

U.S. EPA SITE Program Investigative Samples: Navy Base / Fuel Farm Area Testing Total Petroleum Hydrocarbons



Navy BVC Site: Fuel Farm Area - Port Hueneme, California

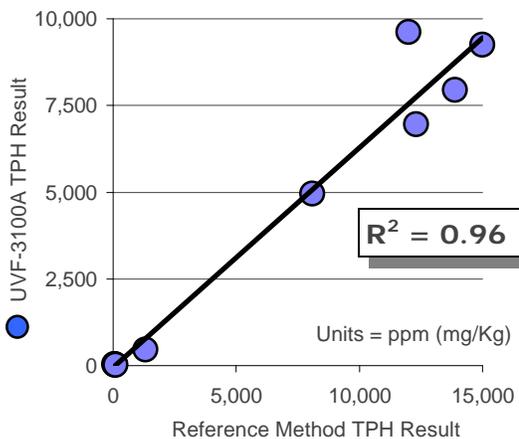
The FFA is a tank farm located within the Navy Base Ventura County site. The area contains five tanks which stored marine diesel for refueling ships and to supply heating oil throughout the base. Soils tested consisted of medium-grained sands. The soils were contaminated with low to high concentrations of weathered diesel fuel with a carbon range from C10 through C40.

siteLAB® analyzed ten samples, plus two extract duplicates, for both Gasoline Range (GRO) and Diesel Range (EDRO) compounds. Results were then added together and reported as total petroleum hydrocarbons (TPH). The reference laboratory reported TPH by analyzing EDRO only, with the rationale that the samples were not expected to contain hydrocarbons in the gasoline range. siteLAB®, however, had chosen to measure and include the GRO fraction since the type of contamination had a carbon level as low as C10 and volatile aromatics may have been present even though the concentrations compared to the EDRO fraction were very small or not detected. The TPH action level used to evaluate analytical accuracy for this site was 100 ppm.

Measuring Accuracy...

Linear regression analysis was performed by EPA to determine whether or not a significant correlation existed between the siteLAB® UVF-3100A and reference method TPH results, as illustrated below:

Linear Regression Plots for FFA Soils



Linear Regression Analysis Results

- Regression Model: $y = 0.63x - 55.23$ ($y =$ Sitelab TPH and $x =$ Lab TPH)
- The square of correlation coefficient, R^2 , is 0.96
- The F-test probability that the slope of the regression line was equal to zero is 0.00%

Correlation of TPH Results...

“Based on the R^2 and probability values, the UVF-3100A and reference method results were considered to be (1) highly correlated for FFA...”

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“The probabilities for the slopes of the regression lines being equal to zero were less than 5 percent for the FFA, ...indicating that the UVF-3100A and reference method results did not correlate only by chance for these samples.”

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TPH Action Level Conclusions...

Percentage of samples for which UVF-3100A and Reference Method conclusions agreed =

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A+!
100%

Source: ITVR# EPA/600/R-01/080, September 2001

Sitelab data was generated in the U.S. EPA's Superfund Innovative Technology Evaluation (SITE) Program's "Field Measurement Technologies for Total Petroleum Hydrocarbons in Soil," directed by EPA's Office of Research and Development. Date: June 2000.

Disclaimer: EPA does not endorse any product offered for sale by developers in the SITE Program.