



Final Report

Report No.: 19-07270-1

Initial Date of Issue: 15-Mar-2019

Client: Earth Science Partnership

Client Address: 33 Cardiff Road
Taffs Well
Cardiff
CF15 7RB

Contact(s): Mat Elcock

Project: 7061b Cosmeston Farm

Quotation No.: **Date Received:** 27-Feb-2019

Order No.: 7829 **Date Instructed:** 27-Feb-2019

No. of Samples: 17

Turnaround (Wkdays): 12 **Results Due:** 14-Mar-2019

Date Approved: 15-Mar-2019

Approved By:

[Redacted Signature]

Details: Martin Dyer, Laboratory Manager

Project: 7061b Cosmeston Farm

| Client: Earth Science Partnership | Chemtest Job No.: | | 19-07270 | 19-07270 | 19-07270 | 19-07270 | 19-07270 | 19-07270 | 19-07270 | 19-07270 | 19-07270 | 19-07270 | 19-07270 |
|-------------------------------------|----------------------|------|----------|----------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| Quotation No.: | Chemtest Sample ID.: | | 783788 | 783789 | 783790 | 783791 | 783792 | 783793 | 783794 | 783795 | 783796 | | |
| | Client Sample ID.: | | ETP1 | ETP3 | EBH12 | ETP10 | ETP11 | ETP12 | ETP13 | ETP15 | ETP15 | | |
| | Sample Type: | | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | | |
| | Top Depth (m): | | 0.10 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.10 | 0.10 | 0.20 | | |
| | Asbestos Lab: | | DURHAM | DURHAM | DURHAM | DURHAM | DURHAM | DURHAM | DURHAM | DURHAM | | | |
| Determinand | Accred. | SOP | Units | LOD | | | | | | | | | |
| ACM Type | U | 2192 | | N/A | - | - | - | - | - | - | - | - | - |
| Asbestos Identification | U | 2192 | % | 0.001 | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected |
| ACM Detection Stage | U | 2192 | | N/A | - | - | - | - | - | - | - | - | - |
| Moisture | N | 2030 | % | 0.020 | 29 | 24 | 23 | 23 | 20 | 24 | 21 | 27 | 21 |
| Soil Colour | N | 2040 | | N/A | Brown | Brown | Brown | Brown | Brown | Brown, | Brown | Brown, | |
| Other Material | N | 2040 | | N/A | Stones, | Stones | Stones | Stones | Stones, | NONE | NONE, | NONE, | |
| Soil Texture | N | 2040 | | N/A | Sand | Clay | Clay | Sand | Sand | Sand, | Sand | Clay, | |
| pH | M | 2010 | | N/A | [A] 7.5 | [A] 8.0 | [A] 8.0 | [A] 8.0 | [A] 9.0 | [A] 7.6 | [A] 7.4 | [A] 7.7 | [A] 8.5 |
| Boron (Hot Water Soluble) | M | 2120 | mg/kg | 0.40 | 1.1 | < 0.40 | < 0.40 | < 0.40 | 1.8 | 1.7 | 1.9 | 1.1 | |
| Sulphate (2:1 Water Soluble) as SO4 | M | 2120 | g/l | 0.010 | | | | | | | | | < 0.010 |
| Total Sulphur | M | 2175 | % | 0.010 | | | | | | | | | [A] 0.036 |
| Cyanide (Total) | M | 2300 | mg/kg | 0.50 | [A] < 0.50 | [A] < 0.50 | [A] < 0.50 | [A] < 0.50 | [A] < 0.50 | [A] < 0.50 | [A] < 0.50 | [A] < 0.50 | |
| Sulphate (Acid Soluble) | M | 2430 | % | 0.010 | | | | | | | | | [A] 0.054 |
| Arsenic | M | 2450 | mg/kg | 1.0 | 17 | 16 | 13 | 18 | 21 | 17 | 15 | 16 | |
| Barium | M | 2450 | mg/kg | 10 | 170 | 150 | 200 | 130 | 150 | 180 | 130 | 110 | |
| Beryllium | U | 2450 | mg/kg | 1.0 | 1.1 | 1.1 | < 1.0 | 1.0 | < 1.0 | 1.4 | 1.0 | 1.1 | |
| Cadmium | M | 2450 | mg/kg | 0.10 | 1.0 | 1.4 | 1.9 | 0.71 | 0.79 | 0.97 | 0.82 | 0.62 | |
| Chromium | M | 2450 | mg/kg | 1.0 | 30 | 29 | 26 | 30 | 29 | 36 | 29 | 34 | |
| Copper | M | 2450 | mg/kg | 0.50 | 53 | 52 | 50 | 48 | 40 | 49 | 44 | 44 | |
| Mercury | M | 2450 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | 0.11 | 0.27 | 0.22 | < 0.10 | 0.10 | |
| Nickel | M | 2450 | mg/kg | 0.50 | 45 | 76 | 69 | 43 | 41 | 45 | 42 | 40 | |
| Lead | M | 2450 | mg/kg | 0.50 | 58 | 38 | 46 | 47 | 43 | 54 | 54 | 47 | |
| Selenium | M | 2450 | mg/kg | 0.20 | 0.74 | 0.72 | 0.73 | 0.75 | 0.23 | 0.73 | 0.59 | 0.56 | |
| Vanadium | U | 2450 | mg/kg | 5.0 | 43 | 34 | 39 | 40 | 39 | 45 | 41 | 44 | |
| Zinc | M | 2450 | mg/kg | 0.50 | 130 | 100 | 130 | 97 | 79 | 140 | 110 | 100 | |
| Chromium (Hexavalent) | N | 2490 | mg/kg | 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | |
| Organic Matter | M | 2625 | % | 0.40 | [A] 9.3 | [A] 2.9 | [A] 5.3 | [A] 9.3 | [A] 9.5 | [A] 7.8 | [A] 5.7 | [A] 8.3 | |
| Aliphatic TPH >C5-C6 | N | 2680 | mg/kg | 1.0 | [A] < 1.0 | [A] < 1.0 | | [A] < 1.0 | | | [A] < 1.0 | | |
| Aliphatic TPH >C6-C8 | N | 2680 | mg/kg | 1.0 | [A] < 1.0 | [A] < 1.0 | | [A] < 1.0 | | | [A] < 1.0 | | |
| Aliphatic TPH >C8-C10 | M | 2680 | mg/kg | 1.0 | [A] < 1.0 | [A] < 1.0 | | [A] < 1.0 | | | [A] 2.8 | | |
| Aliphatic TPH >C10-C12 | M | 2680 | mg/kg | 1.0 | [A] < 1.0 | [A] < 1.0 | | [A] < 1.0 | | | [A] 50 | | |
| Aliphatic TPH >C12-C16 | M | 2680 | mg/kg | 1.0 | [A] < 1.0 | [A] < 1.0 | | [A] < 1.0 | | | [A] 270 | | |
| Aliphatic TPH >C16-C21 | M | 2680 | mg/kg | 1.0 | [A] < 1.0 | [A] < 1.0 | | [A] < 1.0 | | | [A] 260 | | |
| Aliphatic TPH >C21-C35 | M | 2680 | mg/kg | 1.0 | [A] < 1.0 | [A] < 1.0 | | [A] < 1.0 | | | [A] 430 | | |
| Aliphatic TPH >C35-C44 | N | 2680 | mg/kg | 1.0 | [A] < 1.0 | [A] < 1.0 | | [A] < 1.0 | | | [A] 7.6 | | |
| Total Aliphatic Hydrocarbons | N | 2680 | mg/kg | 5.0 | [A] < 5.0 | [A] < 5.0 | | [A] < 5.0 | | | [A] 1000 | | |
| Aromatic TPH >C5-C7 | N | 2680 | mg/kg | 1.0 | [A] < 1.0 | [A] < 1.0 | | [A] < 1.0 | | | [A] < 1.0 | | |
| Aromatic TPH >C7-C8 | N | 2680 | mg/kg | 1.0 | [A] < 1.0 | [A] < 1.0 | | [A] < 1.0 | | | [A] < 1.0 | | |
| Aromatic TPH >C8-C10 | M | 2680 | mg/kg | 1.0 | [A] < 1.0 | [A] < 1.0 | | [A] < 1.0 | | | [A] 28 | | |

Results - Soil

| Client: Earth Science Partnership | | Chemtest Job No.: | | | | | | | | | | |
|-----------------------------------|---------|----------------------|-------|--------|------------|------------|------------|------------|------------|------------|------------|------------|
| Quotation No.: | | Chemtest Sample ID.: | | | | | | | | | | |
| | | Client Sample ID.: | | ETP1 | ETP3 | EBH12 | ETP10 | ETP11 | ETP12 | ETP13 | ETP15 | ETP15 |
| | | Sample Type: | | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| | | Top Depth (m): | | 0.10 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.10 | 0.10 | 0.20 |
| | | Asbestos Lab: | | DURHAM | DURHAM | DURHAM | DURHAM | DURHAM | DURHAM | DURHAM | DURHAM | |
| Determinand | Accred. | SOP | Units | LOD | | | | | | | | |
| Aromatic TPH >C10-C12 | M | 2680 | mg/kg | 1.0 | [A] < 1.0 | [A] < 1.0 | | [A] < 1.0 | | | [A] 77 | |
| Aromatic TPH >C12-C16 | M | 2680 | mg/kg | 1.0 | [A] < 1.0 | [A] < 1.0 | | [A] < 1.0 | | | [A] 480 | |
| Aromatic TPH >C16-C21 | U | 2680 | mg/kg | 1.0 | [A] < 1.0 | [A] < 1.0 | | [A] < 1.0 | | | [A] 530 | |
| Aromatic TPH >C21-C35 | M | 2680 | mg/kg | 1.0 | [A] < 1.0 | [A] < 1.0 | | [A] < 1.0 | | | [A] 770 | |
| Aromatic TPH >C35-C44 | N | 2680 | mg/kg | 1.0 | [A] < 1.0 | [A] < 1.0 | | [A] < 1.0 | | | [A] 28 | |
| Total Aromatic Hydrocarbons | N | 2680 | mg/kg | 5.0 | [A] < 5.0 | [A] < 5.0 | | [A] < 5.0 | | | [A] 1900 | |
| Total Petroleum Hydrocarbons | N | 2680 | mg/kg | 10.0 | [A] < 10 | [A] < 10 | | [A] < 10 | | | [A] 2900 | |
| Naphthalene | M | 2700 | mg/kg | 0.10 | [A] 4.6 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 |
| Acenaphthylene | M | 2700 | mg/kg | 0.10 | [A] 1.6 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 |
| Acenaphthene | M | 2700 | mg/kg | 0.10 | [A] 3.1 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 |
| Fluorene | M | 2700 | mg/kg | 0.10 | [A] 1.9 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 |
| Phenanthrene | M | 2700 | mg/kg | 0.10 | [A] 2.5 | [A] < 0.10 | [A] < 0.10 | [A] 0.18 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 |
| Anthracene | M | 2700 | mg/kg | 0.10 | [A] 0.45 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 |
| Fluoranthene | M | 2700 | mg/kg | 0.10 | [A] 1.1 | [A] < 0.10 | [A] < 0.10 | [A] 0.16 | [A] 0.25 | [A] < 0.10 | [A] 0.33 | [A] 0.37 |
| Pyrene | M | 2700 | mg/kg | 0.10 | [A] 1.2 | [A] < 0.10 | [A] < 0.10 | [A] 0.45 | [A] 0.25 | [A] < 0.10 | [A] 0.34 | [A] 0.41 |
| Benzo[a]anthracene | M | 2700 | mg/kg | 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 |
| Chrysene | M | 2700 | mg/kg | 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 |
| Benzo[b]fluoranthene | M | 2700 | mg/kg | 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 |
| Benzo[k]fluoranthene | M | 2700 | mg/kg | 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 |
| Benzo[a]pyrene | M | 2700 | mg/kg | 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 |
| Indeno(1,2,3-c,d)Pyrene | M | 2700 | mg/kg | 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 |
| Dibenz(a,h)Anthracene | M | 2700 | mg/kg | 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 |
| Benzo[g,h,i]perylene | M | 2700 | mg/kg | 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 |
| Total Of 16 PAH's | M | 2700 | mg/kg | 2.0 | [A] 17 | [A] < 2.0 | [A] < 2.0 | [A] < 2.0 | [A] < 2.0 | [A] < 2.0 | [A] < 2.0 | [A] < 2.0 |
| Total Phenols | M | 2920 | mg/kg | 0.30 | < 0.30 | < 0.30 | < 0.30 | < 0.30 | < 0.30 | < 0.30 | < 0.30 | < 0.30 |

