75189

LABORATORY TEST REPORT

Waste Acceptance Criteria Waste Parameters

Listers Geotechnical Consultants
Slapton Hill Barn, Blakesley Road
Slapton, Towcester
Northamptonshire
NN12 8QD
FAO Andrew Plant

Results of analysis of 4 samples
received 14 January 2009
08-12-017 - Maplefield School and Housing, Near To

Report Date
27 January 2009

Login Batch No

Chemtest LIMS ID

Sample ID

Sample No

Depth

Matrix

Determinand↓

SOP↓

CAS No↓

Units↓

49001

AD75184

TP11

0.1

SOIL

Determinand↓	SOP↓		CAS No↓	Units↓				
Total Organic Carbon	2625	M		%	3	5	6	2.4
Loss on ignition	2610	N		%			10	8.04
Benzene	2760	M	71432	µg kg ⁻¹				<1
Toluene	2760	M	108883	µg kg ⁻¹				<1
Ethyl benzene	2760	M	100414	µg kg ⁻¹				<1
m- & p-Xylene	2760	M	1330207	µg kg ⁻¹				<1
o-Xylene	2760	M	95476	µg kg ⁻¹				<1
Total BTEX	2761	M		mg kg ⁻¹	6			<0.005
PCB 28	2810	N	7012375	mg kg ⁻¹				<0.1
PCB 52	2810	N	35693993	mg kg ⁻¹				<0.1
PCB 101	2810	N	37680732	mg kg ⁻¹				<0.1
PCB 118	2810	N	31508006	mg kg ⁻¹				<0.1
PCB 138	2810	N	35065282	mg kg ⁻¹				<0.1
PCB 153	2810	N	35065271	mg kg ⁻¹				<0.1
PCB 180	2810	N	35065293	mg kg ⁻¹				<0.1
Total PCBs (7 congeners)	2811	N		mg kg ⁻¹	1			<1
Naphthalene	2700	M	91203	mg kg ⁻¹				0.1
Acenaphthylene	2700	M	208968	mg kg ⁻¹				0.2
Acenaphthene	2700	M	83329	mg kg ⁻¹				<0.1
Fluorene	2700	M	86737	mg kg ⁻¹				<0.1
Phenanthrene	2700	M	85018	mg kg ⁻¹				<0.1
Anthracene	2700	M	120127	mg kg ⁻¹				<0.1
Fluoranthene	2700	M	206440	mg kg ⁻¹				0.6
Pyrene	2700	M	129000	mg kg ⁻¹				<0.1
Benzo[a]anthracene	2700	M	56553	mg kg ⁻¹				<0.1
Chrysene	2700	M	218019	mg kg ⁻¹				<0.1
Benzo[b]fluoranthene	2700	M	205992	mg kg ⁻¹				<0.1
Benzo[k]fluoranthene	2700	M	207089	mg kg ⁻¹				<0.1
Benzo[a]pyrene	2700	M	50328	mg kg ⁻¹				<0.1
Dibenzo[a,h]anthracene	2700	M	53703	mg kg ⁻¹				<0.1
Indeno[1,2,3-cd]pyrene	2700	M	193395	mg kg ⁻¹				<0.1
Benzo[g,h,i]perylene	2700	M	191242	mg kg ⁻¹				<0.1
Coronene	2700	N	191071	mg kg ⁻¹				<0.1
Total (of 17) PAHs	2700	N		mg kg ⁻¹	100			<2
pH	2010	M		-		>6		7.8
Acid Neutralisation Capacity	1015	N	ANC	mol kg ⁻¹		To evaluate	To evaluate	0.100
TPH Total WAC	2670	N		mg kg ⁻¹	500			< 10

All tests undertaken between 16-Jan-2009 and 26-Jan-2009

Column page 3

Report page 1 of 2

Report sample ID range AD75182 to AD75189

LABORATORY TEST REPORT

Waste Acceptance Criteria Waste Parameters

Listers Geotechnical Consultants
 Slapton Hill Barn, Blakesley Road
 Slapton, Towcester
 Northamptonshire
 NN12 8QD
 FAO Andrew Plant

