



**US Army Corps
of Engineers®**

Engineer Research and
Development Center

Analytical Chemistry, Research, and Methods Development

Description

ERDC maintains state-of-the-art chemistry laboratory facilities in two locations: Vicksburg, Mississippi, and Omaha, Nebraska. The staff at these sites conducts research and methods development in the field of environmental analytical chemistry as well as state-of-the-art analysis in the areas of water quality, environmental restoration, and contaminated sediment and dredged material management. ERDC also provides quality assurance support to the Corps' hazardous, toxic, and radiological waste programs.

Capabilities

ERDC is capable of providing the following services to our customers:

- Environmental chemistry research.
- Quality assurance split sample analysis.
- Water quality analysis.
- Analytical chemistry in support of research.
- Site investigations.
- Site remediation.
- Sample analysis for Department of Defense research and all major environmental analytical programs of the Environmental Protection Agency (EPA).
- Analysis of water, soil, sediment, and tissue samples for explosives, volatile and semi-volatile organics; metals, aroclors and PCB congeners, pesticides, herbicides, nutrients, and numerous other environmental contaminants.
- Methylmercury analysis and arsenic speciation.
- Environmental toxicology.
- Data review and assessment, and data validation following functional guidelines.
- Laboratory inspection/validation.
- Performance evaluation sample preparation.
- Raw data tape audits of contractor laboratory data.
- Technical presentations at conferences.
- Electronic data deliverables.
- Chemical quality assurance reports.

Supporting Technology

- Expert witness testimony.
- Mass spectrometry samplers
- Gas chromatography detectors
- Infrared spectrophotometry
- Total organic/inorganic carbon analyzers
- Liquid chromatography equipment
- Radiological analysis counting system
- Metals analysis spectrometers
- Ion analysis equipment
- Sample preparation equipment

ERDC contributes to all phases of analytical chemistry as described above. In addition to analysis of environmental and research samples, ERDC provides numerous other products of value to the technical community. Examples are: data review and assessment, data validation following functional guidelines, laboratory inspection/validation, performance evaluation sample preparation, raw data tape audits of contractor laboratory data, technical presentations at conferences, electronic data deliverables, chemical quality assurance reports, expert witness testimony, and others.

Benefits

ERDC is the primary source for all aspects of analytical chemistry in the Corps of Engineers. The extensive experience of personnel, combined with the state-of-the-art facilities and analytical equipment, provide a unique analytical chemistry resource for engineers and scientists. As project team members, ERDC personnel supply the analytical chemistry perspective and capability to bring success to environmental projects. ERDC analysts and technicians provide key analytical chemistry support for research, hazardous and toxic waste site investigations, and site remediation. The expertise offered through the ERDC analytical laboratory would otherwise not be available to project teams.

Success Stories

ERDC has had much success with and contributed significantly to research programs and the environmental programs, primarily with Corps Districts. A major success resulting from the split sample analysis program was Drake Chemical Superfund Site, working with the Baltimore District. With significant savings to the project, ERDC completed critical analytical chemistry development and analysis to keep the project on schedule after the contract laboratory's capabilities came into question. In support of the San Francisco District, ERDC developed the capability to complete parts-per-trillion analysis of methylmercury and applied the technique to a key wetlands project. For the Philadelphia District and the Vineland Chemical Superfund Project, ERDC developed an efficient and effective method for arsenic speciation. The method continues to be used for this project. ERDC has developed techniques for analysis of numerous special explosives and provides analysis services for a wide range of customers. ERDC is a team player for many environmental projects and continues to provide commendable analytical chemistry services to the Corps, which result in savings of time and money.

Point of Contact

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