Project: 7061b Cosmeston Farm

| Client: Earth Science Partnership | Chemtest Job No.: | | 19-07270 | 19-07270 | 19-07270 | 19-07270 | 19-07270 | 19-07270 | 19-07270 | 19-07270 | 19-07270 |
|-------------------------------------|----------------------|------|----------|----------|----------------------|----------------------|----------------------|-----------|-----------|-----------|-----------|
| Quotation No.: | Chemtest Sample ID.: | | 783797 | 783798 | 783799 | 783802 | 783803 | 783805 | 783806 | 783807 | |
| | Client Sample ID.: | | ETP22 | ETP24 | ETP2 | ETP2 | ETP10 | ETP13 | ETP22 | ETP24 | |
| | Sample Type: | | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | |
| | Top Depth (m): | | 0.20 | 0.20 | 0.10 | 0.80 | 0.40 | 0.30 | 0.40 | 0.50 | |
| | Asbestos Lab: | | DURHAM | DURHAM | DURHAM | | | | | | |
| Determinand | Accred. | SOP | Units | LOD | | | | | | | |
| ACM Type | U | 2192 | | N/A | - | - | - | | | | |
| Asbestos Identification | U | 2192 | % | 0.001 | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected | | | | |
| ACM Detection Stage | U | 2192 | | N/A | - | - | - | | | | |
| Moisture | N | 2030 | % | 0.020 | 26 | 25 | 24 | 15 | 17 | 18 | 18 |
| Soil Colour | N | 2040 | | N/A | Brown, | Brown | Brown, | | | | |
| Other Material | N | 2040 | | N/A | NONE, | NONE | Stones, | | | | |
| Soil Texture | N | 2040 | | N/A | Clay, | Clay | Sand | | | | |
| pH | M | 2010 | | N/A | [A] 7.5 | [A] 7.5 | [A] 7.3 | [A] 8.7 | [A] 8.5 | [A] 8.3 | [A] 8.6 |
| Boron (Hot Water Soluble) | M | 2120 | mg/kg | 0.40 | 1.9 | 2.1 | 1.6 | | | | |
| Sulphate (2:1 Water Soluble) as SO4 | M | 2120 | g/l | 0.010 | | | | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| Total Sulphur | M | 2175 | % | 0.010 | | | | [A] 0.034 | [A] 0.52 | [A] 0.14 | [A] 0.031 |
| Cyanide (Total) | M | 2300 | mg/kg | 0.50 | [A] < 0.50 | [A] < 0.50 | [A] < 0.50 | | | | |
| Sulphate (Acid Soluble) | M | 2430 | % | 0.010 | | | | [A] 0.050 | [A] 0.074 | [A] 0.038 | [A] 0.026 |
| Arsenic | M | 2450 | mg/kg | 1.0 | 14 | 13 | 16 | | | | |
| Barium | M | 2450 | mg/kg | 10 | 140 | 130 | 140 | | | | |
| Beryllium | U | 2450 | mg/kg | 1.0 | 1.5 | 1.0 | 1.2 | | | | |
| Cadmium | M | 2450 | mg/kg | 0.10 | 1.1 | 0.80 | 0.99 | | | | |
| Chromium | M | 2450 | mg/kg | 1.0 | 37 | 33 | 32 | | | | |
| Copper | M | 2450 | mg/kg | 0.50 | 35 | 33 | 45 | | | | |
| Mercury | M | 2450 | mg/kg | 0.10 | 0.33 | 0.11 | < 0.10 | | | | |
| Nickel | M | 2450 | mg/kg | 0.50 | 31 | 34 | 43 | | | | |
| Lead | M | 2450 | mg/kg | 0.50 | 53 | 44 | 57 | | | | |
| Selenium | M | 2450 | mg/kg | 0.20 | 0.91 | 0.62 | 0.71 | | | | |
| Vanadium | U | 2450 | mg/kg | 5.0 | 45 | 44 | 44 | | | | |
| Zinc | M | 2450 | mg/kg | 0.50 | 130 | 120 | 120 | | | | |
| Chromium (Hexavalent) | N | 2490 | mg/kg | 0.50 | < 0.50 | < 0.50 | < 0.50 | | | | |
| Organic Matter | M | 2625 | % | 0.40 | [A] < 0.40 | [A] 8.3 | [A] 8.1 | | | | |
| Aliphatic TPH >C5-C6 | N | 2680 | mg/kg | 1.0 | | | | | | | |
| Aliphatic TPH >C6-C8 | N | 2680 | mg/kg | 1.0 | | | | | | | |
| Aliphatic TPH >C8-C10 | M | 2680 | mg/kg | 1.0 | | | | | | | |
| Aliphatic TPH >C10-C12 | M | 2680 | mg/kg | 1.0 | | | | | | | |
| Aliphatic TPH >C12-C16 | M | 2680 | mg/kg | 1.0 | | | | | | | |
| Aliphatic TPH >C16-C21 | M | 2680 | mg/kg | 1.0 | | | | | | | |
| Aliphatic TPH >C21-C35 | M | 2680 | mg/kg | 1.0 | | | | | | | |
| Aliphatic TPH >C35-C44 | N | 2680 | mg/kg | 1.0 | | | | | | | |
| Total Aliphatic Hydrocarbons | N | 2680 | mg/kg | 5.0 | | | | | | | |
| Aromatic TPH >C5-C7 | N | 2680 | mg/kg | 1.0 | | | | | | | |
| Aromatic TPH >C7-C8 | N | 2680 | mg/kg | 1.0 | | | | | | | |
| Aromatic TPH >C8-C10 | M | 2680 | mg/kg | 1.0 | | | | | | | |

Results - Soil

| Client: Earth Science Partnership | | Chemtest Job No.: | | 19-07270 | 19-07270 | 19-07270 | 19-07270 | 19-07270 | 19-07270 | 19-07270 | 19-07270 |
|-----------------------------------|---------|----------------------|-------|----------|------------|------------|------------|----------|----------|----------|----------|
| Quotation No.: | | Chemtest Sample ID.: | | 783797 | 783798 | 783799 | 783802 | 783803 | 783805 | 783806 | 783807 |
| | | Client Sample ID.: | | ETP22 | ETP24 | ETP2 | ETP2 | ETP10 | ETP13 | ETP22 | ETP24 |
| | | Sample Type: | | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| | | Top Depth (m): | | 0.20 | 0.20 | 0.10 | 0.80 | 0.40 | 0.30 | 0.40 | 0.50 |
| | | Asbestos Lab: | | DURHAM | DURHAM | DURHAM | | | | | |
| Determinand | Accred. | SOP | Units | LOD | | | | | | | |
| Aromatic TPH >C10-C12 | M | 2680 | mg/kg | 1.0 | | | | | | | |
| Aromatic TPH >C12-C16 | M | 2680 | mg/kg | 1.0 | | | | | | | |
| Aromatic TPH >C16-C21 | U | 2680 | mg/kg | 1.0 | | | | | | | |
| Aromatic TPH >C21-C35 | M | 2680 | mg/kg | 1.0 | | | | | | | |
| Aromatic TPH >C35-C44 | N | 2680 | mg/kg | 1.0 | | | | | | | |
| Total Aromatic Hydrocarbons | N | 2680 | mg/kg | 5.0 | | | | | | | |
| Total Petroleum Hydrocarbons | N | 2680 | mg/kg | 10.0 | | | | | | | |
| Naphthalene | M | 2700 | mg/kg | 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | | | | |
| Acenaphthylene | M | 2700 | mg/kg | 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | | | | |
| Acenaphthene | M | 2700 | mg/kg | 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | | | | |
| Fluorene | M | 2700 | mg/kg | 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | | | | |
| Phenanthrene | M | 2700 | mg/kg | 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | | | | |
| Anthracene | M | 2700 | mg/kg | 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | | | | |
| Fluoranthene | M | 2700 | mg/kg | 0.10 | [A] < 0.10 | [A] < 0.10 | [A] 0.36 | | | | |
| Pyrene | M | 2700 | mg/kg | 0.10 | [A] < 0.10 | [A] < 0.10 | [A] 0.34 | | | | |
| Benzo[a]anthracene | M | 2700 | mg/kg | 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | | | | |
| Chrysene | M | 2700 | mg/kg | 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | | | | |
| Benzo[b]fluoranthene | M | 2700 | mg/kg | 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | | | | |
| Benzo[k]fluoranthene | M | 2700 | mg/kg | 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | | | | |
| Benzo[a]pyrene | M | 2700 | mg/kg | 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | | | | |
| Indeno(1,2,3-c,d)Pyrene | M | 2700 | mg/kg | 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | | | | |
| Dibenz(a,h)Anthracene | M | 2700 | mg/kg | 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | | | | |
| Benzo[g,h,i]perylene | M | 2700 | mg/kg | 0.10 | [A] < 0.10 | [A] < 0.10 | [A] < 0.10 | | | | |
| Total Of 16 PAH's | M | 2700 | mg/kg | 2.0 | [A] < 2.0 | [A] < 2.0 | [A] < 2.0 | | | | |
| Total Phenols | M | 2920 | mg/kg | 0.30 | < 0.30 | < 0.30 | < 0.30 | | | | |

Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63. Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request. The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERTs accredited but the results may be compromised.

