

# TestAmerica Applied Sciences Laboratory (ASL)

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## About TestAmerica ASL

TestAmerica ASL is built on three core services: analytical testing, treatability testing, and consulting services. ASL provides a comprehensive group of multifunction environmental laboratory and analytical consulting services that apply the talents of lab staff, and use the latest scientific tools and best practices, to help clients achieve real-world solutions to current challenges. ASL provides a full range of applied research and analytical support to water, wastewater, environmental, and industrial projects that are built around the specific needs of consulting and engineering clients.

## What is Treatability Testing?

Broadly, Treatability testing is the measurement of treatment effectiveness under “ideal” (laboratory) conditions. It consists of controlled bench-scale tests that are performed on water or soil samples with any of the following goals:

- Proof of concept testing (R&D for a proposed treatment technology)
- Optimization of conditions/reagent doses for an existing or planned treatment facility or site
- Troubleshooting of existing conditions at a treatment facility or site (diagnostic or prescriptive)
- Establishing engineering parameters for pilot/full-scale work
- Providing design criteria for building of full-scale systems

## How does a Treatability Project Work?

Potential clients can contact the Treatability Lab to discuss their issue of concern and potential treatment technologies:

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1. After consultation, a Scope of Work and a Test Plan will be composed, detailing the testing objectives, procedures, any decision points for the project, as well as schedule and deliverables.
2. Upon review and approval of the Test Plan by all parties, a Cost Estimate will be drawn up and sent to the client for approval.

- Once these guidelines are in place, a sample kit will be shipped to the client site for sample collection; samples will be returned to TestAmerica's Applied Sciences Lab (Corvallis, OR) for testing.

Clients will be provided regular updates and preliminary data on their testing as it progresses. At the conclusion of testing, a detailed Test Summary with observations, photographs, data, and any analytical reports will be provided to the client in the form of an excel file. A written report (Word document) detailing procedures and a compilation of all results can also be provided.

## ASL Standard Treatability Capabilities

### Coagulation/Flocculation:

- Standard Jar Test (JT)
- JT with Dissolved Air Flotation (DAF)
- JT with Powdered Activated Carbon (PAC)
- JT for Flue Gas Desulfurization (FGD) Waters
- JT for Low Level Phosphorus (LLP) Removal
- JT Utilizing Specialized Technologies like Ballasted Flocculation
- Zeta Potential Testing



### Chlorine Testing:

- Chlorine Demand/Decay
- Disinfection Byproduct (DBP) Formation Potential (TTHMs, HAA5, Nitrosamines, etc.)
- Simulated Distribution System (SDS) Testing with Chlorination or Chloramination
- Chlorine Dioxide Demand/Decay
- Breakpoint Chlorination

### Absorptive Media Testing:

- Rapid Small Scale Column Test (RSSCT) for DOC, Arsenic, etc. removal
- Carbon Isotherm Test
- Ion Exchange Column Testing
- MIEX Resin Use and Regeneration
- Filter Media Analysis- Effective Size/Uniformity Coefficient, Floc Retention
- Greensand Media





**Membrane Testing:**

- Mini-Module Membrane Testing (MF)
- Flat Sheet Membrane Tests (UF/RO)
- Single-Element Pilot-Scale RO Skid (batch mode operation, semi-bench-scale)
- Silt Density Index (SDI)
- Filtration Index (Time to Filter)

**Additional Oxidation Chemistries:**

- Ozone Demand/Decay Testing
- Ozone/Advanced Oxidation Testing
- Contaminant Destruction Kinetics
- Bromate and Nitrosamine Formation Potential/Mitigation Testing
- Ultraviolet Collimated Beam
- Permanganate Natural Oxidant Demand Testing



**Biological Testing:**

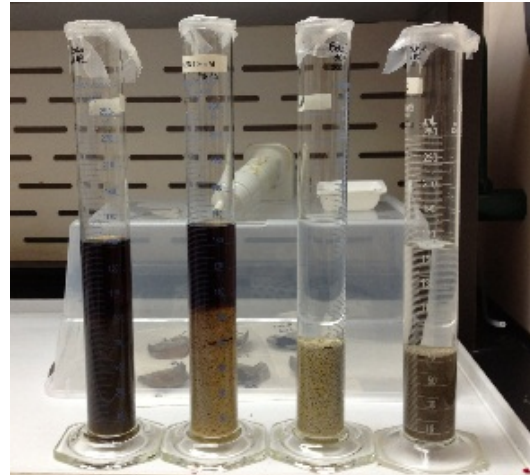
- Biodegradable Dissolved Organic Carbon (BDOC)
- Biological Filtration
- Bioreactor Testing with Batch Reactors
- Bioreactor Testing with Flow-Through Reactors
- High Food/Microorganism Batch Test

## Misc. Water Treatability Capabilities:

- Amperometric Titrations
- Manganese Speciation

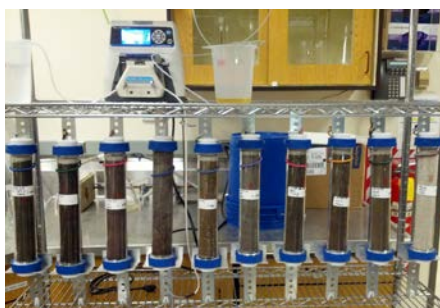
## Sludge Analyses:

- Sludge Conditioning and Resistance to Dewatering
- Sludge Thickening Evaluations
- Capillary Suction Time
- Misc. other sludge analyses (e.g. settling rate, slump tests, etc.)



## Soils and Environmental Treatability Testing:

- Modified LEAF Tests: E1313, E1314, E1316
- E1315M Semi-dynamic Tank Leaching Modified for Organics (Vanderbilt licensed- PDMS liners)
- In-situ soil Solidification/Stabilization (ISS)
- Biological Degradation (aerobic or anaerobic)
- Chemical Oxidation/Reduction (e.g. ZVI)
- Thermal Desorption or Degradation Testing
- NAPL Characterization and Mobility Analysis
- Barrier Wall Emplacement Testing
- Adsorption Isotherms



## ASL Cross-Collaboration and Comprehensive Studies

In addition to our standard list of tests and analyses, TestAmerica's Treatability lab offers development of custom tests or procedures to address unique client needs. These types of tests are developed through additional consultation and include *comprehensive treatment train simulations*, as well as cross-collaboration between ASL's Treatability and Bioassay labs (e.g. *treatment evaluations to examine toxicity reduction*), among other types of projects.