

The ECBC Environmental BioMonitoring Laboratory Focuses on the Future

Mindful of the 11 September 2001 tragedy and the anthrax attacks that followed, the Edgewood Chemical Biological Center (ECBC)¹ Environmental BioMonitoring Laboratory (EBML) is developing technologies and services to address new world demands for global accreditation, increased service offerings, flexibility, and the quality control of biolabs. “We continue to work towards continuous expansion and leading the way in environmental bioanalytical laboratory services that meet the needs of the world post-September 11,” said Mr. Isaac Fruchey, EBML team leader.

With this global view, EBML offers a variety of Biosafety Level 1 and Level 2 analytical technical services and is pursuing International Organization for Standardization accreditation, which is slated for completion in early 2009. “This [accreditation] will increase confidence levels in analytical results and hold the laboratory accountable to internationally recognized standards for testing and calibration, which is crucial to our continued success,” Mr. Fruchey said.

EBML, which is outfitted with modern facilities and equipment, is evolving as a broad-service, bioanalytical laboratory that provides a wide range of environmental analytical testing services. The staff has hands-on experience with a variety of challenging environmental sample matrices including soil, filters, biological sampling kits, surface swipes, and cotton swabs.

“In our laboratory, we offer complementary technologies for the qualitative detection of both biological toxins and organisms,” Mr. Fruchey said. “Our high-throughput screening approach allows us to provide same-day results for most samples, with a turnaround time of approximately 6 hours for complete analysis. This same-day service has an immediate impact on our clients.”

As client demands for flexibility have increased, EBML has offered on-site and field-deployable biological hazmat testing capabilities. Now, ECBC clients can send environmental samples to EBML or request that the lab deploy to a field or incident area for sampling. “We outfitted the mobile laboratory with duplicate equipment from our fixed laboratory,” said Fruchey. “If a large number of samples are being generated at a remote location, the best solution is to bring the laboratory to the site, which is why we developed a seamless transition from fixed laboratory operations to field operations.”

EBML continues to focus on maintaining quality. “Our staff works closely with customers to determine best-fit methods,

custom configurations, and specialized equipment test-outs that provide professional, defensible, and cost-effective analytical laboratory services,” Fruchey said. “As EBML continues to grow, we will continue to focus on offering our clients the best in high-quality, timely service.”

Other EBML capabilities include—

- Detection, monitoring, and high-throughput analysis of 7 biological warfare agents by using robotics and high-speed instrumentation. With electrochemiluminescence detection and polymerase chain reaction technology, 96 samples can be analyzed for 7 targets in an 8-hour period.
- Presumptive identification of biowarfare agents by using enzyme-linked, immunosorbent assays; handheld assays; and gel electrophoresis.
- Identification of bacterial agents by using cell cultures coupled with traditional and fluorescence microscopy.
- Identification of bacteria by using the Microbial Identification System (MIDI), a technology based on the gas chromatographic analysis of cellular fatty acid methyl esters.
- Identification of more than 1,500 species of aerobic and anaerobic bacteria, including 6 major bacterial bioterrorism agents. In less than 10 minutes, the ECBC’s Sherlock Bioterrorism Library can be used to identify extracts from anthrax, brucellosis, glanders, tularemia, melioidosis, plague, and 15 “challenge” organisms.

EBML serves as a leading technical resource and “go-to lab” that addresses environmental-related laboratory issues and provides high-quality, defensible data to its customers. The lab supports many government agencies (including the Department of Defense Joint Program Executive Office for Chemical and Biological Defense, Chemical Biological Medical Systems Critical Reagents Program, U.S. Army Corps of Engineers, and Federal Bureau of Investigation) and has processed more than 10,000 samples for these agencies. For the private sector, EBML performs technical support under test service agreements and cooperative research and development agreements.

For more information about ECBC, visit their Web site at <http://www.ecbc.army.mil> or call Mr. Don Kennedy, ECBC Public Affairs Officer, at (410) 436-3610. 

Endnote:

¹ECBC is a U.S. Army Research and Development Command laboratory located at Aberdeen Proving Ground, Maryland.