| Sample: | Sample Ref: | Sample ID: | Sample Location: | Sampled Date: | Deviation Code(s): | Containers Received: |
|---------|-------------|------------|------------------|---------------|--------------------|----------------------|
| 783788 | | ETP1 | | | A | Amber Glass 250ml |
| 783788 | | ETP1 | | | A | Plastic Tub 500g |
| 783789 | | ETP3 | | | A | Amber Glass 250ml |
| 783789 | | ETP3 | | | A | Plastic Tub 500g |
| 783790 | | EBH12 | | | A | Amber Glass 250ml |
| 783790 | | EBH12 | | | A | Plastic Tub 500g |
| 783791 | | ETP10 | | | A | Amber Glass 250ml |
| 783791 | | ETP10 | | | A | Plastic Tub 500g |
| 783792 | | ETP11 | | | A | Amber Glass 250ml |
| 783792 | | ETP11 | | | A | Plastic Tub 500g |
| 783793 | | ETP12 | | | A | Amber Glass 250ml |
| 783793 | | ETP12 | | | A | Plastic Tub 500g |
| 783794 | | ETP13 | | | A | Amber Glass 250ml |
| 783794 | | ETP13 | | | A | Plastic Tub 500g |
| 783795 | | ETP15 | | | A | Amber Glass 250ml |
| 783795 | | ETP15 | | | A | Plastic Tub 500g |
| 783796 | | ETP15 | | | A | Amber Glass 250ml |
| 783796 | | ETP15 | | | A | Plastic Tub 500g |
| 783797 | | ETP22 | | | A | Amber Glass 250ml |
| 783797 | | ETP22 | | | A | Plastic Bag |
| 783798 | | ETP24 | | | A | Amber Glass 250ml |
| 783798 | | ETP24 | | | A | Plastic Bag |
| 783799 | | ETP2 | | | A | Amber Glass 250ml |

Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63. Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request. The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERTs accredited but the results may be compromised.

| Sample: | Sample Ref: | Sample ID: | Sample Location: | Sampled Date: | Deviation Code(s): | Containers Received: |
|---------|-------------|------------|------------------|---------------|--------------------|----------------------|
| 783799 | | ETP2 | | | A | Plastic Tub 500g |
| 783802 | | ETP2 | | | A | Plastic Tub 500g |
| 783803 | | ETP10 | | | A | Amber Glass 250ml |
| 783803 | | ETP10 | | | A | Plastic Bag |
| 783805 | | ETP13 | | | A | Amber Glass 250ml |
| 783805 | | ETP13 | | | A | Plastic Tub 500g |
| 783806 | | ETP22 | | | A | Amber Glass 250ml |
| 783806 | | ETP22 | | | A | Plastic Bag |
| 783807 | | ETP24 | | | A | Amber Glass 250ml |
| 783807 | | ETP24 | | | A | Plastic Bag |

| SOP | Title | Parameters included | Method summary |
|------|---|--|--|
| 2010 | pH Value of Soils | pH | pH Meter |
| 2030 | Moisture and Stone Content of Soils(Requirement of MCERTS) | Moisture content | Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C. |
| 2040 | Soil Description(Requirement of MCERTS) | Soil description | As received soil is described based upon BS5930 |
| 2120 | Water Soluble Boron, Sulphate, Magnesium & Chromium | Boron; Sulphate; Magnesium; Chromium | Aqueous extraction / ICP-OES |
| 2175 | Total Sulphur in Soils | Total Sulphur | Determined by high temperature combustion under oxygen, using an Eltra elemental analyser. |
| 2192 | Asbestos | Asbestos | Polarised light microscopy / Gravimetry |
| 2300 | Cyanides & Thiocyanate in Soils | Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate | Alkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser. |
| 2430 | Total Sulphate in soils | Total Sulphate | Acid digestion followed by determination of sulphate in extract by ICP-OES. |
| 2450 | Acid Soluble Metals in Soils | Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc | Acid digestion followed by determination of metals in extract by ICP-MS. |
| 2490 | Hexavalent Chromium in Soils | Chromium [VI] | Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazine. |
| 2625 | Total Organic Carbon in Soils | Total organic Carbon (TOC) | Determined by high temperature combustion under oxygen, using an Eltra elemental analyser. |
| 2680 | TPH A/A Split | Aliphatics: >C5-C6, >C6-C8,>C8-C10, >C10-C12, >C12-C16, >C16-C21, >C21-C35, >C35- C44Aromatics: >C5-C7, >C7-C8, >C8- C10, >C10-C12, >C12-C16, >C16- C21, >C21- C35, >C35- C44 | Dichloromethane extraction / GCxGC FID detection |
| 2700 | Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID | Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene | Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds) |
| 2920 | Phenols in Soils by HPLC | Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded. | 60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection. |

Report Information

Key

- U UKAS accredited
- M MCERTS and UKAS accredited
- N Unaccredited
- S This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
- SN This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
- T This analysis has been subcontracted to an unaccredited laboratory
- I/S Insufficient Sample
- U/S Unsuitable Sample
- N/E not evaluated
- < "less than"
- > "greater than"

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt

All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:

customerservices@chemtest.com



Final Report

Report No.: 19-08822-1

Initial Date of Issue: 19-Mar-2019

Client: Earth Science Partnership

Client Address: 33 Cardiff Road
Taffs Well
Cardiff
CF15 7RB

Contact(s): Mat Elcock

Project: 7061b Cosmeston Farm

Quotation No.: **Date Received:** 08-Mar-2019

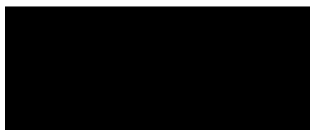
Order No.: 7829 **Date Instructed:** 08-Mar-2019

No. of Samples: 9

Turnaround (Wkdays): 7 **Results Due:** 18-Mar-2019

Date Approved: 19-Mar-2019

Approved By:



Details: Robert Monk, Technical Manager

Project: 7061b Cosmeston Farm

| Client: Earth Science Partnership | | Chemtest Job No.: | | 19-08822 | 19-08822 | 19-08822 | 19-08822 | 19-08822 | 19-08822 | 19-08822 | 19-08822 | 19-08822 | 19-08822 |
|-------------------------------------|---------|----------------------|-------|-------------|----------------------|----------------------|----------------------|----------------------|-------------|-------------|-------------|-------------|----------|
| Quotation No.: | | Chemtest Sample ID.: | | 791533 | 791534 | 791535 | 791536 | 791537 | 791538 | 791539 | 791540 | 791542 | |
| | | Client Sample ID.: | | ETP20 | ETP23 | ETP25 | ETP26 | ETP3 | ETP20 | ETP26 | ETP25 | EBH1 | |
| | | Sample Type: | | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | |
| | | Top Depth (m): | | 0.10 | 0.10 | 0.10 | 0.20 | 0.90 | 0.50 | 0.55 | 0.30 | 1.50 | |
| | | Date Sampled: | | 04-Mar-2019 | 04-Mar-2019 | 04-Mar-2019 | 04-Mar-2019 | 04-Mar-2019 | 04-Mar-2019 | 04-Mar-2019 | 04-Mar-2019 | 04-Mar-2019 | |
| | | Asbestos Lab: | | DURHAM | DURHAM | DURHAM | DURHAM | | | | | | |
| Determinand | Accred. | SOP | Units | LOD | | | | | | | | | |
| ACM Type | U | 2192 | | N/A | - | - | - | - | | | | | |
| Asbestos Identification | U | 2192 | % | 0.001 | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected | | | | | |
| ACM Detection Stage | U | 2192 | | N/A | - | - | - | - | | | | | |
| Moisture | N | 2030 | % | 0.020 | 25 | 19 | 22 | 18 | 14 | 19 | 13 | 19 | 19 |
| Soil Colour | N | 2040 | | N/A | Brown, | Brown, | Brown, | Brown, | | | | | |
| Other Material | N | 2040 | | N/A | Stones, Roots, | Stones, Roots, | Stones, Roots, | Stones, | | | | | |
| Soil Texture | N | 2040 | | N/A | Clay, | Clay, | Clay, | Clay, | | | | | |
| pH | M | 2010 | | N/A | 7.4 | 7.3 | 8.1 | 7.9 | 8.4 | 8.3 | 8.3 | 8.3 | 8.3 |
| Boron (Hot Water Soluble) | M | 2120 | mg/kg | 0.40 | 0.80 | 1.6 | 1.5 | 1.4 | | | | | |
| Sulphate (2:1 Water Soluble) as SO4 | M | 2120 | g/l | 0.010 | | | | | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| Total Sulphur | M | 2175 | % | 0.010 | | | | | 0.023 | 0.031 | 0.052 | 0.015 | 0.085 |
| Cyanide (Total) | M | 2300 | mg/kg | 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | | | | | |
| Sulphate (Acid Soluble) | M | 2430 | % | 0.010 | | | | | 0.069 | 0.041 | 0.069 | 0.046 | 0.026 |
| Arsenic | M | 2450 | mg/kg | 1.0 | 15 | 13 | 18 | 16 | | | | | |
| Barium | M | 2450 | mg/kg | 10 | 130 | 130 | 120 | 110 | | | | | |
| Beryllium | U | 2450 | mg/kg | 1.0 | 1.0 | 1.2 | 1.1 | 1.2 | | | | | |
| Cadmium | M | 2450 | mg/kg | 0.10 | 0.91 | 0.87 | 0.74 | 0.70 | | | | | |
| Chromium | M | 2450 | mg/kg | 1.0 | 28 | 33 | 33 | 32 | | | | | |
| Copper | M | 2450 | mg/kg | 0.50 | 36 | 49 | 39 | 46 | | | | | |
| Mercury | M | 2450 | mg/kg | 0.10 | 0.11 | 0.12 | 0.10 | < 0.10 | | | | | |
| Nickel | M | 2450 | mg/kg | 0.50 | 32 | 40 | 36 | 38 | | | | | |
| Lead | M | 2450 | mg/kg | 0.50 | 50 | 40 | 44 | 37 | | | | | |
| Selenium | M | 2450 | mg/kg | 0.20 | 0.72 | 0.80 | 0.68 | 0.66 | | | | | |
| Vanadium | U | 2450 | mg/kg | 5.0 | 34 | 39 | 41 | 40 | | | | | |
| Zinc | M | 2450 | mg/kg | 0.50 | 110 | 110 | 97 | 110 | | | | | |
| Chromium (Hexavalent) | N | 2490 | mg/kg | 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | | | | | |
| Organic Matter | M | 2625 | % | 0.40 | 7.2 | 9.1 | 8.8 | 9.1 | | | | | |
| Aliphatic TPH >C5-C6 | N | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | | | | | | |
| Aliphatic TPH >C6-C8 | N | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | | | | | | |
| Aliphatic TPH >C8-C10 | M | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | | | | | | |
| Aliphatic TPH >C10-C12 | M | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | | | | | | |
| Aliphatic TPH >C12-C16 | M | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | | | | | | |
| Aliphatic TPH >C16-C21 | M | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | | | | | | |
| Aliphatic TPH >C21-C35 | M | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | | | | | | |
| Aliphatic TPH >C35-C44 | N | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | | | | | | |
| Total Aliphatic Hydrocarbons | N | 2680 | mg/kg | 5.0 | < 5.0 | < 5.0 | < 5.0 | | | | | | |
| Aromatic TPH >C5-C7 | N | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | | | | | | |

