iSOC® Technology

iSOC® Testing Parameters for Petroleum Hydrocarbon Sites

Field Parameters:

Dissolved oxygen (DO)
Identifies aerobic and anaerobic regions of contaminated site and the chemical, physical and biochemical activities occurring. (Low dissolved oxygen levels can limit the bacterial metabolism of certain organic compounds).

pH
Identifies the acidity or alkalinity of water. A change in pH may be associated with microbial activity. The optimum pH for bioremediation is 4-9;

Temperature
Optimal soil and water temperatures are 10º to 40ºC (50º to 104º F).

Conductivity
Conductivity is a good measure of the total amount of salts in solution (e.g., calcium, magnesium, sodium, potassium, chloride, and others).

Turbidity
Checks for suspended and colloidal matter such as clay, silt, finely divided organic and inorganic matter, and microscopic organisms.

Redox Potential (ORP)
To determine if aerobic (more positive oxidizing conditions) or anaerobic (more negative reducing conditions) are present

Biological Oxygen Demand (BOD)
Measures the amount of oxygen consumed by microorganisms in decomposing organic matter.

Laboratory Parameters:

VOCs
Determine baseline level of contamination and relative concentrations of contaminants.

Salinity
Elevated salinity may reduce microbial activity.

Nitrate
Essential nutrient for bioremediation.

Total Inorganic Carbons (TIC-Alkalinity)
Best overall indicator of aerobic biological activity (by measuring the generation of CO_2).

Total Organic Carbons (TOC)
Measure of the total amount of natural organic material in a water sample.

Total Dissolved Solids (TDS)
Defines the concentration of dissolved organic and inorganic chemicals.

Heterotrophic Plate Count
Procedure for estimating the number of live heterotrophic bacteria in the water. (Colony Forming Units). Another good indicator of biodegradation.