New England Bioassay, a Division of GZA GeoEnvironmental, Inc. (NEB) is a high quality environmental and aquatic toxicity testing laboratory located in Manchester, CT. The NEB laboratory provides high quality acute and chronic toxicity test services to hundreds of industrial facilities, power plants, municipalities, and environmental consultants throughout the Northeast. Our commitment to our Clients is to be proactive in our approach to their project objectives.

NEB’s Quality Assurance/Quality Control Program requires participation in the EPA’s annual DMR-QA Quality Control Program for Whole Effluent Toxicity (WET) testing. NEB is NELAC-certified to perform testing in the State of New Jersey and has been validated by the United States Army Corps of Engineers (USACE) for sediment toxicity testing. NEB also conducts routine reference toxicant testing and participates in state QA/QC programs including split samples.

**ECOLOGICAL TESTING**

Fauna and benthic organisms that live in soil or sediment may be impacted by contaminated matrices. Sediment can cause a long-term exposure from chemicals that may have more effect on these organisms than overlying surface water. Risk to ecological receptors can be assessed by using data generated from ecological assays. This information can be used to reduce the amount of soil or sediment removed from a site that may cause significant risk to the environment. The net result could be a reduction of remediation costs.

**Soil Toxicity**

The toxicity of contaminated soils has become a major focus in ecological risk assessment. Soil toxicity tests are used to set generic or site-specific soil quality guidelines and for guiding on-site contamination mapping and remediation. We perform soil toxicity tests (bioaccumulation and survival) using the Earthworm *Eisenia fetida*.

**Sediment Toxicity**

Sediments are a major repository for many persistent contaminants introduced into surface waters, and concentrations of contaminants in sediments are often several orders of magnitude higher than those in the overlying water. NEB performs a variety of tests to evaluate sediment contamination with the specific methodology depending upon the sediment phase evaluated [whole sediment (solid-phase tests), suspended sediments, elutriates, pore water, and sediment extracts]. NEB offers the following assays:

- **Acute and Chronic Freshwater Whole Sediment Toxicity Tests**
  - Amphipod toxicity (*Hyalella azteca*)
  - Midge larvae toxicity (*Chironomus tentans*)
- **Chronic Marine Sediment Toxicity Tests**
- **Amphipod toxicity** (*Ampelisca abdita, Leptocheirus plumulosus*)
- **Life-Cycle Test** (*Chironomus tentans*)
WASTEWATER TESTING
The NPDES permit program controls water pollution by regulating point and non-point source discharges into waters of the United States. Whole Effluent Toxicity (WET) testing is an important tool in detecting and addressing toxicity in surface waters. New England Bioassay routinely performs the acute and chronic toxicity tests with both freshwater and marine vertebrates and invertebrates for industrial, municipal, and environmental engineering clients throughout the United States.

Freshwater Test Species
- Fathead minnow (Pimephales promelas)
- Daphnid/Water Fleas (Daphnia magna, Daphnia pulex, Ceriodaphnia dubia)
- Amphipod (Hyalella azteca)
- Aquatic Dipteran Larvae (Chironomus tentans)
- Algae (Selenastrum)

Saltwater Test Species
- Sheepshead minnow (Cyprinodon variegatus)
- Inland silverside (Menidia beryllina)
- Mysis shrimp (Mysis baišia)
- Sea urchin (Arbacia punctulata)
- Amphipod (Ampelisca abdita and Leptocheirus plumulosus)

Aquatic Toxicity
Aquatic toxicity tests are widely accepted and well-established protocols commonly used by ecological investigators to assess environmental impacts. New England Bioassay offers a wide variety of Freshwater and Saltwater test organisms to evaluate acute and chronic toxicity of aqueous samples.

Organism Culturing
New England Bioassay recognizes that our clients’ samples must be tested using only healthy stocks of freshwater, saltwater, or terrestrial organisms. Our experienced staff maintains and cultures a wide variety of test species. Before testing begins, much effort is expended on the preparation of our organisms. Organisms used in testing must be grown and then acclimated to our client's test-specific requirements, such as life stage, age, water type, and temperature regime.

Toxicity Identification and Reduction Evaluation
As an outgrowth of NPDES biomonitoring requirements, in those instances where an effluent has consistently demonstrated toxicity, the US EPA and applicable states require an effort aimed at reducing effluent toxicity to acceptable levels.

An effluent toxicity identification/reduction evaluation is the process used to accomplish that objective. NEB routinely performs TIE/TRE’s to help clients identify the source of their toxicity.