Results - Soil

| Client: Earth Science Partnership | | Chemtest Job No.: | | 19-08822 | 19-08822 | 19-08822 | 19-08822 | 19-08822 | 19-08822 | 19-08822 | 19-08822 | 19-08822 |
|-----------------------------------|---------|----------------------|-------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Quotation No.: | | Chemtest Sample ID.: | | 791533 | 791534 | 791535 | 791536 | 791537 | 791538 | 791539 | 791540 | 791542 |
| | | Client Sample ID.: | | ETP20 | ETP23 | ETP25 | ETP26 | ETP3 | ETP20 | ETP26 | ETP25 | EBH1 |
| | | Sample Type: | | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| | | Top Depth (m): | | 0.10 | 0.10 | 0.10 | 0.20 | 0.90 | 0.50 | 0.55 | 0.30 | 1.50 |
| | | Date Sampled: | | 04-Mar-2019 | 04-Mar-2019 | 04-Mar-2019 | 04-Mar-2019 | 04-Mar-2019 | 04-Mar-2019 | 04-Mar-2019 | 04-Mar-2019 | 04-Mar-2019 |
| | | Asbestos Lab: | | DURHAM | DURHAM | DURHAM | DURHAM | | | | | |
| Determinand | Accred. | SOP | Units | LOD | | | | | | | | |
| Aromatic TPH >C7-C8 | N | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | | | | | |
| Aromatic TPH >C8-C10 | M | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | | | | | |
| Aromatic TPH >C10-C12 | M | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | | | | | |
| Aromatic TPH >C12-C16 | M | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | | | | | |
| Aromatic TPH >C16-C21 | U | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | | | | | |
| Aromatic TPH >C21-C35 | M | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | | | | | |
| Aromatic TPH >C35-C44 | N | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | | | | | |
| Total Aromatic Hydrocarbons | N | 2680 | mg/kg | 5.0 | < 5.0 | < 5.0 | < 5.0 | | | | | |
| Total Petroleum Hydrocarbons | N | 2680 | mg/kg | 10.0 | < 10 | < 10 | < 10 | | | | | |
| Naphthalene | M | 2700 | mg/kg | 0.10 | < 0.10 | < 0.10 | 0.26 | < 0.10 | | | | |
| Acenaphthylene | M | 2700 | mg/kg | 0.10 | < 0.10 | < 0.10 | 0.18 | < 0.10 | | | | |
| Acenaphthene | M | 2700 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | | | | |
| Fluorene | M | 2700 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | | | | |
| Phenanthrene | M | 2700 | mg/kg | 0.10 | < 0.10 | < 0.10 | 0.45 | 0.17 | | | | |
| Anthracene | M | 2700 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | | | | |
| Fluoranthene | M | 2700 | mg/kg | 0.10 | 0.34 | 0.26 | 0.41 | 0.25 | | | | |
| Pyrene | M | 2700 | mg/kg | 0.10 | 0.47 | 0.40 | 0.52 | 0.38 | | | | |
| Benzo[a]anthracene | M | 2700 | mg/kg | 0.10 | < 0.10 | 0.41 | 0.30 | 0.11 | | | | |
| Chrysene | M | 2700 | mg/kg | 0.10 | < 0.10 | 0.39 | 0.41 | 0.15 | | | | |
| Benzo[b]fluoranthene | M | 2700 | mg/kg | 0.10 | < 0.10 | 0.21 | < 0.10 | < 0.10 | | | | |
| Benzo[k]fluoranthene | M | 2700 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | | | | |
| Benzo[a]pyrene | M | 2700 | mg/kg | 0.10 | < 0.10 | 0.20 | < 0.10 | < 0.10 | | | | |
| Indeno(1,2,3-c,d)Pyrene | M | 2700 | mg/kg | 0.10 | < 0.10 | 0.17 | < 0.10 | < 0.10 | | | | |
| Dibenz(a,h)Anthracene | M | 2700 | mg/kg | 0.10 | < 0.10 | 0.16 | < 0.10 | < 0.10 | | | | |
| Benzo[g,h,i]perylene | M | 2700 | mg/kg | 0.10 | < 0.10 | 0.33 | < 0.10 | < 0.10 | | | | |
| Total Of 16 PAH's | M | 2700 | mg/kg | 2.0 | < 2.0 | 2.5 | 2.5 | < 2.0 | | | | |
| Total Phenols | M | 2920 | mg/kg | 0.30 | < 0.30 | < 0.30 | < 0.30 | < 0.30 | | | | |

| SOP | Title | Parameters included | Method summary |
|------|---|--|--|
| 2010 | pH Value of Soils | pH | pH Meter |
| 2030 | Moisture and Stone Content of Soils(Requirement of MCERTS) | Moisture content | Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C. |
| 2040 | Soil Description(Requirement of MCERTS) | Soil description | As received soil is described based upon BS5930 |
| 2120 | Water Soluble Boron, Sulphate, Magnesium & Chromium | Boron; Sulphate; Magnesium; Chromium | Aqueous extraction / ICP-OES |
| 2175 | Total Sulphur in Soils | Total Sulphur | Determined by high temperature combustion under oxygen, using an Eltra elemental analyser. |
| 2192 | Asbestos | Asbestos | Polarised light microscopy / Gravimetry |
| 2300 | Cyanides & Thiocyanate in Soils | Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate | Alkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser. |
| 2430 | Total Sulphate in soils | Total Sulphate | Acid digestion followed by determination of sulphate in extract by ICP-OES. |
| 2450 | Acid Soluble Metals in Soils | Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc | Acid digestion followed by determination of metals in extract by ICP-MS. |
| 2490 | Hexavalent Chromium in Soils | Chromium [VI] | Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazine. |
| 2625 | Total Organic Carbon in Soils | Total organic Carbon (TOC) | Determined by high temperature combustion under oxygen, using an Eltra elemental analyser. |
| 2680 | TPH A/A Split | Aliphatics: >C5-C6, >C6-C8,>C8-C10, >C10-C12, >C12-C16, >C16-C21, >C21-C35, >C35- C44Aromatics: >C5-C7, >C7-C8, >C8- C10, >C10-C12, >C12-C16, >C16- C21, >C21- C35, >C35- C44 | Dichloromethane extraction / GCxGC FID detection |
| 2700 | Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID | Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene | Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds) |
| 2920 | Phenols in Soils by HPLC | Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded. | 60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection. |

Report Information

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- I/S Insufficient Sample
- U/S Unsuitable Sample
- N/E not evaluated
- < "less than"
- > "greater than"

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt

All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:

customerservices@chemtest.com



Amended Report

Report No.: 19-05113-2

Initial Date of Issue: 27-Feb-2019 **Date of Re-Issue:** 15-Mar-2019

Client: Earth Science Partnership

Client Address: 33 Cardiff Road
Taffs Well
Cardiff
CF15 7RB

Contact(s): Mat Elcock

Project: 7061b Cosmeston Farm

Quotation No.: **Date Received:** 12-Feb-2019

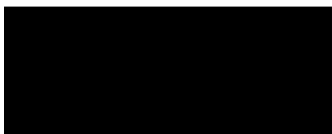
Order No.: **Date Instructed:** 15-Feb-2019

No. of Samples: 19

Turnaround (Wkdays): 21 **Results Due:** 15-Mar-2019

Date Approved: 15-Mar-2019

Approved By:



Details: Robert Monk, Technical Manager

Results - Leachate

| Client: Earth Science Partnership | Chemtest Job No.: | | 19-05113 | 19-05113 | 19-05113 | 19-05113 | 19-05113 | 19-05113 | 19-05113 | |
|-----------------------------------|----------------------|------|-------------|-------------|-------------|-------------|-------------|-------------|----------|---------|
| Quotation No.: | Chemtest Sample ID.: | | 772717 | 772720 | 772728 | 772730 | 772736 | 772739 | | |
| | Sample Location: | | ETP4 | ETP5 | ETP9 | ETP17 | ETP18 | ETP19 | | |
| | Sample Type: | | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | | |
| | Top Depth (m): | | 0.70 | 0.40 | 0.30 | 0.50 | 0.80 | 0.50 | | |
| | Date Sampled: | | 31-Jan-2019 | 31-Jan-2019 | 31-Jan-2019 | 31-Jan-2019 | 31-Jan-2019 | 31-Jan-2019 | | |
| Determinand | Accred. | SOP | Units | LOD | | | | | | |
| pH | U | 1010 | | N/A | 9.1 | 8.9 | 8.6 | 7.9 | 7.9 | 8.0 |
| Cyanide (Total) | U | 1300 | mg/l | 0.050 | 0.070 | < 0.050 | 0.050 | < 0.050 | < 0.050 | < 0.050 |
| Arsenic (Dissolved) | U | 1450 | µg/l | 1.0 | 1.6 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | 1.4 |
| Boron (Dissolved) | U | 1450 | µg/l | 20 | < 20 | < 20 | < 20 | < 20 | 69 | 31 |
| Barium (Dissolved) | U | 1450 | µg/l | 5.0 | 5.8 | 5.9 | < 5.0 | 30 | 16 | 46 |
| Beryllium (Dissolved) | U | 1450 | µg/l | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Cadmium (Dissolved) | U | 1450 | µg/l | 0.080 | < 0.080 | < 0.080 | < 0.080 | < 0.080 | < 0.080 | < 0.080 |
| Chromium (Dissolved) | U | 1450 | µg/l | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Copper (Dissolved) | U | 1450 | µg/l | 1.0 | 4.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Mercury (Dissolved) | U | 1450 | µg/l | 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| Nickel (Dissolved) | U | 1450 | µg/l | 1.0 | 4.6 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | 2.1 |
| Lead (Dissolved) | U | 1450 | µg/l | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Selenium (Dissolved) | U | 1450 | µg/l | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Vanadium (Dissolved) | U | 1450 | µg/l | 1.0 | 1.4 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Zinc (Dissolved) | U | 1450 | µg/l | 1.0 | 3.3 | 3.6 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Iron (Dissolved) | N | 1450 | µg/l | 20 | 380 | 620 | 380 | 53 | 72 | 39 |
| Naphthalene | U | 1700 | µg/l | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Acenaphthylene | U | 1700 | µg/l | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Acenaphthene | U | 1700 | µg/l | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Fluorene | U | 1700 | µg/l | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Phenanthrene | U | 1700 | µg/l | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Anthracene | U | 1700 | µg/l | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Fluoranthene | U | 1700 | µg/l | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Pyrene | U | 1700 | µg/l | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Benzo[a]anthracene | U | 1700 | µg/l | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Chrysene | N | 1700 | µg/l | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Benzo[b]fluoranthene | U | 1700 | µg/l | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Benzo[k]fluoranthene | U | 1700 | µg/l | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Benzo[a]pyrene | U | 1700 | µg/l | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Indeno(1,2,3-c,d)Pyrene | U | 1700 | µg/l | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Dibenz(a,h)Anthracene | U | 1700 | µg/l | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Benzo[g,h,i]perylene | U | 1700 | µg/l | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Total Of 16 PAH's | N | 1700 | µg/l | 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 |
| Total Phenols | U | 1920 | mg/l | 0.030 | < 0.030 | < 0.030 | < 0.030 | < 0.030 | < 0.030 | < 0.030 |