**Results of analysis of 4 samples
 received 14 January 2009**
08-12-017 - Maplefield School and Housing, Near To

Report Date
 27 January 2009

Login Batch No

Chemtest LIMS ID

Sample ID

Sample No

Depth

Matrix

Determinand↓

SOP↓

CAS No↓

Units↓

49001

AD75185

TP15

0.8

SOIL

Determinand↓	SOP↓		CAS No↓	Units↓				
Total Organic Carbon	2625	M		%	3	5	6	1.8
Loss on ignition	2610	N		%			10	6.94
Benzene	2760	M	71432	µg kg ⁻¹				<1
Toluene	2760	M	108883	µg kg ⁻¹				<1
Ethyl benzene	2760	M	100414	µg kg ⁻¹				<1
m- & p-Xylene	2760	M	1330207	µg kg ⁻¹				<1
o-Xylene	2760	M	95476	µg kg ⁻¹				<1
Total BTEX	2761	M		mg kg ⁻¹	6			<0.005
PCB 28	2810	N	7012375	mg kg ⁻¹				<0.1
PCB 52	2810	N	35693993	mg kg ⁻¹				<0.1
PCB 101	2810	N	37680732	mg kg ⁻¹				<0.1
PCB 118	2810	N	31508006	mg kg ⁻¹				<0.1
PCB 138	2810	N	35065282	mg kg ⁻¹				<0.1
PCB 153	2810	N	35065271	mg kg ⁻¹				<0.1
PCB 180	2810	N	35065293	mg kg ⁻¹				<0.1
Total PCBs (7 congeners)	2811	N		mg kg ⁻¹	1			<1
Naphthalene	2700	M	91203	mg kg ⁻¹				<0.1
Acenaphthylene	2700	M	208968	mg kg ⁻¹				<0.1
Acenaphthene	2700	M	83329	mg kg ⁻¹				<0.1
Fluorene	2700	M	86737	mg kg ⁻¹				<0.1
Phenanthrene	2700	M	85018	mg kg ⁻¹				<0.1
Anthracene	2700	M	120127	mg kg ⁻¹				<0.1
Fluoranthene	2700	M	206440	mg kg ⁻¹				<0.1
Pyrene	2700	M	129000	mg kg ⁻¹				<0.1
Benzo[a]anthracene	2700	M	56553	mg kg ⁻¹				<0.1
Chrysene	2700	M	218019	mg kg ⁻¹				<0.1
Benzo[b]fluoranthene	2700	M	205992	mg kg ⁻¹				<0.1
Benzo[k]fluoranthene	2700	M	207089	mg kg ⁻¹				<0.1
Benzo[a]pyrene	2700	M	50328	mg kg ⁻¹				<0.1
Dibenzo[a,h]anthracene	2700	M	53703	mg kg ⁻¹				<0.1
Indeno[1,2,3-cd]pyrene	2700	M	193395	mg kg ⁻¹				<0.1
Benzo[g,h,i]perylene	2700	M	191242	mg kg ⁻¹				<0.1
Coronene	2700	N	191071	mg kg ⁻¹				<0.1
Total (of 17) PAHs	2700	N		mg kg ⁻¹	100			<2
pH	2010	M		-		>6		7.8
Acid Neutralisation Capacity	1015	N	ANC	mol kg ⁻¹		To evaluate	To evaluate	0.012
TPH Total WAC	2670	N		mg kg ⁻¹	500			< 10

All tests undertaken between 16-Jan-2009 and 26-Jan-2009

Column page 4

Report page 1 of 2

Report sample ID range AD75182 to AD75189

LABORATORY TEST REPORT

Waste Acceptance Criteria BS EN 12457 Part 3 2 Stage

Listers Geotechnical Consultants
Slapton Hill Barn, Blakesley Road
Slapton, Towcester
Northamptonshire
NN12 8QD
FAO Andrew Plant

Results of analysis of 4 samples
received 14 January 2009
08-12-017 - Maplefield School and Housing, Near To

