

# Sustainability Efforts at New England Biolabs<sup>®</sup> (NEB<sup>®</sup>)

Environmental stewardship is one of the founding principles of NEB. By promoting sound ecological practices and environmental sustainability, NEB ensures the protection and preservation of natural resources, both locally and globally.

NEB continuously strives for improvement in its business processes in order to minimize and, where possible, mitigate its impact on the environment. Raising awareness of its duty to the environment is paramount to NEB's corporate message.

As an additional measure of its commitment, NEB has received ISO 14001 certification, a quality standard for environmental management systems.

Below is a summary of the processes NEB employs to maintain its high degree of environmental stewardship.

## WASTE GENERATION AND DISPOSITION

To the extent practicable, NEB will seek out those disposal options that create the least negative impact on the environment. Recycling and composting go a long way to reducing NEB's carbon footprint. NEB requires that third party hazardous waste contractors use waste-to-energy (also known as energy recovery) incineration whenever possible. Landfilling is used only when other potential options have been exhausted.

NEB operates the longest-running shipping box recycling program, which diverts cardboard and polystyrene away from landfills. Gel packs contain non-hazardous, non-toxic materials that can be disposed to the drain. The plastic sleeve can be added to single stream recycling (see below).

### Cafeteria Waste

Cafeteria waste is collected as compostable material and delivered two times per week to a local farm where it is used for livestock feed and plant/tree mulching.

### Recyclables

Recyclables are collected in the labs, cafeteria and kitchenette areas. They are picked up three times a week and include:

- Glass
- Plastic
- Paper
- Aluminum
- Cardboard
- Wood Pallets

### Radioactive Waste

Radioactive waste generated in the labs/production suites from routine isotopes used in the life sciences is processed in three ways:

- Isotopes with a half-life less than 90 days are stored on site for decay (ten half-lives), surveyed for an absence of activity and then disposed of as regular trash.
- Isotopes with a half-life of greater than 90 days are transported offsite by a certified radioactive waste vendor. The material is then transported to a permitted incineration facility.

- Long half-life isotopes with low activity (<sup>3</sup>H and <sup>14</sup>C) that are mixed with scintillation fluid are classified as deregulated chemical hazardous waste and transported to a permitted incineration facility.
- Short half-life isotopes with high activity (<sup>32</sup>P and <sup>33</sup>P) that are mixed with scintillation fluid are classified as radioactive waste and transported to a permitted incineration facility.

### Biological Waste

Biological waste generated in the labs/production suites is processed in three ways:

- Liquid waste is collected in an appropriate vessel, decontaminated for a minimum of 20 minutes with sodium hypochlorite (household bleach) and then disposed of to the drain.
- Sharps waste is collected in puncture-proof containers and transported offsite by a certified medical waste vendor. The waste is shredded to reduce the volume by 70% and rendered non-infectious by a chemical treatment process. The remaining material is stored as feedstock to be used for manufacturing of low-grade plastic construction materials.
- Regulated medical waste (RMW) is collected in step-on cans that are double-bagged. The bags are collected in 200-gallon totes and processed similar to sharps (see above).

### Chemical Waste

Chemical waste generated in the labs/production suites is collected in 5-gallon drums at the point of generation. The majority of chemical waste generated at NEB is in the form of halogenated and non-halogenated flammable liquid. Full 5-gallon drums are periodically collected and consolidated into 55-gallon drums. These drums are transported offsite by a certified hazardous waste vendor and disposed of at a permitted waste-to-energy incineration facility.

### Virgin Chemicals

Virgin chemicals in solid or liquid form that have expired are processed into lab packs based on their compatibility and are transported offsite by a certified hazardous waste vendor and disposed of at a permitted waste-to-energy incineration facility.

## Laboratory Drain Waste

Laboratory drain waste (generated in labs and production areas and permitted to be disposed of directly to the sewer) and *sanitary waste* (from restrooms) is treated onsite via a state-of-the-art solar aquatics wastewater treatment facility. The system treats effluent to advanced secondary and tertiary standards through a series of aerated translucent tanks that host plant communities and aerobic microorganisms. The effluent from this facility is highly regulated and the permit allows for this effluent to be discharged directly back into the ground water.

## WATERSHED PROTECTION

### Plant/Lawn Maintenance Products

No herbicides, fungicides or pesticides are used. Products include organic nutrients and beneficial microorganisms only.

### Water Conservation and Reuse

NEB employs the use of low-flow faucets and reduced-flow toilet flushing equipment, as well as the reuse of reject water from the Reverse Osmosis/Deionized (RO/DI) system to supplement toilet flushing.

### Native Vegetation

NEB landscapes with native wildflowers and grasses that improve the environment and attract wildlife including a variety of birds, butterflies and other animals. Once established, native plants require significantly less fertilizers, herbicides, pesticides or watering, thereby improving the environment and reducing maintenance costs. Plantings are selected based on their low requirements for water, fertilizers and pesticides.

### Groundwater Monitoring

Monitoring wells are strategically located throughout the campus and sampled monthly to ensure no adverse effects as a result of NEB operational activities.

### Support to the Community

NEB supports local environmental initiatives through its corporate donations program, which contributes to non-profit organizations.

## ENERGY CONSERVATION AND WATER CONSUMPTION

Believing it possible to conduct cutting-edge research and production in a greener, less-environmentally impactful way, NEB commissioned the building of a modern, LEED certified (Leadership in Energy and Environmental Design, granted by the United States Green Building Council) 140,000 square foot laboratory building.

LEED certification is a distinction awarded based on a suite of environmentally focused standards that include site sustainability, water efficiency, energy conservation and atmospheric protection, choice of building materials and resources, indoor environmental quality, innovation and building design.

In 2009, NEB received a “sustainable design” award from the Boston Society of Architects for the design of this state-of-the-art facility.

Examples of how the building was designed, as well as other post-design initiatives to optimize energy usage include:

- A control system that shuts off lighting when building is unoccupied
- A recovery system, in which the heat that is exhausted from the building is recycled to facilitate the heating of incoming fresh air
- Chillers that use Free Cooling when outside temperature is below 50°F, thus allowing chillers to shut off and still keep the building cool
- High efficiency motors and lights, with motor drives that reduce the speed of motors when maximum flow is not needed
- Replacement of low-efficiency light bulbs in the exterior and main lobby fixtures with high efficiency LED light bulbs
- Set back of ventilation rates during hours of non-habitation

In addition, NEB has reduced its water usage by 50%, even though the new laboratory is 3X the square footage of its predecessor in Beverly, MA. The facility was designed to conserve the property’s trees and land, and exceeds open space requirements by 54%.

Installation of charging stations for employees who own electric vehicles, advocating the use of carpooling and making carpool parking space available to those who participate are other examples of how NEB continuously strives to reduce its carbon footprint. Most recently (Fall-Winter 2018), NEB installed a solar panel array that has the capacity to give back .75 megawatts of electricity to the local power grid.

For more information, visit [www.neb.com/environmentalphilosophy](http://www.neb.com/environmentalphilosophy) and download our **Social and Environmental Sustainability Brochure.**

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