Results - Soil

| Client: Earth Science Partnership | | Chemtest Job No.: | | 19-05113 | 19-05113 | 19-05113 | 19-05113 | 19-05113 | 19-05113 | 19-05113 | 19-05113 | 19-05113 |
|-----------------------------------|---------|----------------------|-------------|-------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| Quotation No.: | | Chemtest Sample ID.: | | 772715 | 772717 | 772718 | 772719 | 772720 | 772721 | 772723 | 772726 | |
| Sample Location: | | ETP4 | ETP4 | ETP5 | ETP5 | ETP5 | ETP6 | ETP7 | ETP8 | | | |
| Sample Type: | | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | | | |
| Top Depth (m): | | 0.10 | 0.70 | 0.20 | 0.30 | 0.40 | 0.20 | 0.10 | 0.40 | | | |
| Date Sampled: | | 31-Jan-2019 | 31-Jan-2019 | 31-Jan-2019 | 31-Jan-2019 | 31-Jan-2019 | 31-Jan-2019 | 31-Jan-2019 | 31-Jan-2019 | | | |
| Asbestos Lab: | | DURHAM | DURHAM | DURHAM | DURHAM | DURHAM | DURHAM | DURHAM | DURHAM | | | |
| Determinand | Accred. | SOP | Units | LOD | | | | | | | | |
| ACM Type | U | 2192 | | N/A | - | - | - | - | - | - | - | - |
| Asbestos Identification | U | 2192 | % | 0.001 | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected |
| ACM Detection Stage | U | 2192 | | N/A | - | - | - | - | - | - | - | - |
| Moisture | N | 2030 | % | 0.020 | 23 | 17 | 24 | 14 | 22 | 23 | 22 | 20 |
| Soil Colour | N | 2040 | | N/A | Black | Grey, Beige | Brown | Black, White | Brown | Grey | Black | Brown |
| Other Material | N | 2040 | | N/A | Stones, Roots 30% | Stones | Stones | Stones | Stones | Stones, Roots 10% | Stones, Roots 20% | Stones |
| Soil Texture | N | 2040 | | N/A | Sand | Clay | Clay | Sand | Clay | Clay | Sand | Clay |
| pH | M | 2010 | | N/A | 8.4 | 9.0 | 8.3 | 8.2 | 8.4 | 8.3 | 8.2 | 8.5 |
| Boron (Hot Water Soluble) | M | 2120 | mg/kg | 0.40 | 1.3 | 0.64 | 1.7 | 0.60 | 0.66 | 1.1 | 1.1 | 0.48 |
| Cyanide (Total) | M | 2300 | mg/kg | 0.50 | [B] < 0.50 | [B] < 0.50 | [B] < 0.50 | [B] < 0.50 | [B] < 0.50 | [B] < 0.50 | [B] < 0.50 | [B] < 0.50 |
| Arsenic | M | 2450 | mg/kg | 1.0 | 15 | 14 | 47 | 6.7 | 16 | 30 | 33 | 13 |
| Barium | M | 2450 | mg/kg | 10 | 190 | 74 | 210 | 130 | 120 | 120 | 120 | 50 |
| Beryllium | U | 2450 | mg/kg | 1.0 | < 1.0 | < 1.0 | 1.7 | < 1.0 | 1.1 | 1.2 | 1.1 | < 1.0 |
| Cadmium | M | 2450 | mg/kg | 0.10 | 0.36 | 0.18 | 1.2 | 0.11 | 1.2 | 0.65 | 0.74 | 0.29 |
| Chromium | M | 2450 | mg/kg | 1.0 | 30 | 17 | 34 | 9.0 | 26 | 24 | 29 | 19 |
| Copper | M | 2450 | mg/kg | 0.50 | 80 | 25 | 52 | 18 | 56 | 38 | 38 | 26 |
| Mercury | M | 2450 | mg/kg | 0.10 | 0.18 | < 0.10 | 0.14 | < 0.10 | 0.10 | 0.11 | 0.15 | < 0.10 |
| Nickel | M | 2450 | mg/kg | 0.50 | 34 | 28 | 54 | 16 | 66 | 42 | 40 | 29 |
| Lead | M | 2450 | mg/kg | 0.50 | 290 | 62 | 65 | 20 | 28 | 40 | 49 | 18 |
| Selenium | M | 2450 | mg/kg | 0.20 | 0.77 | 0.33 | 1.2 | 0.27 | 0.82 | 0.99 | 1.3 | 0.69 |
| Vanadium | U | 2450 | mg/kg | 5.0 | 20 | 14 | 30 | 14 | 27 | 21 | 22 | 15 |
| Zinc | M | 2450 | mg/kg | 0.50 | 140 | 46 | 140 | 42 | 190 | 110 | 98 | 49 |
| Chromium (Hexavalent) | N | 2490 | mg/kg | 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| Organic Matter | M | 2625 | % | 0.40 | 10 | 3.8 | 14 | 10 | 3.5 | 7.8 | 16 | 3.8 |
| Aliphatic TPH >C5-C6 | N | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | | | [B] < 1.0 | [B] < 1.0 | | |
| Aliphatic TPH >C6-C8 | N | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | | | [B] < 1.0 | [B] < 1.0 | | |
| Aliphatic TPH >C8-C10 | M | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | | | [B] < 1.0 | [B] < 1.0 | | |
| Aliphatic TPH >C10-C12 | M | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | | | [B] < 1.0 | [B] < 1.0 | | |
| Aliphatic TPH >C12-C16 | M | 2680 | mg/kg | 1.0 | [B] 8.3 | [B] < 1.0 | | | [B] < 1.0 | [B] < 1.0 | | |
| Aliphatic TPH >C16-C21 | M | 2680 | mg/kg | 1.0 | [B] 12 | [B] < 1.0 | | | [B] < 1.0 | [B] < 1.0 | | |
| Aliphatic TPH >C21-C35 | M | 2680 | mg/kg | 1.0 | [B] 46 | [B] < 1.0 | | | [B] < 1.0 | [B] < 1.0 | | |
| Aliphatic TPH >C35-C44 | N | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | | | [B] < 1.0 | [B] < 1.0 | | |
| Total Aliphatic Hydrocarbons | N | 2680 | mg/kg | 5.0 | [B] 67 | [B] < 5.0 | | | [B] < 5.0 | [B] < 5.0 | | |
| Aromatic TPH >C5-C7 | N | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | | | [B] < 1.0 | [B] < 1.0 | | |
| Aromatic TPH >C7-C8 | N | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | | | [B] < 1.0 | [B] < 1.0 | | |
| Aromatic TPH >C8-C10 | M | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | | | [B] < 1.0 | [B] < 1.0 | | |
| Aromatic TPH >C10-C12 | M | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | | | [B] < 1.0 | [B] < 1.0 | | |

Results - Soil

| Client: Earth Science Partnership | | Chemtest Job No.: | | 19-05113 | 19-05113 | 19-05113 | 19-05113 | 19-05113 | 19-05113 | 19-05113 | 19-05113 |
|-----------------------------------|---------|----------------------|-------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Quotation No.: | | Chemtest Sample ID.: | | 772715 | 772717 | 772718 | 772719 | 772720 | 772721 | 772723 | 772726 |
| | | Sample Location: | | ETP4 | ETP4 | ETP5 | ETP5 | ETP5 | ETP6 | ETP7 | ETP8 |
| | | Sample Type: | | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| | | Top Depth (m): | | 0.10 | 0.70 | 0.20 | 0.30 | 0.40 | 0.20 | 0.10 | 0.40 |
| | | Date Sampled: | | 31-Jan-2019 | 31-Jan-2019 | 31-Jan-2019 | 31-Jan-2019 | 31-Jan-2019 | 31-Jan-2019 | 31-Jan-2019 | 31-Jan-2019 |
| | | Asbestos Lab: | | DURHAM | DURHAM | DURHAM | DURHAM | DURHAM | DURHAM | DURHAM | DURHAM |
| Determinand | Accred. | SOP | Units | LOD | | | | | | | |
| Aromatic TPH >C12-C16 | M | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | | | [B] < 1.0 | [B] < 1.0 | |
| Aromatic TPH >C16-C21 | U | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] 13 | | | [B] < 1.0 | [B] < 1.0 | |
| Aromatic TPH >C21-C35 | M | 2680 | mg/kg | 1.0 | [B] 76 | [B] < 1.0 | | | [B] < 1.0 | [B] < 1.0 | |
| Aromatic TPH >C35-C44 | N | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | | | [B] < 1.0 | [B] < 1.0 | |
| Total Aromatic Hydrocarbons | N | 2680 | mg/kg | 5.0 | [B] 76 | [B] 13 | | | [B] < 5.0 | [B] < 5.0 | |
| Total Petroleum Hydrocarbons | N | 2680 | mg/kg | 10.0 | [B] 140 | [B] 13 | | | [B] < 10 | [B] < 10 | |
| Naphthalene | M | 2700 | mg/kg | 0.10 | 7.0 | 1.2 | 0.60 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Acenaphthylene | M | 2700 | mg/kg | 0.10 | 1.4 | 0.97 | 0.12 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Acenaphthene | M | 2700 | mg/kg | 0.10 | 7.5 | 0.76 | 0.15 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Fluorene | M | 2700 | mg/kg | 0.10 | 5.9 | 0.71 | 0.17 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Phenanthrene | M | 2700 | mg/kg | 0.10 | 34 | 4.8 | 3.5 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Anthracene | M | 2700 | mg/kg | 0.10 | 7.8 | 1.5 | 0.81 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Fluoranthene | M | 2700 | mg/kg | 0.10 | 27 | 5.6 | 6.2 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Pyrene | M | 2700 | mg/kg | 0.10 | 29 | 5.7 | 5.6 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Benzo[a]anthracene | M | 2700 | mg/kg | 0.10 | 9.8 | 2.7 | 2.9 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Chrysene | M | 2700 | mg/kg | 0.10 | 10 | 2.6 | 2.7 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Benzo[b]fluoranthene | M | 2700 | mg/kg | 0.10 | 12 | 2.9 | 3.5 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Benzo[k]fluoranthene | M | 2700 | mg/kg | 0.10 | 3.9 | 0.94 | 1.2 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Benzo[a]pyrene | M | 2700 | mg/kg | 0.10 | 9.6 | 2.3 | 2.1 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Indeno(1,2,3-c,d)Pyrene | M | 2700 | mg/kg | 0.10 | 6.2 | 1.9 | 1.2 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Dibenz(a,h)Anthracene | M | 2700 | mg/kg | 0.10 | 1.0 | 0.40 | 0.23 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Benzo[g,h,i]perylene | M | 2700 | mg/kg | 0.10 | 5.7 | 1.8 | 1.4 | < 0.10 | < 0.10 | < 0.10 | < 0.10 |
| Total Of 16 PAH's | M | 2700 | mg/kg | 2.0 | 180 | 37 | 32 | < 2.0 | < 2.0 | < 2.0 | < 2.0 |
| Total Phenols | M | 2920 | mg/kg | 0.30 | < 0.30 | < 0.30 | < 0.30 | < 0.30 | < 0.30 | < 0.30 | < 0.30 |