Report Date
27 January 2009

Login Batch No

Chemtest LIMS ID

Sample ID

Sample No

Depth

Matrix

Determinand↓

SOP↓

*

CAS No↓

Units↓

Inert waste
landfill

Limit values

Stable
non-reactive
hazardous
waste in
non-hazardous
landfill

Hazardous
waste landfill

49001

AD75186

TP5

0

LEACHATE

Determinand↓	SOP↓	*	CAS No↓	Units↓	Inert waste landfill	Limit values Stable non-reactive hazardous waste in non-hazardous landfill	Hazardous waste landfill	49001 AD75186 TP5 0 LEACHATE
As (arsenic) L/S=2	1450	N	7440382	mg kg ⁻¹				<0.05
Ba (barium) L/S=2	1450	N	7440393	mg kg ⁻¹				<0.5
Cd (cadmium) L/S=2	1450	N	7440439	mg kg ⁻¹				<0.01
Cr (chromium) L/S=2	1450	N	7440473	mg kg ⁻¹				<0.05
Cu (copper) L/S=2	1450	N	7440508	mg kg ⁻¹				0.07
Hg (mercury) L/S=2	1450	N	7439976	mg kg ⁻¹				<0.005
Mo (molybdenum) L/S=2	1450	N	7439987	mg kg ⁻¹				<0.05
Ni (nickel) L/S=2	1450	N	7440020	mg kg ⁻¹				<0.05
Pb (lead) L/S=2	1450	N	7439921	mg kg ⁻¹				<0.05
Sb (antimony) L/S=2	1450	N	7440360	mg kg ⁻¹				<0.01
Se (selenium) L/S=2	1450	N	7782492	mg kg ⁻¹				<0.01
Zn (zinc) L/S=2	1450	N	7440666	mg kg ⁻¹				<0.5
Cl (chloride) L/S=2	1220	U	16887006	mg kg ⁻¹				74.1
F (fluoride) L/S=2	1220	U	16984488	mg kg ⁻¹				6.21
SO4 (sulfate) L/S=2	1220	U	14808798	mg kg ⁻¹				320
Total Dissolved Solids L/S=2	1610	N	TDS	mg kg ⁻¹				561
Phenol index L/S=2	1920	N	108952	mg kg ⁻¹				<0.5
Dissolved Organic Carbon L/S=2	1610	N	DOC	mg kg ⁻¹				64.1
As (arsenic) L/S=10	1450	N	7440382	mg kg ⁻¹	0.5	2	25	<0.05
Ba (barium) L/S=10	1450	N	7440393	mg kg ⁻¹	20	100	300	<0.5
Cd (cadmium) L/S=10	1450	N	7440439	mg kg ⁻¹	0.04	1	5	<0.01
Cr (chromium) L/S=10	1450	N	7440473	mg kg ⁻¹	0.5	10	70	0.05
Cu (copper) L/S=10	1450	N	7440508	mg kg ⁻¹	2	50	100	0.18
Hg (mercury) L/S=10	1450	N	7439976	mg kg ⁻¹	0.01	0.2	2	<0.005
Mo (molybdenum) L/S=10	1450	N	7439987	mg kg ⁻¹	0.5	10	30	<0.05
Ni (nickel) L/S=10	1450	N	7440020	mg kg ⁻¹	0.4	10	40	<0.05
Pb (lead) L/S=10	1450	N	7439921	mg kg ⁻¹	0.5	10	50	<0.05
Sb (antimony) L/S=10	1450	N	7440360	mg kg ⁻¹	0.06	0.7	5	<0.01
Se (selenium) L/S=10	1450	N	7782492	mg kg ⁻¹	0.1	0.5	7	0.01
Zn (zinc) L/S=10	1450	N	7440666	mg kg ⁻¹	4	50	200	<0.5
Cl (chloride) L/S=10	1220	U	16887006	mg kg ⁻¹	800	15000	25000	184
F (fluoride) L/S=10	1220	U	16984488	mg kg ⁻¹	10	150	500	16.6
SO4 (sulfate) L/S=10	1220	U	14808798	mg kg ⁻¹	1000	20000	50000	459
Total Dissolved Solids L/S=10	1610	N	TDS	mg kg ⁻¹	4000	60000	100000	1250
Phenol index L/S=10	1920	N	108952	mg kg ⁻¹	1			<0.5
Dissolved Organic Carbon L/S=10	1610	N	DOC	mg kg ⁻¹	500	800	1000	210

All tests undertaken between 16-Jan-2009 and 26-Jan-2009

Column page 1

* Accreditation status

Report page 2 of 2

Report sample ID range AD75182 to AD75189

LABORATORY TEST REPORT

Waste Acceptance Criteria BS EN 12457 Part 3 2 Stage

Listers Geotechnical Consultants
Slapton Hill Barn, Blakesley Road
Slapton, Towcester
Northamptonshire
NN12 8QD
FAO Andrew Plant

