



4041



Analytical Science

Analytical Report Number : 14-52527

Project / Site name: G351 Clydach

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

| Analytical Test Name                    | Analytical Method Description   | Analytical Method Reference   | Method number | Wet / Dry Analysis | Accreditation Status |
|---|---|---|---------------|--------------------|----------------------|
| Boron in leachate                       | Determination of boron by acidification followed by ICP-OES.  | In-house method based on MEWAM  | L039-PL       | W                  | ISO 17025            |
| Boron, water soluble, in soil           | Determination of water soluble boron in soil by hot water extract followed by ICP-OES.  | In-house method based on Second Site Properties version 3   | L038-PL       | D                  | MCERTS               |
| Complex cyanide (Low level) in leachate | Determination of complex cyanide by distillation followed by colorimetry.   | In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar) | L080-PL       | W                  | NONE                 |
| Elemental sulphur in leachate           | Determination of elemental sulphur in leachate by extraction in dichloromethane followed by HPLC.   | In-house method based on Secondsite Property Holdings Guidance for Assessing and Managing Potential             | L021-UK       | W                  | NONE                 |
| Elemental sulphur In soil               | Determination of elemental sulphur in soil by extraction in dichloromethane followed by HPLC.   | In-house method based on Secondsite Property Holdings Guidance for Assessing and Managing Potential             | L021-PL       | D                  | NONE                 |
| Free cyanide in leachate                | Determination of free cyanide by distillation followed by colorimetry.  | In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar) | L080-PL       | W                  | NONE                 |
| Metals by ICP-OES in leachate           | Determination of metals in leachate by acidification followed by ICP-OES.   | In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.                            | L039-PL       | W                  | ISO 17025            |
| Metals In soil by ICP-OES               | Determination of metals In soil by aqua-regia digestion followed by ICP-OES.  | In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.                            | L038-PL       | D                  | MCERTS               |
| Moisture Content                        | Moisture content, determined gravimetrically.   | In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests                                | L019-UK/PL    | W                  | NONE                 |
| Monohydric phenols In leachate          | Determination of phenols in leachate by distillation followed by colorimetry.   | In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar) | L080-PL       | W                  | ISO 17025            |
| Monohydric phenols In soil              | Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.  | In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar) | L080-PL       | W                  | MCERTS               |
| Organic matter In soil                  | Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with Iron (II) sulphate.   | BS1377 Part 3, 1990, Chemical and Electrochemical Tests   | L023-PL       | D                  | MCERTS               |
| pH in leachate                          | Determination of pH in leachate by electrometric measurement.   | In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests                                | L005-PL       | W                  | ISO 17025            |
| pH In soil                              | Determination of pH in soil by addition of water followed by electrometric measurement.   | In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests                                | L005-PL       | W                  | MCERTS               |
| Speciated EPA-16 PAHs in leachate       | Determination of PAH compounds in leachate by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards.   | In-house method based on USEPA 8270   | L064-UK       |                    | NONE                 |
| Speciated EPA-16 PAHs in soil           | Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.  | In-house method based on USEPA 8270   | L064-PL       | D                  | MCERTS               |
| Stones content of soil                  | Standard preparation for all samples unless otherwise detailed. Stones not passing through a 10 mm sieve is determined gravimetrically and reported as a percentage of the dry weight. Sample | In-house method based on British Standard Methods and MCERTS requirements.                                      | L019-UK/PL    | D                  | NONE                 |

ISS No 14-52527-1

This certificate should not be reproduced, except in full, without the express permission of the laboratory.  
The results included within the report are representative of the samples submitted for analysis.



4041



Science

**Analytical Report Number : 14-52527****Project / Site name: G351 Clydach****Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)**

| Analytical Test Name                        | Analytical Method Description  | Analytical Method Reference   | Method number | Wet / Dry Analysis | Accreditation Status |
|---|--|---|---------------|--------------------|----------------------|
| Sulphate in leachates                       | Determination of sulphate in leachate by acidification followed by ICP-OES.  | In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.                            | L039-PL       | W                  | ISO 17025            |
| Sulphate, water soluble, in soil            | Determination of water soluble sulphate by extraction with water followed by ICP-OES. Results reported corrected for extraction ratio (soil equivalent) as g/l and mg/kg; and upon the 2:1 | In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests                                | L038-PL       | D                  | MCERTS               |
| Sulphide in leachate                        | Determination of sulphide in leachate by ion selective electrode.  | In-house method   | L010-PL       | W                  | NONE                 |
| Sulphide in soil                            | Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.                     | In-house method   | L010-PL       | D                  | MCERTS               |
| Total cyanide in leachate                   | Determination of total cyanide by distillation followed by colorimetry.  | In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar) | L080-PL       | W                  | ISO 17025            |
| Total organic carbon in leachate            | Determination of total organic carbon in leachate by the measurement on a non-dispersive infrared analyser of carbon dioxide released by acidification.                                    | In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton          | L037-PL       | W                  | NONE                 |
| Total sulphate (as SO <sub>4</sub> in soil) | Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.  | In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests                                | L038-PL       | D                  | ISO 17025            |
| TPH1 (Leachates)                            | Determination of dichloromethane extractable hydrocarbons in leachate by GC-MS.  | In-house method   | L070-PL       | W                  | NONE                 |
| TPH1 (Soil)                                 | Determination of dichloromethane/hexane extractable hydrocarbons in soil by GC-MS.   | In-house method   | L064-PL       | D                  | MCERTS               |
| TPH2 (Leachates)                            | Determination of hydrocarbons C6-C10 by headspace GC-MS.   | In-house method based on USEPA8260  | L073W-PL      | W                  | NONE                 |

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30°C.