

US EPA ARCHIVE DOCUMENT

SAMPLING PARAMETERS: Bioreacting Landfills

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Criteria for Measurements



TYPES OF SAMPLING PARAMETERS

Critical: Support Primary project objective, to determine the impact of waste stabilization as a result of treatment applications relative to an untreated control

Non-Critical : Support Secondary project objectives, documentation of nitrogen dynamics

Leachate Sampling: Monthly

- *COD **
- *BOD*
- *pH*
- *Temperature*
- *Total Volatile Organic Acids **
- Ortho P/Total P
- Ammonia-Nitrogen ($\text{NH}_3\text{-N}$)
- Nitrate-Nitrogen ($\text{NO}_3\text{-N}$)
- Nitrate-Nitrogen ($\text{NO}_2\text{-N}$)

Leachate Sampling: Quarterly

- VOC
- SVOC
- Total Kjeldahl Nitrogen
- Total Dissolved Solids
- Sulfate
- Chloride
- Potassium
- Conductance
- RCRA Hazardous Metals

Waste Sampling



Waste Sampling



Waste Sampling: Daily

- *Waste Temperature* *
- Oxygen Reduction Potential

Waste Sampling: Quarterly

- *Waste Settlement (GPS) **

Waste Sampling: Annually

- *Organic Solids*
- *Biochemical Methane Potential*
- *Waste Moisture* *
- *Waste pH*
- Cellulose/Lignin Ratios
- Waste Density *
- Appearance of Waste (color, texture, type)

Gas Sampling: Weekly

- *Landfill Gas Flow/Production **
- *CO₂ in Field **
- *CH₄ in Field **
- *O₂ in Field **

Gas Sampling: Quarterly

- CO_2 , *Summa Canister in Laboratory*
- CH_4 , *Summa Canister in Laboratory*
- O_2 , *Summa Canister in Laboratory*
- Non methane Organic Carbon
- Hazardous Air Pollutants
- Surface Emission Monitoring

Microbiological Research Team



Bacterial Types and Methods

- Aerobes: R2A @ 37 °C for 5 days
- Anaerobes: Anaerobic (Difco) Agar @ 37 °C for 14 days, gas pack jars
- Sulfate Reducing Bacteria: MPN @ 35 °C for 14 days in gas pack jars
- Denitrifying Bacteria: MPN @ 35 °C for 14 days in gas pack jars
- Methane Producing Bacteria: MPN @ 37 °C for 60 days in serum bottles

Thank You !

The End



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