Results of analysis of 4 samples
received 14 January 2009

08-12-017 - Maplefield School and Housing, Near To

Report Date
27 January 2009

Login Batch No

Chemtest LIMS ID

Sample ID

Sample No

Depth

Matrix

Determinand↓

SOP↓

CAS No↓

Units↓

49001

AD75187

TP9

0.8

LEACHATE

Determinand↓	SOP↓		CAS No↓	Units↓				
As (arsenic) L/S=2	1450	N	7440382	mg kg ⁻¹				<0.05
Ba (barium) L/S=2	1450	N	7440393	mg kg ⁻¹				<0.5
Cd (cadmium) L/S=2	1450	N	7440439	mg kg ⁻¹				<0.01
Cr (chromium) L/S=2	1450	N	7440473	mg kg ⁻¹				<0.05
Cu (copper) L/S=2	1450	N	7440508	mg kg ⁻¹				0.05
Hg (mercury) L/S=2	1450	N	7439976	mg kg ⁻¹				<0.005
Mo (molybdenum) L/S=2	1450	N	7439987	mg kg ⁻¹				<0.05
Ni (nickel) L/S=2	1450	N	7440020	mg kg ⁻¹				<0.05
Pb (lead) L/S=2	1450	N	7439921	mg kg ⁻¹				<0.05
Sb (antimony) L/S=2	1450	N	7440360	mg kg ⁻¹				<0.01
Se (selenium) L/S=2	1450	N	7782492	mg kg ⁻¹				<0.01
Zn (zinc) L/S=2	1450	N	7440666	mg kg ⁻¹				<0.5
Cl (chloride) L/S=2	1220	U	16887006	mg kg ⁻¹				9.59
F (fluoride) L/S=2	1220	U	16984488	mg kg ⁻¹				1.04
SO4 (sulfate) L/S=2	1220	U	14808798	mg kg ⁻¹				24
Total Dissolved Solids L/S=2	1610	N	TDS	mg kg ⁻¹				340
Phenol index L/S=2	1920	N	108952	mg kg ⁻¹				<0.5
Dissolved Organic Carbon L/S=2	1610	N	DOC	mg kg ⁻¹				<50
As (arsenic) L/S=10	1450	N	7440382	mg kg ⁻¹	0.5	2	25	<0.05
Ba (barium) L/S=10	1450	N	7440393	mg kg ⁻¹	20	100	300	<0.5
Cd (cadmium) L/S=10	1450	N	7440439	mg kg ⁻¹	0.04	1	5	<0.01
Cr (chromium) L/S=10	1450	N	7440473	mg kg ⁻¹	0.5	10	70	<0.05
Cu (copper) L/S=10	1450	N	7440508	mg kg ⁻¹	2	50	100	0.05
Hg (mercury) L/S=10	1450	N	7439976	mg kg ⁻¹	0.01	0.2	2	<0.005
Mo (molybdenum) L/S=10	1450	N	7439987	mg kg ⁻¹	0.5	10	30	<0.05
Ni (nickel) L/S=10	1450	N	7440020	mg kg ⁻¹	0.4	10	40	<0.05
Pb (lead) L/S=10	1450	N	7439921	mg kg ⁻¹	0.5	10	50	<0.05
Sb (antimony) L/S=10	1450	N	7440360	mg kg ⁻¹	0.06	0.7	5	<0.01
Se (selenium) L/S=10	1450	N	7782492	mg kg ⁻¹	0.1	0.5	7	<0.01
Zn (zinc) L/S=10	1450	N	7440666	mg kg ⁻¹	4	50	200	<0.5
Cl (chloride) L/S=10	1220	U	16887006	mg kg ⁻¹	800	15000	25000	41.4
F (fluoride) L/S=10	1220	U	16984488	mg kg ⁻¹	10	150	500	6.33
SO4 (sulfate) L/S=10	1220	U	14808798	mg kg ⁻¹	1000	20000	50000	139
Total Dissolved Solids L/S=10	1610	N	TDS	mg kg ⁻¹	4000	60000	100000	878
Phenol index L/S=10	1920	N	108952	mg kg ⁻¹	1			<0.5
Dissolved Organic Carbon L/S=10	1610	N	DOC	mg kg ⁻¹	500	800	1000	153

LABORATORY TEST REPORT

Waste Acceptance Criteria BS EN 12457 Part 3 2 Stage

Listers Geotechnical Consultants
Slapton Hill Barn, Blakesley Road
Slapton, Towcester
Northamptonshire
NN12 8QD
FAO Andrew Plant

