(An) Area-based Chemistry Assessment of a Shallow Hydrocarbon-bearing Formation in NW AB.

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Intrusive investigations for Phase 2 assessments at multiple sites in NW Alberta presented soil concentrations of BTEX and PHCs above regulatory guidelines from almost every borehole drilled, including background locations. The balance of results did not represent the type of products likely present at the sites, which were airstrips, a gas booster station, and a gas well-site. These results were always found at around the same depth that the shallow bedrock was intercepted, and continued down to the extent of drilling, which included depths greater than 20 mbgl.

This presentation describes the development of science documenting shallow bedrock as the source of hydrocarbons across these sites. This includes a review of scientific literature for area geology and geochemistry to determine the nature of the hydrocarbon-formation mechanisms, and key geochemical signatures of the formation. The presentation will also show how standard chemistry from the Phase 2 assessments can be used in a tiered approach along with selective forensic chemistry to connect site data with the scientific literature.

Ultimately, the output from this can be used as a check-list for future investigations within the geographical area to determine whether the shallow formation is present underlying an investigation site and interfering with intrusive investigation chemical analysis.

Project managers, remediation specialists, environmental advisors, and those involved in regulatory engagement should find the presentation informative.

Phil Richards

Phil Richards is the owner of PR Enviroforensics. He has a Masters and PhD in Chemistry from The University of Liverpool, England, and a Masters in Environmental Forensics from The University of Strathclyde, Scotland. He has chartered status from the Royal Society of Chemistry. He has worked as a senior research scientist in the UK chemical industry prior to working as a forensic environmental chemistry consultant in Alberta. His work ranges from niche chemistry-based assessments to large integrated projects in North America and China. His passion is to improve the use and understanding of chemistry within the environmental services.