

## Appendix D. Field Screening Methods

| Appendix D. Field Screening Methods |  |       |   |   |                                       |   |   |  |   |   |
|-------------------------------------|--|-------|---|---|---------------------------------------|---|---|--|---|---|
| Field Measurement Type              | Method Name (+ Example Products)                                       | Media |   |   | Analyte                               | Overview  | Advantages  | Limitations  | Quantification  | Reference   |
|                                     |  | S     | W | V |                                       |   |   |  |   |   |
| Immunoassay                         | DW 846 4030<br><br>• EcoSys Petro Test System<br><br>• SDI RaPID Assay | ✓     | ✓ |   | Bulk TPH (primarily low- to midrange) | Combination of immunoassay and colorimetry. Methanol extraction. Enzyme conjugate solution and antibody-coated test tube. Color developer solution and H <sub>2</sub> O <sub>2</sub> . Differential photometer and m-xylene reference standard. | <ul style="list-style-type: none"> <li>• Samples can be analyzed quickly on-site</li> <li>• Not affected significantly by moisture content or pH</li> </ul> | <ul style="list-style-type: none"> <li>• Small mass of soil tested</li> <li>• Sensitivity depends on the binding of the target analyte to antibodies; kits are most sensitive to small aromatic compounds</li> <li>• Non-TPH compounds such as chlorane and toluene show cross-reactivity and can cause false positives</li> </ul> | 25- >1,000 ppm  | <a href="https://www.epa.gov/itrc/production/files/2015-12/documents/4030.pdf">https://www.epa.gov/itrc/production/files/2015-12/documents/4030.pdf</a> |
|                                     | Hach 10050<br><br>• Hach TPH in water and soil                         | ✓     | ✓ |   | Bulk TPH (low- to midrange)           | Same as above, except reference standard not specified  |   | <ul style="list-style-type: none"> <li>• Sensitivity of test influenced by the nature of the hydrocarbon contamination and any degradation processes at the site</li> </ul>  | 20/50/100/200 ppm in soil as diesel<br>2/5/10/20 ppm in water as diesel   | <a href="https://www.hach.com/asset/get.download.jsa?id=7679982907">https://www.hach.com/asset/get.download.jsa?id=7679982907</a>                       |
|                                     | Modern Water SOP<br><br>• Modern Water Total BTEX/TPH RaPID Assay      | ✓     | ✓ |   | Bulk TPH (low- to midrange)           | Same as above, except reference standard is BTEX  |   | <ul style="list-style-type: none"> <li>• Organic and clay-rich soils may limit the effectiveness of soil extraction and may require longer extraction times than other soil types</li> </ul>   | <ul style="list-style-type: none"> <li>• Soil: 0.9-30 ppm as total BTEX standard</li> <li>• Water: 0.02-3.0 ppm as total BTEX standard</li> <li>• TPH range varies based on fuel source (see supplier fact</li> </ul> | <a href="https://www.modernwater.com/pdf/MW_Laclsheet_RapidAssay_BTEX_TPH.pdf">https://www.modernwater.com/pdf/MW_Laclsheet_RapidAssay_BTEX_TPH.pdf</a> |

<sup>1</sup> S – Soil; W – Water; V – Vapor

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