Results of analysis of 4 samples
received 14 January 2009

08-12-017 - Maplefield School and Housing, Near To

Report Date
27 January 2009

Login Batch No

Chemtest LIMS ID

Sample ID

Sample No

Depth

Matrix

Determinand↓

SOP↓

CAS No↓

Units↓

49001

AD75188

TP11

0.1

LEACHATE

Determinand↓	SOP↓		CAS No↓	Units↓				
As (arsenic) L/S=2	1450	N	7440382	mg kg ⁻¹				<0.05
Ba (barium) L/S=2	1450	N	7440393	mg kg ⁻¹				<0.5
Cd (cadmium) L/S=2	1450	N	7440439	mg kg ⁻¹				<0.01
Cr (chromium) L/S=2	1450	N	7440473	mg kg ⁻¹				<0.05
Cu (copper) L/S=2	1450	N	7440508	mg kg ⁻¹				0.13
Hg (mercury) L/S=2	1450	N	7439976	mg kg ⁻¹				<0.005
Mo (molybdenum) L/S=2	1450	N	7439987	mg kg ⁻¹				<0.05
Ni (nickel) L/S=2	1450	N	7440020	mg kg ⁻¹				<0.05
Pb (lead) L/S=2	1450	N	7439921	mg kg ⁻¹				<0.05
Sb (antimony) L/S=2	1450	N	7440360	mg kg ⁻¹				<0.01
Se (selenium) L/S=2	1450	N	7782492	mg kg ⁻¹				<0.01
Zn (zinc) L/S=2	1450	N	7440666	mg kg ⁻¹				<0.5
Cl (chloride) L/S=2	1220	U	16887006	mg kg ⁻¹				5.4
F (fluoride) L/S=2	1220	U	16984488	mg kg ⁻¹				1.38
SO4 (sulfate) L/S=2	1220	U	14808798	mg kg ⁻¹				14.2
Total Dissolved Solids L/S=2	1610	N	TDS	mg kg ⁻¹				360
Phenol index L/S=2	1920	N	108952	mg kg ⁻¹				<0.5
Dissolved Organic Carbon L/S=2	1610	N	DOC	mg kg ⁻¹				52
As (arsenic) L/S=10	1450	N	7440382	mg kg ⁻¹	0.5	2	25	<0.05
Ba (barium) L/S=10	1450	N	7440393	mg kg ⁻¹	20	100	300	<0.5
Cd (cadmium) L/S=10	1450	N	7440439	mg kg ⁻¹	0.04	1	5	<0.01
Cr (chromium) L/S=10	1450	N	7440473	mg kg ⁻¹	0.5	10	70	<0.05
Cu (copper) L/S=10	1450	N	7440508	mg kg ⁻¹	2	50	100	0.07
Hg (mercury) L/S=10	1450	N	7439976	mg kg ⁻¹	0.01	0.2	2	<0.005
Mo (molybdenum) L/S=10	1450	N	7439987	mg kg ⁻¹	0.5	10	30	<0.05
Ni (nickel) L/S=10	1450	N	7440020	mg kg ⁻¹	0.4	10	40	<0.05
Pb (lead) L/S=10	1450	N	7439921	mg kg ⁻¹	0.5	10	50	<0.05
Sb (antimony) L/S=10	1450	N	7440360	mg kg ⁻¹	0.06	0.7	5	<0.01
Se (selenium) L/S=10	1450	N	7782492	mg kg ⁻¹	0.1	0.5	7	<0.01
Zn (zinc) L/S=10	1450	N	7440666	mg kg ⁻¹	4	50	200	<0.5
Cl (chloride) L/S=10	1220	U	16887006	mg kg ⁻¹	800	15000	25000	41.2
F (fluoride) L/S=10	1220	U	16984488	mg kg ⁻¹	10	150	500	4.63
SO4 (sulfate) L/S=10	1220	U	14808798	mg kg ⁻¹	1000	20000	50000	174
Total Dissolved Solids L/S=10	1610	N	TDS	mg kg ⁻¹	4000	60000	100000	1070
Phenol index L/S=10	1920	N	108952	mg kg ⁻¹	1			<0.5
Dissolved Organic Carbon L/S=10	1610	N	DOC	mg kg ⁻¹	500	800	1000	203

