

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 10° to 40°C (50° F to 104° 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 CO₂).

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.