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Field Screening Petroleum-Contaminated Soils using a Photo-Ionization Detector (PID) and Static Headspace Method

Applications

- The Department encourages the use of a PID at petroleum surface spill cleanups to assist in documenting cleanup.

Limitations

- While a PID is sensitive to petroleum products such as gasoline and diesel fuel, field screening with a PID is generally not effective for low volatility oils such as lubricating oil, hydraulic oil, and mineral oil.
- Contact the manufacturer if you are unsure your PID can adequately detect the spilled product(s).
- Using a PID is not a substitute for laboratory analysis.
- NDEE does not have field screening values, other than zero, to determine “clean” vs “contaminated.”
- The primary purpose of field screening with a PID as it relates to this guidance is to demonstrate qualitative changes in contaminant levels.

Methodology

This guidance taken, in part, from [NDEE Risk-Based Corrective Action \(RBCA\) at Petroleum Release Sites: Tier 1/Tier 2 Assessments & Reports](#), 4.7.2.3-Field Screening:



- Place the soil sample in a clean, wide-mouth glass jar with a screw-on lid/ring,
- Fill the jar one-half full with the soil sample,
- Cover the mouth of the jar immediately with aluminum foil and secure the lid/ring,
- Place the jar in an environment above 60 degrees F for 30 minutes,
- Measure the contaminant level by puncturing the foil with the instrument probe,
- Record the highest level that the instrument registers,
- Field screening results are to be reported in parts per million (ppm) or parts per billion (ppb) relative to the calibration gas used to calibrate the instrument: often isobutylene.

Be sure the PID is charged and calibrated in accordance with the manufacturer's specifications prior to sample analysis

Reporting Field Screening Results

- A written Final Report is to be submitted to NDEE in accordance with [Title 126 – Rules and Regulations Pertaining to the Management of Wastes](#), Chapter 18, Section 002.04.
- Visit the NDEE Petroleum Surface Spills Web Page for guidance regarding Final Reports
- <http://dee.ne.gov/NDEQProg.nsf/OnWeb/PSS>.
- In addition to the information listed in Petroleum Surface Spill Final Report Guidance, please also include:
 - A site diagram showing the locations of samples.
 - Note depths intervals at which samples were collected.