LABORATORY TEST REPORT

Waste Acceptance Criteria BS EN 12457 Part 3 2 Stage

Listers Geotechnical Consultants
Slapton Hill Barn, Blakesley Road
Slapton, Towcester
Northamptonshire
NN12 8QD
FAO Andrew Plant

Results of analysis of 4 samples
received 14 January 2009

08-12-017 - Maplefield School and Housing, Near To

Report Date
27 January 2009

Login Batch No

Chemtest LIMS ID

Sample ID

Sample No

Depth

Matrix

Determinand↓

SOP↓

CAS No↓

Units↓

49001

AD75189

TP15

0.8

LEACHATE

As (arsenic) L/S=2	1450	N	7440382	mg kg ⁻¹				<0.05
Ba (barium) L/S=2	1450	N	7440393	mg kg ⁻¹				<0.5
Cd (cadmium) L/S=2	1450	N	7440439	mg kg ⁻¹				<0.01
Cr (chromium) L/S=2	1450	N	7440473	mg kg ⁻¹				<0.05
Cu (copper) L/S=2	1450	N	7440508	mg kg ⁻¹				0.15
Hg (mercury) L/S=2	1450	N	7439976	mg kg ⁻¹				<0.005
Mo (molybdenum) L/S=2	1450	N	7439987	mg kg ⁻¹				<0.05
Ni (nickel) L/S=2	1450	N	7440020	mg kg ⁻¹				<0.05
Pb (lead) L/S=2	1450	N	7439921	mg kg ⁻¹				<0.05
Sb (antimony) L/S=2	1450	N	7440360	mg kg ⁻¹				<0.01
Se (selenium) L/S=2	1450	N	7782492	mg kg ⁻¹				<0.01
Zn (zinc) L/S=2	1450	N	7440666	mg kg ⁻¹				<0.5
Cl (chloride) L/S=2	1220	U	16887006	mg kg ⁻¹				4.8
F (fluoride) L/S=2	1220	U	16984488	mg kg ⁻¹				<1
SO4 (sulfate) L/S=2	1220	U	14808798	mg kg ⁻¹				17.6
Total Dissolved Solids L/S=2	1610	N	TDS	mg kg ⁻¹				280
Phenol index L/S=2	1920	N	108952	mg kg ⁻¹				<0.5
Dissolved Organic Carbon L/S=2	1610	N	DOC	mg kg ⁻¹				56
As (arsenic) L/S=10	1450	N	7440382	mg kg ⁻¹	0.5	2	25	<0.05
Ba (barium) L/S=10	1450	N	7440393	mg kg ⁻¹	20	100	300	<0.5
Cd (cadmium) L/S=10	1450	N	7440439	mg kg ⁻¹	0.04	1	5	<0.01
Cr (chromium) L/S=10	1450	N	7440473	mg kg ⁻¹	0.5	10	70	<0.05
Cu (copper) L/S=10	1450	N	7440508	mg kg ⁻¹	2	50	100	0.05
Hg (mercury) L/S=10	1450	N	7439976	mg kg ⁻¹	0.01	0.2	2	<0.005
Mo (molybdenum) L/S=10	1450	N	7439987	mg kg ⁻¹	0.5	10	30	<0.05
Ni (nickel) L/S=10	1450	N	7440020	mg kg ⁻¹	0.4	10	40	<0.05
Pb (lead) L/S=10	1450	N	7439921	mg kg ⁻¹	0.5	10	50	<0.05
Sb (antimony) L/S=10	1450	N	7440360	mg kg ⁻¹	0.06	0.7	5	<0.01
Se (selenium) L/S=10	1450	N	7782492	mg kg ⁻¹	0.1	0.5	7	<0.01
Zn (zinc) L/S=10	1450	N	7440666	mg kg ⁻¹	4	50	200	<0.5
Cl (chloride) L/S=10	1220	U	16887006	mg kg ⁻¹	800	15000	25000	67.9
F (fluoride) L/S=10	1220	U	16984488	mg kg ⁻¹	10	150	500	12.6
SO4 (sulfate) L/S=10	1220	U	14808798	mg kg ⁻¹	1000	20000	50000	185
Total Dissolved Solids L/S=10	1610	N	TDS	mg kg ⁻¹	4000	60000	100000	608
Phenol index L/S=10	1920	N	108952	mg kg ⁻¹	1			<0.5
Dissolved Organic Carbon L/S=10	1610	N	DOC	mg kg ⁻¹	500	800	1000	261