Results - Soil

| Client: Earth Science Partnership | Chemtest Job No.: | | 19-05113 | 19-05113 | 19-05113 | 19-05113 | 19-05113 | 19-05113 | 19-05113 | 19-05113 | 19-05113 | 19-05113 |
|-----------------------------------|----------------------|------|-------------|-------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| Quotation No.: | Chemtest Sample ID.: | | 772727 | 772728 | 772729 | 772730 | 772731 | 772734 | 772735 | 772736 | | |
| | Sample Location: | | ETP9 | ETP9 | ETP17 | ETP17 | ETP17 | ETP18 | ETP18 | ETP18 | | |
| | Sample Type: | | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | | |
| | Top Depth (m): | | 0.20 | 0.30 | 0.20 | 0.50 | 0.35 | 0.10 | 0.30 | 0.80 | | |
| | Date Sampled: | | 31-Jan-2019 | 31-Jan-2019 | 31-Jan-2019 | 31-Jan-2019 | 31-Jan-2019 | 31-Jan-2019 | 31-Jan-2019 | 31-Jan-2019 | | |
| | Asbestos Lab: | | DURHAM | DURHAM | DURHAM | DURHAM | DURHAM | DURHAM | DURHAM | DURHAM | | |
| Determinand | Accred. | SOP | Units | LOD | | | | | | | | |
| ACM Type | U | 2192 | | N/A | - | - | - | - | - | - | - | - |
| Asbestos Identification | U | 2192 | % | 0.001 | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected |
| ACM Detection Stage | U | 2192 | | N/A | - | - | - | - | - | - | - | - |
| Moisture | N | 2030 | % | 0.020 | 22 | 18 | 22 | 19 | 16 | 18 | 16 | 30 |
| Soil Colour | N | 2040 | | N/A | Brown | Brown | Brown | Grey | Brown | Brown | Brown | Brown |
| Other Material | N | 2040 | | N/A | Stones, Roots 20% | Stones | Stones | Stones | Stones | Stones, Roots 20% | Stones | Stones |
| Soil Texture | N | 2040 | | N/A | Clay | Clay | Sand | Clay | Clay | Sand | Clay | Clay |
| pH | M | 2010 | | N/A | 8.3 | 8.5 | 7.7 | 8.1 | 8.4 | 8.2 | 8.4 | 8.2 |
| Boron (Hot Water Soluble) | M | 2120 | mg/kg | 0.40 | 1.1 | 0.44 | 0.51 | 1.0 | 0.48 | < 0.40 | 0.51 | 1.8 |
| Cyanide (Total) | M | 2300 | mg/kg | 0.50 | [B] < 0.50 | [B] < 0.50 | [B] < 0.50 | [B] < 0.50 | [B] < 0.50 | [B] < 0.50 | [B] < 0.50 | [B] < 0.50 |
| Arsenic | M | 2450 | mg/kg | 1.0 | 47 | 14 | 16 | 17 | 18 | 13 | 16 | 33 |
| Barium | M | 2450 | mg/kg | 10 | 110 | 55 | 150 | 60 | 93 | 94 | 51 | 240 |
| Beryllium | U | 2450 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Cadmium | M | 2450 | mg/kg | 0.10 | 0.67 | 0.30 | 0.31 | 0.28 | 0.29 | 0.22 | 0.15 | 0.61 |
| Chromium | M | 2450 | mg/kg | 1.0 | 22 | 16 | 20 | 14 | 16 | 21 | 11 | 31 |
| Copper | M | 2450 | mg/kg | 0.50 | 86 | 25 | 27 | 16 | 38 | 13 | 15 | 240 |
| Mercury | M | 2450 | mg/kg | 0.10 | 0.10 | < 0.10 | 0.13 | < 0.10 | 0.13 | < 0.10 | < 0.10 | 0.42 |
| Nickel | M | 2450 | mg/kg | 0.50 | 41 | 27 | 30 | 21 | 59 | 22 | 19 | 35 |
| Lead | M | 2450 | mg/kg | 0.50 | 140 | 14 | 40 | 27 | 44 | 23 | 19 | 100 |
| Selenium | M | 2450 | mg/kg | 0.20 | 1.3 | 0.43 | 1.0 | 0.26 | 0.56 | 1.0 | 0.36 | 0.98 |
| Vanadium | U | 2450 | mg/kg | 5.0 | 18 | 23 | 28 | 21 | 23 | 26 | 18 | 34 |
| Zinc | M | 2450 | mg/kg | 0.50 | 86 | 40 | 79 | 59 | 270 | 61 | 24 | 210 |
| Chromium (Hexavalent) | N | 2490 | mg/kg | 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| Organic Matter | M | 2625 | % | 0.40 | 14 | 2.1 | 8.1 | 2.2 | 5.0 | 6.9 | 2.2 | 7.8 |
| Aliphatic TPH >C5-C6 | N | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | | [B] < 1.0 | | | | [B] < 1.0 |
| Aliphatic TPH >C6-C8 | N | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | | [B] < 1.0 | | | | [B] < 1.0 |
| Aliphatic TPH >C8-C10 | M | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | | [B] < 1.0 | | | | [B] 7.2 |
| Aliphatic TPH >C10-C12 | M | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | | [B] < 1.0 | | | | [B] 21 |
| Aliphatic TPH >C12-C16 | M | 2680 | mg/kg | 1.0 | [B] 3.5 | [B] < 1.0 | | [B] 2.0 | | | | [B] 67 |
| Aliphatic TPH >C16-C21 | M | 2680 | mg/kg | 1.0 | [B] 10 | [B] 3.7 | | [B] 10 | | | | [B] 96 |
| Aliphatic TPH >C21-C35 | M | 2680 | mg/kg | 1.0 | [B] 27 | [B] 12 | | [B] 34 | | | | [B] 250 |
| Aliphatic TPH >C35-C44 | N | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | | [B] < 1.0 | | | | [B] 41 |
| Total Aliphatic Hydrocarbons | N | 2680 | mg/kg | 5.0 | [B] 41 | [B] 15 | | [B] 46 | | | | [B] 490 |
| Aromatic TPH >C5-C7 | N | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | | [B] < 1.0 | | | | [B] < 1.0 |
| Aromatic TPH >C7-C8 | N | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | | [B] < 1.0 | | | | [B] < 1.0 |
| Aromatic TPH >C8-C10 | M | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | | [B] < 1.0 | | | | [B] < 1.0 |
| Aromatic TPH >C10-C12 | M | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | | [B] < 1.0 | | | | [B] 13 |

Project: 7061b Cosmeston Farm

| Client: Earth Science Partnership | | Chemtest Job No.: | | 19-05113 | 19-05113 | 19-05113 | 19-05113 | 19-05113 | 19-05113 | 19-05113 | 19-05113 | |
|-----------------------------------|---------|----------------------|-------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--------|
| Quotation No.: | | Chemtest Sample ID.: | | 772727 | 772728 | 772729 | 772730 | 772731 | 772734 | 772735 | 772736 | |
| | | Sample Location: | | ETP9 | ETP9 | ETP17 | ETP17 | ETP17 | ETP18 | ETP18 | ETP18 | |
| | | Sample Type: | | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | |
| | | Top Depth (m): | | 0.20 | 0.30 | 0.20 | 0.50 | 0.35 | 0.10 | 0.30 | 0.80 | |
| | | Date Sampled: | | 31-Jan-2019 | 31-Jan-2019 | 31-Jan-2019 | 31-Jan-2019 | 31-Jan-2019 | 31-Jan-2019 | 31-Jan-2019 | 31-Jan-2019 | |
| | | Asbestos Lab: | | DURHAM | DURHAM | DURHAM | DURHAM | DURHAM | DURHAM | DURHAM | DURHAM | |
| Determinand | Accred. | SOP | Units | LOD | | | | | | | | |
| Aromatic TPH >C12-C16 | M | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | | [B] < 1.0 | | | [B] 240 | |
| Aromatic TPH >C16-C21 | U | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | | [B] 4.7 | | | [B] 590 | |
| Aromatic TPH >C21-C35 | M | 2680 | mg/kg | 1.0 | [B] 70 | [B] 34 | | [B] 450 | | | [B] 1600 | |
| Aromatic TPH >C35-C44 | N | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | | [B] < 1.0 | | | [B] 130 | |
| Total Aromatic Hydrocarbons | N | 2680 | mg/kg | 5.0 | [B] 70 | [B] 34 | | [B] 450 | | | [B] 2600 | |
| Total Petroleum Hydrocarbons | N | 2680 | mg/kg | 10.0 | [B] 110 | [B] 50 | | [B] 500 | | | [B] 3100 | |
| Naphthalene | M | 2700 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | 0.16 | < 0.10 | 0.51 | < 0.10 | 1.8 |
| Acenaphthylene | M | 2700 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | 0.14 | < 0.10 | 0.31 | < 0.10 | 1.0 |
| Acenaphthene | M | 2700 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | 0.11 | < 0.10 | < 0.10 | < 0.10 | 2.6 |
| Fluorene | M | 2700 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | 0.14 | < 0.10 | < 0.10 | < 0.10 | 2.9 |
| Phenanthrene | M | 2700 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | 0.40 | 0.31 | 0.65 | < 0.10 | 11 |
| Anthracene | M | 2700 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | 0.49 | < 0.10 | 2.7 |
| Fluoranthene | M | 2700 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | 0.39 | 0.22 | 2.4 | < 0.10 | 12 |
| Pyrene | M | 2700 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | 0.42 | 0.16 | 2.2 | < 0.10 | 10 |
| Benzo[a]anthracene | M | 2700 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | 3.3 | < 0.10 | 4.7 |
| Chrysene | M | 2700 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | 4.1 | < 0.10 | 6.4 |
| Benzo[b]fluoranthene | M | 2700 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | 3.1 | < 0.10 | 6.5 |
| Benzo[k]fluoranthene | M | 2700 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | 1.0 | < 0.10 | 2.8 |
| Benzo[a]pyrene | M | 2700 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | 1.3 | < 0.10 | 3.2 |
| Indeno(1,2,3-c,d)Pyrene | M | 2700 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | 0.80 | < 0.10 | 2.6 |
| Dibenz(a,h)Anthracene | M | 2700 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | 0.57 | < 0.10 | 0.98 |
| Benzo[g,h,i]perylene | M | 2700 | mg/kg | 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | < 0.10 | 1.1 | < 0.10 | 2.3 |
| Total Of 16 PAH's | M | 2700 | mg/kg | 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 | 22 | < 2.0 | 74 |
| Total Phenols | M | 2920 | mg/kg | 0.30 | < 0.30 | < 0.30 | < 0.30 | < 0.30 | < 0.30 | < 0.30 | < 0.30 | < 0.30 |

