

# Oregon's Environmental Laboratory

## **DEQ's Lab is the key to Oregon's environmental science**

Monitoring and analysis programs conducted by the DEQ Laboratory and Environmental Assessment Division provide the foundation for restoring, maintaining and enhancing Oregon's environmental quality. DEQ scientists maintain monitoring networks for air, water, and land and conduct special studies to determine the status, trends, and sources of impairment for Oregon's environmental quality.

Collecting data is essential to understanding the health of Oregon's environment. Monitoring data is used to determine whether environmental standards are being met, the sources of pollution, the impact of pollution on human and environmental health and the effectiveness of industrial compliance, agricultural management practices and forestry activities. Data collected is also used in the investigation of spills and DEQ's civil and criminal investigations.

## **Air Quality Monitoring**

Scientists and technicians in the Air Quality Monitoring section operate continuous air quality monitors or samplers from a statewide network of approximately 35-40 continuous air monitoring sites. These sites measure air pollutant concentrations for comparison to national standards and collect weather and atmospheric data. The Air Quality Monitoring Section also evaluates air monitoring plans submitted to DEQ, provides air quality data to other DEQ programs and interested persons, and assists companies that have self-monitoring air quality programs.

## **Water Quality Monitoring**

DEQ scientists collect and analyze samples of water from Oregon's rivers, lakes, and groundwater, and from solid and hazardous waste sites to determine if an environmental or public health threat exists. These water quality scientists also evaluate sampling and analysis plans submitted to DEQ, support watershed council and volunteer monitoring programs with equipment and technical assistance, and produce reports of their findings.

Aquatic insects, fish and other organisms that live in the water are also monitored to determine the health of the aquatic systems and the impacts

from pollution. Industrial wastes are tested in the Laboratory to determine if they are toxic to living organisms. Staff also provide training in biological assessment to public and other agencies and provide technical assistance to DEQ and other agencies in biological sampling and analysis methods.

## **Inorganic Chemistry**

Scientists in the inorganic Chemistry laboratory specialize in testing for a special type of chemicals known as inorganic chemicals (non-carbon based). These include such chemicals as mercury, lead, and chromium. The scientists also develop methods to analyze other important environmental indicators such as air particulates, oxygen demand, nutrients and asbestos fibers. Additionally, DEQ scientists develop ways to analyze physical properties like mass, color and size.

## **Organic Chemistry**

Scientists in the organic chemistry section specialize in testing for a type of chemicals known as organic chemicals. These include chemicals that originally came from organic sources such as petroleum products but also include many human made chemicals such as pesticides and poly chlorinated bi-phenols (PCBs). Tests are performed on a variety of types of samples such as air, water, waste, soil, sediment, vegetable matter, and animal tissue. DEQ scientists work to identify new chemicals in the environment that may be of concern such as flame retardants and pharmaceuticals.

## **Quality Assurance**

Ensuring the quality of the data produced is of the highest importance to the DEQ Laboratory. This is done by implementing rigorous quality assurance protocols during all phases of sampling and analysis. All data is then reviewed by independent quality assurance experts to make sure it meets all data quality requirements before it is released.

## **New state-of-the-art laboratory**

Prior to December 2007 the DEQ Laboratory was located on the PSU Campus in a converted parking garage. Recently DEQ and the Oregon Department of Human Services moved their laboratory to a state-of-the-art facility.



State of Oregon  
Department of  
Environmental  
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The new facility allows both DEQ and DHS to meet the public health and environmental laboratory needs for Oregon well into the twenty-first century. The new Laboratory is brighter, safer, and provides for greater analytical capabilities and production efficiencies.

DEQ and the Oregon State Public Health Laboratory (OSPHL) share an additional 70% more space, moving from a 50,000 square foot facility to an 86,000 square foot facility. The new space allows for more efficient organization of Lab functions and allows DEQ to store and process a greater number of samples.

The new Laboratory has vastly improved specialized laboratory air handling systems, making for a safer working environment and allowing for the safe testing of more dangerous samples. A much cleaner environment means DEQ is able to test for toxic compounds at much lower concentrations that are environmentally significant. The improvements include a special clean room for trace metals analysis at very low concentrations.

The Lab has a more efficient layout to improve work flow, skylights and a number of energy efficiency features, such as motion detectors to shut off lights in unoccupied rooms. A storage building, shop and ample secure parking allows DEQ to safely store and maintain the vehicles, boats, and specialized monitoring equipment. Shared lunchroom and meeting rooms make the most efficient use of space and provide a pleasing environment for staff and visitors.

Laboratory tours for interested parties can be arranged by special request.

### **Facts about the new shared laboratory facility**

Cost of building: \$35 million

Square footage:

Total: 86,000 including storage buildings – more than two acres

DEQ: 44,000

OSPHL: 42,000

Number of employees working at site:

DEQ: About 85

OSPHL: About 75

### Energy-saving features:

- Built to meet or exceed LEED Silver rating
- Ample natural lighting
- Dark building on nights, weekends, and holidays
- Automatic light sweep daily
- Lights dim with input from outside light sensors
- Timed motion detector lights in each office
- Waterless urinals in men's room
- High efficiency toilets
- Standard and high-efficiency boilers
- Temperature and supply/exhaust setback during unoccupied times
- Energy recovery exhaust/supply

### **Features of Oregon's Environmental Laboratory**

- Laboratories can be operated in 24/7 attended or unattended mode
- Secure parking for State vehicles and associated equipment
- Covered parking for boats
- Covered out door workspace for monitoring section construction
- Adequate indoor shop
- Separate, high efficiency storage
- Sample receiving and equipment wash-down areas
- All Hazards Laboratory capable of handling and triaging potentially hazardous unknowns including biological and chemical weapons
- Clean room for ultra trace metals analysis
- Environmental room with tightly controlled temperature and humidity for air filter analysis
- Environmental room with temperature control and programmable lights for bioassay analysis
- Security/tracking access control for legal defensibility of samples and files
- Distributed gas systems for Nitrogen, Argon, and Helium
- Separate laboratory space for analysis of trace volatile compounds
- Centralized, controlled access to supplies and chemicals
- Remotely operated boilers

### **Alternative formats**

*Alternative formats (Braille, large type) of this document can be made available. Contact DEQ's Office of Communications & Outreach, Portland, at (503) 229-5696, or toll-free in Oregon at 1-800-452-4011, ext. 5696.*

