

Marine Chemistry Services

Analytical Capabilities

Calscience offers expertise in the analysis of seawater, sediment and tissue to determine low-level chemical constituents. The majority of marine chemistry testing is in support of dredging operations at the major California port facilities, including Los Angeles, Long Beach, San Diego, and the San Francisco Bay area.

Marine sediments and tissues, especially from port environments, can be especially challenging matrices because of complex interferences, limited sample volumes/mass, and ultra-low reporting limit requirements. Sediment investigations can involve more than one medium, including site water, pore water, tissues, and soils. Along with state-of-the-art instrumentation, Calscience has developed special sample cleanup/preparation procedures that allow us to provide the levels of detection typically required to meet project objectives.

Tests commonly performed include:

- **Sulfides**
- **Ammonia**
- **Trace metals with reductive precipitation**
- **Total Organic Carbon**
- **Petroleum hydrocarbons**
- **Organotins**
- **Organochlorine Pesticides**
- **PAHs, Phthalates and Phenols**
- **PCB Aroclors and Congeners**
- **Herbicides**
- **Semi-volatile compounds**
- **Geophysical parameters**

Quality

Calscience applies the same strict quality control standards to all work that we perform. Calscience is accredited by NELAC and DoD ELAP. All data generated is of high technical quality and meets standard validation criteria.

Calscience adheres to the Bight '08 QA/QC protocols and has been a participant in the Bight surveys, administered through the Southern California Coastal Water Research Program (SCCWRP). A key component of the quality control process is the use of Certified Reference Materials (CRMs) and participation in inter-laboratory comparison studies and inter-calibration exercises for storm water, sediment and tissue matrices.

Project Experience

- Port of San Diego Channel Deepening Project
- Southwest Marine Sediment Investigation, Port of Los Angeles
- Port of Long Beach Cerritos Channel Widening Project
- Sediment Investigation, U.S. EPA – Palos Verdes Shelf
- Mission Bay Sediment Investigation
- Hugo Neu-Proler Site Assessment and Remediation, Wilmington, CA
- Okinawa White Beach Elutriate Preparation and Analysis
- Convair Lagoon Tissue Testing
- AES Generating Station Mussel Tissue Testing
- Honeywell New Jersey Sediment/Elutriate Testing

Elutriate Testing

Calscience follows US EPA, USACE, NOAA, Dredged Material Management Office (DMMO), and Puget Sound Estuary Protocols (PSEP) technical guidance in support of sediment projects. Elutriate testing is a bench-scale test designed to simulate and predict the water quality impacts from dredging or dredged material disposal. Dredging operations are routinely conducted in local ports and coastal areas, and in inland waterways. These projects typically require planning and/or investigations to determine if water quality will be affected. Elutriate testing is an important component of the planning process.

Calscience has supported dredging and dredged material disposal projects over the years, and has assembled facilities and developed procedures for the following elutriate tests:

- SET – Standard Elutriate Test (Open Water Disposal)
- MET – Modified Elutriate Test (Open Water or Confined/Diked Disposal)
- EET – Effluent Elutriate Test (Confined or Diked Disposal)
- DRET – Dredging Elutriate Test (Point of Dredging)

Each of these procedures can be tailored to meet the specific objectives of a project.