Project: 7061b Cosmeston Farm

| Client: Earth Science Partnership | | Chemtest Job No.: | | 19-05113 | 19-05113 | 19-05113 |
|-----------------------------------|---------|----------------------|-------|-------------|----------------------|----------------------|
| Quotation No.: | | Chemtest Sample ID.: | | 772737 | 772738 | 772739 |
| | | Sample Location: | | ETP19 | ETP19 | ETP19 |
| | | Sample Type: | | SOIL | SOIL | SOIL |
| | | Top Depth (m): | | 0.10 | 0.40 | 0.50 |
| | | Date Sampled: | | 31-Jan-2019 | 31-Jan-2019 | 31-Jan-2019 |
| | | Asbestos Lab: | | COVENTRY | COVENTRY | COVENTRY |
| Determinand | Accred. | SOP | Units | LOD | | |
| ACM Type | U | 2192 | | N/A | - | - |
| Asbestos Identification | U | 2192 | % | 0.001 | No Asbestos Detected | No Asbestos Detected |
| ACM Detection Stage | U | 2192 | | N/A | - | - |
| Moisture | N | 2030 | % | 0.020 | 24 | 15 |
| Soil Colour | N | 2040 | | N/A | Brown | Brown |
| Other Material | N | 2040 | | N/A | Stones. Roots 20% | Stones |
| Soil Texture | N | 2040 | | N/A | Sand | Clay |
| pH | M | 2010 | | N/A | 7.1 | 8.5 |
| Boron (Hot Water Soluble) | M | 2120 | mg/kg | 0.40 | 0.66 | < 0.40 |
| Cyanide (Total) | M | 2300 | mg/kg | 0.50 | [B] < 0.50 | [B] 3.7 |
| Arsenic | M | 2450 | mg/kg | 1.0 | 19 | 20 |
| Barium | M | 2450 | mg/kg | 10 | 170 | 120 |
| Beryllium | U | 2450 | mg/kg | 1.0 | < 1.0 | < 1.0 |
| Cadmium | M | 2450 | mg/kg | 0.10 | 0.36 | 0.21 |
| Chromium | M | 2450 | mg/kg | 1.0 | 23 | 26 |
| Copper | M | 2450 | mg/kg | 0.50 | 25 | 19 |
| Mercury | M | 2450 | mg/kg | 0.10 | 0.14 | 0.12 |
| Nickel | M | 2450 | mg/kg | 0.50 | 22 | 29 |
| Lead | M | 2450 | mg/kg | 0.50 | 53 | 52 |
| Selenium | M | 2450 | mg/kg | 0.20 | 1.4 | 0.54 |
| Vanadium | U | 2450 | mg/kg | 5.0 | 31 | 29 |
| Zinc | M | 2450 | mg/kg | 0.50 | 93 | 140 |
| Chromium (Hexavalent) | N | 2490 | mg/kg | 0.50 | < 0.50 | < 0.50 |
| Organic Matter | M | 2625 | % | 0.40 | 4.8 | 3.6 |
| Aliphatic TPH >C5-C6 | N | 2680 | mg/kg | 1.0 | | [B] < 1.0 |
| Aliphatic TPH >C6-C8 | N | 2680 | mg/kg | 1.0 | | [B] < 1.0 |
| Aliphatic TPH >C8-C10 | M | 2680 | mg/kg | 1.0 | | [B] < 1.0 |
| Aliphatic TPH >C10-C12 | M | 2680 | mg/kg | 1.0 | | [B] < 1.0 |
| Aliphatic TPH >C12-C16 | M | 2680 | mg/kg | 1.0 | | [B] 21 |
| Aliphatic TPH >C16-C21 | M | 2680 | mg/kg | 1.0 | | [B] 42 |
| Aliphatic TPH >C21-C35 | M | 2680 | mg/kg | 1.0 | | [B] 82 |
| Aliphatic TPH >C35-C44 | N | 2680 | mg/kg | 1.0 | | [B] < 1.0 |
| Total Aliphatic Hydrocarbons | N | 2680 | mg/kg | 5.0 | | [B] 150 |
| Aromatic TPH >C5-C7 | N | 2680 | mg/kg | 1.0 | | [B] < 1.0 |
| Aromatic TPH >C7-C8 | N | 2680 | mg/kg | 1.0 | | [B] < 1.0 |
| Aromatic TPH >C8-C10 | M | 2680 | mg/kg | 1.0 | | [B] < 1.0 |
| Aromatic TPH >C10-C12 | M | 2680 | mg/kg | 1.0 | | [B] < 1.0 |

Project: 7061b Cosmeston Farm

| Client: Earth Science Partnership | | Chemtest Job No.: | | 19-05113 | 19-05113 | 19-05113 |
|-----------------------------------|---------|----------------------|-------|-------------|-------------|-------------|
| Quotation No.: | | Chemtest Sample ID.: | | 772737 | 772738 | 772739 |
| | | Sample Location: | | ETP19 | ETP19 | ETP19 |
| | | Sample Type: | | SOIL | SOIL | SOIL |
| | | Top Depth (m): | | 0.10 | 0.40 | 0.50 |
| | | Date Sampled: | | 31-Jan-2019 | 31-Jan-2019 | 31-Jan-2019 |
| | | Asbestos Lab: | | COVENTRY | COVENTRY | COVENTRY |
| Determinand | Accred. | SOP | Units | LOD | | |
| Aromatic TPH >C12-C16 | M | 2680 | mg/kg | 1.0 | | [B] 9.6 |
| Aromatic TPH >C16-C21 | U | 2680 | mg/kg | 1.0 | | [B] 30 |
| Aromatic TPH >C21-C35 | M | 2680 | mg/kg | 1.0 | | [B] 180 |
| Aromatic TPH >C35-C44 | N | 2680 | mg/kg | 1.0 | | [B] < 1.0 |
| Total Aromatic Hydrocarbons | N | 2680 | mg/kg | 5.0 | | [B] 220 |
| Total Petroleum Hydrocarbons | N | 2680 | mg/kg | 10.0 | | [B] 360 |
| Naphthalene | M | 2700 | mg/kg | 0.10 | 0.61 | < 0.10 |
| Acenaphthylene | M | 2700 | mg/kg | 0.10 | 1.5 | < 0.10 |
| Acenaphthene | M | 2700 | mg/kg | 0.10 | 2.3 | < 0.10 |
| Fluorene | M | 2700 | mg/kg | 0.10 | 4.1 | < 0.10 |
| Phenanthrene | M | 2700 | mg/kg | 0.10 | 25 | < 0.10 |
| Anthracene | M | 2700 | mg/kg | 0.10 | 6.8 | < 0.10 |
| Fluoranthene | M | 2700 | mg/kg | 0.10 | 24 | 0.41 |
| Pyrene | M | 2700 | mg/kg | 0.10 | 19 | 0.40 |
| Benzo[a]anthracene | M | 2700 | mg/kg | 0.10 | 8.8 | < 0.10 |
| Chrysene | M | 2700 | mg/kg | 0.10 | 9.9 | < 0.10 |
| Benzo[b]fluoranthene | M | 2700 | mg/kg | 0.10 | 9.2 | < 0.10 |
| Benzo[k]fluoranthene | M | 2700 | mg/kg | 0.10 | 3.8 | < 0.10 |
| Benzo[a]pyrene | M | 2700 | mg/kg | 0.10 | 5.6 | < 0.10 |
| Indeno(1,2,3-c,d)Pyrene | M | 2700 | mg/kg | 0.10 | 3.6 | < 0.10 |
| Dibenz(a,h)Anthracene | M | 2700 | mg/kg | 0.10 | 1.3 | < 0.10 |
| Benzo[g,h,i]perylene | M | 2700 | mg/kg | 0.10 | 3.6 | < 0.10 |
| Total Of 16 PAH's | M | 2700 | mg/kg | 2.0 | 130 | < 2.0 |
| Total Phenols | M | 2920 | mg/kg | 0.30 | < 0.30 | < 0.30 |

Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63. Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request. The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERTs accredited but the results may be compromised.

| Sample: | Sample Ref: | Sample ID: | Sample Location: | Sampled Date: | Deviation Code(s): | Containers Received: |
|---------|-------------|------------|------------------|---------------|--------------------|----------------------|
| 772715 | | | ETP4 | 31-Jan-2019 | B | Amber Glass 250ml |
| 772715 | | | ETP4 | 31-Jan-2019 | B | Plastic Tub 500g |
| 772717 | | | ETP4 | 31-Jan-2019 | B | Amber Glass 250ml |
| 772717 | | | ETP4 | 31-Jan-2019 | B | Plastic Tub 500g |
| 772718 | | | ETP5 | 31-Jan-2019 | B | Amber Glass 250ml |
| 772718 | | | ETP5 | 31-Jan-2019 | B | Plastic Tub 500g |
| 772719 | | | ETP5 | 31-Jan-2019 | B | Amber Glass 250ml |
| 772719 | | | ETP5 | 31-Jan-2019 | B | Plastic Tub 500g |
| 772720 | | | ETP5 | 31-Jan-2019 | B | Amber Glass 250ml |
| 772720 | | | ETP5 | 31-Jan-2019 | B | Plastic Tub 500g |
| 772721 | | | ETP6 | 31-Jan-2019 | B | Amber Glass 250ml |
| 772721 | | | ETP6 | 31-Jan-2019 | B | Plastic Tub 500g |
| 772723 | | | ETP7 | 31-Jan-2019 | B | Amber Glass 250ml |
| 772723 | | | ETP7 | 31-Jan-2019 | B | Plastic Tub 500g |
| 772726 | | | ETP8 | 31-Jan-2019 | B | Amber Glass 250ml |
| 772726 | | | ETP8 | 31-Jan-2019 | B | Plastic Tub 500g |
| 772727 | | | ETP9 | 31-Jan-2019 | B | Amber Glass 250ml |
| 772727 | | | ETP9 | 31-Jan-2019 | B | Plastic Tub 500g |
| 772728 | | | ETP9 | 31-Jan-2019 | B | Amber Glass 250ml |
| 772728 | | | ETP9 | 31-Jan-2019 | B | Plastic Tub 500g |
| 772729 | | | ETP17 | 31-Jan-2019 | B | Amber Glass 250ml |
| 772729 | | | ETP17 | 31-Jan-2019 | B | Plastic Tub 500g |

Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63. Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request. The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERTs accredited but the results may be compromised.

| Sample: | Sample Ref: | Sample ID: | Sample Location: | Sampled Date: | Deviation Code(s): | Containers Received: |
|---------|-------------|------------|------------------|---------------|--------------------|----------------------|
| 772730 | | | ETP17 | 31-Jan-2019 | B | Amber Glass 250ml |
| 772730 | | | ETP17 | 31-Jan-2019 | B | Plastic Tub 500g |
| 772731 | | | ETP17 | 31-Jan-2019 | B | Amber Glass 250ml |
| 772731 | | | ETP17 | 31-Jan-2019 | B | Plastic Tub 500g |
| 772734 | | | ETP18 | 31-Jan-2019 | B | Amber Glass 250ml |
| 772734 | | | ETP18 | 31-Jan-2019 | B | Plastic Tub 500g |
| 772735 | | | ETP18 | 31-Jan-2019 | B | Amber Glass 250ml |
| 772735 | | | ETP18 | 31-Jan-2019 | B | Plastic Tub 500g |
| 772736 | | | ETP18 | 31-Jan-2019 | B | Amber Glass 250ml |
| 772736 | | | ETP18 | 31-Jan-2019 | B | Plastic Tub 500g |
| 772737 | | | ETP19 | 31-Jan-2019 | B | Amber Glass 250ml |
| 772737 | | | ETP19 | 31-Jan-2019 | B | Plastic Tub 500g |
| 772738 | | | ETP19 | 31-Jan-2019 | B | Amber Glass 250ml |
| 772738 | | | ETP19 | 31-Jan-2019 | B | Plastic Tub 500g |
| 772739 | | | ETP19 | 31-Jan-2019 | B | Amber Glass 250ml |
| 772739 | | | ETP19 | 31-Jan-2019 | B | Plastic Tub 500g |

| SOP | Title | Parameters included | Method summary |
|------|---|--|--|
| 1010 | pH Value of Waters | pH | pH Meter |
| 1300 | Cyanides & Thiocyanate in Waters | Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate | Continuous Flow Analysis. |
| 1450 | Metals in Waters by ICP-MS | Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc | Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS). |
| 1700 | Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Waters by GC-FID | Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene | Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds) |
| 1920 | Phenols in Waters by HPLC | Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded. | Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection. |
| 2010 | pH Value of Soils | pH | pH Meter |
| 2030 | Moisture and Stone Content of Soils(Requirement of MCERTS) | Moisture content | Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C. |
| 2040 | Soil Description(Requirement of MCERTS) | Soil description | As received soil is described based upon BS5930 |
| 2120 | Water Soluble Boron, Sulphate, Magnesium & Chromium | Boron; Sulphate; Magnesium; Chromium | Aqueous extraction / ICP-OES |
| 2192 | Asbestos | Asbestos | Polarised light microscopy / Gravimetry |
| 2300 | Cyanides & Thiocyanate in Soils | Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate | Alkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser. |
| 2450 | Acid Soluble Metals in Soils | Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc | Acid digestion followed by determination of metals in extract by ICP-MS. |
| 2490 | Hexavalent Chromium in Soils | Chromium [VI] | Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide. |
| 2625 | Total Organic Carbon in Soils | Total organic Carbon (TOC) | Determined by high temperature combustion under oxygen, using an Eltra elemental analyser. |
| 2680 | TPH A/A Split | Aliphatics: >C5-C6, >C6-C8,>C8-C10, >C10-C12, >C12-C16, >C16-C21, >C21-C35, >C35- C44Aromatics: >C5-C7, >C7-C8, >C8- C10, >C10-C12, >C12-C16, >C16- C21, >C21- C35, >C35- C44 | Dichloromethane extraction / GCxGC FID detection |
| 2700 | Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID | Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene | Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds) |
| 2920 | Phenols in Soils by HPLC | Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded. | 60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection. |

| SOP | Title | Parameters included | Method summary |
|------------|--------------------------------------|---|--|
| 640 | Characterisation of Waste (Leaching) | Waste material including soil, sludges and granular waste | Compliance Test for Leaching of Granular Waste Material and Sludge |

