



## Sediment and Ecological Projects

Eurofins Lancaster Laboratories Environmental has the ability to perform a wide range of analyses on soil, sediment, surface water and tissue matrices. We have gained extensive experience in handling the unique situations presented by these types of samples and can customize our processes to meet your reporting needs. For a complete listing of analyses performed, contact us to request our *Schedule of Services*.

### Why Choose Eurofins Lancaster Laboratories Environmental?

- In addition to our sediment and ecological expertise, we offer a full scope of testing services.
- We customize our processes to meet your reporting needs.

### Our Experience

We have hands-on experience with ecological projects. Some recent projects include:

- Hudson River
- Passaic River
- Star Lake Canal
- Dundalk Marine Terminal
- Gulf Coast

### Soil and Surface Water

We support remedial investigations through a number of different methods.

For Organics, we analyze for GC/MS Volatiles by SW-846 8260B using methanol (high-level) or sodium bisulfate (low-level) preservation with EnCore soil samplers. We have extensive experience testing for SVOCs using SW-846 8270, including PAHs and geochemical biomarkers like alkylated PAHs, isopremoids, pristine and phytane. We analyze for Total Petroleum Hydrocarbons (TPH) and support many state methods including standard 8015 for GRO/DRO, as well as more complex methods like MA VPH/EPH, NJ EPH, TX 1005/1006. We also analyze



samples for Pesticides, Herbicides, PCBs, Metals and Wet Chemistry techniques.

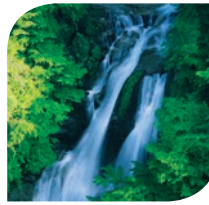
We can use Selective Ion Monitoring (SIM) to meet lower action levels for GC/MS analyses. By monitoring a single ion within a specific retention time window, we are able to detect a lower mass of the target analyte. The ability to use SIM for SVOCs on these ecological matrices is based on the cleanups that we are able to do (GPC, in particular).

For Metals analysis, soil samples are prepared in accordance with SW-846 3050B acid digestion (a technique that uses heat, HNO<sub>3</sub>, NCl and peroxide to provide a harsh leach of the sample). Water samples are digested using SW-846 3005A (total recoverable) or 3010A (total).

### Contaminated Sediment

Compounds present in sediment may begin to affect benthic organisms at concentrations often lower than conventional analytical methods can quantify. Sediments frequently have a high moisture content (or low percent solids content), which ultimately affect the ability to achieve the low reporting limits required for ecological risk characterization. To remove the water portion from these samples, freeze-drying is a technique that is available. Although time consuming, water content can be reduced by greater than 50 percent.

Eurofins Lancaster Laboratories Environmental offers Acid Volatile Sulfides/Simultaneously Extracted Metals (AVS/SEM) for sediment programs. Additionally, grain size or particle size is run by hydrometer in accor-



dance with ASTM D-422. We also offer Total Organic Carbon (TOC) Method SW-846 9060 or Standard Method 5310B modified (Lloyd Kahn) to meet your specific QAPP requirements.

### Elutriates and Pore Waters

Elutriate evaluation is commonly requested when river dredging is performed. This procedure helps consultants/scientists determine how much of the river bottom contamination is transported into the river water during dredging activities.

The bioavailability of chemicals in sediments is often estimated using sediment pore water. The water can be obtained from the sediment sample in the laboratory setting using several techniques, with centrifugation as the preferable method. Methods for obtaining the pore water in the field can be used (probe pumping or diffusion methods); however, logistical constraints like variables at the sampling site or the volume of sample required can make the laboratory choice more viable.

We have experience and capabilities to perform both elutriate and pore water extraction and analyses following applicable U.S. Army Corps of Engineers guidelines.

### Tissue/Biota Extraction and Analysis

Many of the analyses used for soil or sediments can be performed on tissue or biota samples. We have experience with a variety of tissue and biota samples, including many species of fish, insects, frogs, crabs, marine worms and other marine creatures, as well as plant material. We can customize a strategy for preparation and homogenization for the unique samples from each project. Either the edible portion or the entire animal is used and is project dependent. Adequate sample size is important to achieve desired detection limits.

Several homogenization procedures are used to prepare the sample for extraction. These include grinding and blending with food-grade dry ice. The sample is then allowed to sublime for at least 12 hours or until the CO<sub>2</sub> has vaporized (18 to 24 hours maximum). We keep the samples frozen during the preparation phase to maintain consistent sample integrity and to prevent layering of the sample. The sample is then ready for extraction of the analytes of interest.

Samples to be analyzed for organics are extracted using SW-846 methodology. This usually includes sonication or microwave extraction. Since the fat content and other organics native to some organisms may interfere with organic analyses, we offer multiple cleanup techniques, including florisil, silica gel, sulfuric acid and gel permeation chromatography. These successfully remove the fats and excess organic components from the samples prior to injection on the instruments.

Samples to be analyzed for metals are prepared in accordance with SW-846 3050B acid digestions or SW-846 3052 microwave-assisted acid digestions.

Eurofins Lancaster Laboratories Environmental offers lipids analysis to provide clients with all the analytical data necessary to perform food-chain modeling. We use an automated approach utilizing Automated Solvent Extraction (ASE) by SW-846 3545 followed by a gravimetric determination to quantify the fat content. We've found this procedure to generate more accurate and reproducible results than the AOAC method, which uses an acid hydrolysis technique before the gravimetric fat determination.

#### [www.LancasterLabsEnv.com](http://www.LancasterLabsEnv.com)

##### Standard Services:

Volatiles  
Semivolatiles  
Metals  
Pesticides/PCBs/Herbicides  
Petroleum-Related Analysis  
Waste Characterization  
Water Quality

Drinking Water  
Vapor & Air Analysis  
Sediment & Tissue Testing  
Method Development  
Shale Oil & Gas Analysis

##### Specialty Services:

Dioxins/Furans  
PCB Congeners  
Hydrazines/NDMA  
Explosives  
Perchlorate  
Alkyl PAHs, Alkanes, Biomarkers  
PFC (PFOA)

Organic Acids  
Aldehydes  
1,4-Dioxane (low level)  
Low-Level Mercury  
PMI  
Method 25D

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