

## ABSTRACT

### DISCOVERY OF PROCEDURAL INCONSISTENCIES AND THEIR EFFECTS ON RESULTS IN AN ENVIRONMENTAL ANALYSIS

Regulatory agencies require investigation and cleanup of petroleum hydrocarbons in soil and water based on total petroleum hydrocarbon (TPH) concentration limits for specified refined petroleum products such as gasoline or diesel. The TPH concentration limit for each product is based on an assumed toxicity and/or solubility of the constituents present in each product. TPH Method TNRCC 1005 is designed to analyze hydrocarbons in the gasoline and diesel ranges. The results are used to measure the concentration of TPH in affected environmental media and to evaluate the relative distribution of the petroleum hydrocarbons in the TPH mixture. Common pitfalls in the field and in the laboratory can compromise the reliability of environmental data. Quality assessment processes must be followed to avoid data quality problems. The goal of this study was to produce reliable and reportable analytical data for the analysis of petroleum hydrocarbons in soil using TNRCC Method 1005.

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