Report Information

Key

- U UKAS accredited
- M MCERTS and UKAS accredited
- N Unaccredited
- S This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
- SN This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
- T This analysis has been subcontracted to an unaccredited laboratory
- I/S Insufficient Sample
- U/S Unsuitable Sample
- N/E not evaluated
- < "less than"
- > "greater than"

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt

All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:

customerservices@chemtest.com



Amended Report

Report No.: 19-05556-2

Initial Date of Issue: 26-Feb-2019 **Date of Re-Issue:** 15-Mar-2019

Client: Earth Science Partnership

Client Address: 33 Cardiff Road
Taffs Well
Cardiff
CF15 7RB

Contact(s): Emma Kirk

Project: 7061b Cosmeston Farm

Quotation No.: **Date Received:** 15-Feb-2019

Order No.: **Date Instructed:** 15-Feb-2019

No. of Samples: 1

Turnaround (Wkdays): 21 **Results Due:** 15-Mar-2019

Date Approved: 15-Mar-2019

Approved By:



Details: Robert Monk, Technical Manager

| Client: Earth Science Partnership | | Chemtest Job No.: | | 19-05556 | |
|-----------------------------------|---------|----------------------|-------|----------|----------------------|
| Quotation No.: | | Chemtest Sample ID.: | | 775201 | |
| | | Sample Location: | | EBH2 | |
| | | Sample Type: | | SOIL | |
| | | Top Depth (m): | | 0.20 | |
| | | Asbestos Lab: | | COVENTRY | |
| Determinand | Accred. | SOP | Units | LOD | |
| ACM Type | U | 2192 | | N/A | - |
| Asbestos Identification | U | 2192 | % | 0.001 | No Asbestos Detected |
| ACM Detection Stage | U | 2192 | | N/A | - |
| Moisture | N | 2030 | % | 0.020 | 30 |
| Soil Colour | N | 2040 | | N/A | Brown |
| Other Material | N | 2040 | | N/A | Stones |
| Soil Texture | N | 2040 | | N/A | Sand |
| pH | M | 2010 | | N/A | [A] 7.8 |
| Boron (Hot Water Soluble) | M | 2120 | mg/kg | 0.40 | 1.5 |
| Cyanide (Total) | M | 2300 | mg/kg | 0.50 | [A] < 0.50 |
| Arsenic | M | 2450 | mg/kg | 1.0 | 21 |
| Barium | M | 2450 | mg/kg | 10 | 140 |
| Beryllium | U | 2450 | mg/kg | 1.0 | 1.4 |
| Cadmium | M | 2450 | mg/kg | 0.10 | 0.87 |
| Chromium | M | 2450 | mg/kg | 1.0 | 37 |
| Copper | M | 2450 | mg/kg | 0.50 | 45 |
| Mercury | M | 2450 | mg/kg | 0.10 | 0.10 |
| Nickel | M | 2450 | mg/kg | 0.50 | 38 |
| Lead | M | 2450 | mg/kg | 0.50 | 75 |
| Selenium | M | 2450 | mg/kg | 0.20 | 1.4 |
| Vanadium | U | 2450 | mg/kg | 5.0 | 29 |
| Zinc | M | 2450 | mg/kg | 0.50 | 160 |
| Chromium (Hexavalent) | N | 2490 | mg/kg | 0.50 | < 0.50 |
| Organic Matter | M | 2625 | % | 0.40 | [A] 10 |
| Aliphatic TPH >C5-C6 | N | 2680 | mg/kg | 1.0 | [A] < 1.0 |
| Aliphatic TPH >C6-C8 | N | 2680 | mg/kg | 1.0 | [A] < 1.0 |
| Aliphatic TPH >C8-C10 | M | 2680 | mg/kg | 1.0 | [A] < 1.0 |
| Aliphatic TPH >C10-C12 | M | 2680 | mg/kg | 1.0 | [A] < 1.0 |
| Aliphatic TPH >C12-C16 | M | 2680 | mg/kg | 1.0 | [A] < 1.0 |
| Aliphatic TPH >C16-C21 | M | 2680 | mg/kg | 1.0 | [A] < 1.0 |
| Aliphatic TPH >C21-C35 | M | 2680 | mg/kg | 1.0 | [A] < 1.0 |
| Aliphatic TPH >C35-C44 | N | 2680 | mg/kg | 1.0 | [A] < 1.0 |
| Total Aliphatic Hydrocarbons | N | 2680 | mg/kg | 5.0 | [A] < 5.0 |
| Aromatic TPH >C5-C7 | N | 2680 | mg/kg | 1.0 | [A] < 1.0 |
| Aromatic TPH >C7-C8 | N | 2680 | mg/kg | 1.0 | [A] < 1.0 |
| Aromatic TPH >C8-C10 | M | 2680 | mg/kg | 1.0 | [A] < 1.0 |
| Aromatic TPH >C10-C12 | M | 2680 | mg/kg | 1.0 | [A] < 1.0 |
| Aromatic TPH >C12-C16 | M | 2680 | mg/kg | 1.0 | [A] < 1.0 |
| Aromatic TPH >C16-C21 | U | 2680 | mg/kg | 1.0 | [A] < 1.0 |

| Client: Earth Science Partnership | Chemtest Job No.: | | 19-05556 | | |
|--|-----------------------------|------|----------|------|------------|
| Quotation No.: | Chemtest Sample ID.: | | 775201 | | |
| | Sample Location: | | EBH2 | | |
| | Sample Type: | | SOIL | | |
| | Top Depth (m): | | 0.20 | | |
| | Asbestos Lab: | | COVENTRY | | |
| Determinand | Accred. | SOP | Units | LOD | |
| Aromatic TPH >C21-C35 | M | 2680 | mg/kg | 1.0 | [A] < 1.0 |
| Aromatic TPH >C35-C44 | N | 2680 | mg/kg | 1.0 | [A] < 1.0 |
| Total Aromatic Hydrocarbons | N | 2680 | mg/kg | 5.0 | [A] < 5.0 |
| Total Petroleum Hydrocarbons | N | 2680 | mg/kg | 10.0 | [A] < 10 |
| Naphthalene | M | 2700 | mg/kg | 0.10 | [A] < 0.10 |
| Acenaphthylene | M | 2700 | mg/kg | 0.10 | [A] < 0.10 |
| Acenaphthene | M | 2700 | mg/kg | 0.10 | [A] < 0.10 |
| Fluorene | M | 2700 | mg/kg | 0.10 | [A] < 0.10 |
| Phenanthrene | M | 2700 | mg/kg | 0.10 | [A] < 0.10 |
| Anthracene | M | 2700 | mg/kg | 0.10 | [A] < 0.10 |
| Fluoranthene | M | 2700 | mg/kg | 0.10 | [A] 0.99 |
| Pyrene | M | 2700 | mg/kg | 0.10 | [A] 0.96 |
| Benzo[a]anthracene | M | 2700 | mg/kg | 0.10 | [A] < 0.10 |
| Chrysene | M | 2700 | mg/kg | 0.10 | [A] < 0.10 |
| Benzo[b]fluoranthene | M | 2700 | mg/kg | 0.10 | [A] < 0.10 |
| Benzo[k]fluoranthene | M | 2700 | mg/kg | 0.10 | [A] < 0.10 |
| Benzo[a]pyrene | M | 2700 | mg/kg | 0.10 | [A] < 0.10 |
| Indeno(1,2,3-c,d)Pyrene | M | 2700 | mg/kg | 0.10 | [A] < 0.10 |
| Dibenz(a,h)Anthracene | M | 2700 | mg/kg | 0.10 | [A] < 0.10 |
| Benzo[g,h,i]perylene | M | 2700 | mg/kg | 0.10 | [A] < 0.10 |
| Total Of 16 PAH's | M | 2700 | mg/kg | 2.0 | [A] < 2.0 |
| Total Phenols | M | 2920 | mg/kg | 0.30 | < 0.30 |

Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63. Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request. The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERTs accredited but the results may be compromised.

| Sample: | Sample Ref: | Sample ID: | Sample Location: | Sampled Date: | Deviation Code(s): | Containers Received: |
|---------|-------------|------------|------------------|---------------|--------------------|----------------------|
| 775201 | | | EBH2 | | A | Amber Glass 250ml |
| 775201 | | | EBH2 | | A | Plastic Tub 1000g |

| SOP | Title | Parameters included | Method summary |
|------|---|--|--|
| 2010 | pH Value of Soils | pH | pH Meter |
| 2030 | Moisture and Stone Content of Soils(Requirement of MCERTS) | Moisture content | Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C. |
| 2040 | Soil Description(Requirement of MCERTS) | Soil description | As received soil is described based upon BS5930 |
| 2120 | Water Soluble Boron, Sulphate, Magnesium & Chromium | Boron; Sulphate; Magnesium; Chromium | Aqueous extraction / ICP-OES |
| 2192 | Asbestos | Asbestos | Polarised light microscopy / Gravimetry |
| 2300 | Cyanides & Thiocyanate in Soils | Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate | Alkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser. |
| 2450 | Acid Soluble Metals in Soils | Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc | Acid digestion followed by determination of metals in extract by ICP-MS. |
| 2490 | Hexavalent Chromium in Soils | Chromium [VI] | Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide. |
| 2625 | Total Organic Carbon in Soils | Total organic Carbon (TOC) | Determined by high temperature combustion under oxygen, using an Eltra elemental analyser. |
| 2680 | TPH A/A Split | Aliphatics: >C5-C6, >C6-C8,>C8-C10, >C10-C12, >C12-C16, >C16-C21, >C21-C35, >C35- C44Aromatics: >C5-C7, >C7-C8, >C8- C10, >C10-C12, >C12-C16, >C16- C21, >C21- C35, >C35- C44 | Dichloromethane extraction / GCxGC FID detection |
| 2700 | Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID | Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene | Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds) |
| 2920 | Phenols in Soils by HPLC | Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded. | 60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection. |

Report Information

Key

- U UKAS accredited
- M MCERTS and UKAS accredited
- N Unaccredited
- S This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
- SN This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
- T This analysis has been subcontracted to an unaccredited laboratory
- I/S Insufficient Sample
- U/S Unsuitable Sample
- N/E not evaluated
- < "less than"
- > "greater than"

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt

All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:

customerservices@chemtest.com