



ECO-CHEM
Data Quality

OUR FOCUS

We are dedicated to helping our clients establish the reliability, usability, defensibility, and accessibility of data generated in the course of environmental investigations and studies.

Since 1985, EcoChem has specialized in providing an unparalleled level of expertise in managing the quality of environmental data.

Expert knowledge of the analytical procedures used to measure environmental impacts from chemical contaminants allows EcoChem to offer unique insight regarding the quality of data. EcoChem assists government agencies, architecture/ engineering firms, industry, and others with the development of comprehensive and dependable environmental data. EcoChem understands that important and costly decisions are based upon analytical results.

DATA QUALITY ASSESSMENT

EcoChem offers extensive services to establish the defensibility and usability of analytical chemistry data in accordance with a variety of regulatory requirements, in addition to developing custom formatted data deliverables.

- Environmental Data Screening
- Environmental Data Validation
- Electronic Data Verification
- Historical Environmental Data Review

ENVIRONMENTAL CHEMISTRY CONSULTING

EcoChem offers expertise in the selection of project-appropriate analytical methods — and the evaluation and auditing of environmental laboratories — to ensure that critical project Data Quality Objectives will be satisfied.

- Quality Assurance Project Plans
- Sampling and Analysis Plans
- Laboratory Selection and Contracting
- Laboratory Performance Monitoring
- Interpretation of Environmental Data

QUALITY ASSURANCE SYSTEMS

EcoChem offers comprehensive consulting services to develop project-specific quality assurance plans and systems, ensuring the defensibility of analytical chemistry data.

- QA Document Preparation & Review
- QA/QC Planning and Oversight
- QA System and Laboratory Audits
- Data Management Systems



Contract Holder
Contract GS-10F-0103T

EXAMPLE PROJECT EXPERIENCE

ALLOCATION OF NATURAL RESOURCE DAMAGE LIABILITY FOR CONTAMINATED WATERWAYS AND SUPERFUND SITES

EcoChem has conducted allocation of liability for natural resource damages for several large, complex Superfund sites on the west coast in support of voluntary early settlements between natural resource trustees and potentially responsible parties. The allocation process for each site involved over a hundred parties and numerous contaminants. EcoChem developed a thorough and transparent process for evaluating each party's relative liability for each contaminant based on a detailed review of historical documents on site operations, contaminant releases, and pathways. A customized database was developed to organize and house the relevant information, and Geographic Information Systems (GIS) were used to visualize each site's nexus between contamination and sources.

POWER PLANT WASTEWATER SAMPLING AND ANALYSIS METHODS GUIDANCE PROJECT, ELECTRIC POWER RESEARCH INSTITUTE (EPRI)

In anticipation of the more stringent Effluent Limitations Guidelines (ELG) under the National Pollutant Discharge Elimination System (NPDES) that were to be implemented in 2018, EcoChem collaborated with a group of power plants and laboratories to research best practices for sampling and analysis of flue gas desulfurization (FGD) wastewaters for arsenic and selenium. Procedures were developed to minimize contamination, ensure sample stability, and measure concentrations both precisely and accurately at the lower levels dictated by the new regulations. Emphasis was placed on field sampling techniques, sample preservation, sample digestion, interference reduction techniques, and QA/QC. A multi-laboratory study was conducted to evaluate the impact of different sample preservation options and various ICP-MS interference reduction techniques. The final report recommended enhanced procedures for the collection and analysis of regulated wastewaters that will improve the accuracy of compliance monitoring.

NATURAL RESOURCE DAMAGE ASSESSMENT (NRDA) FOR VARIOUS SITES, INDUSTRIAL ECONOMICS/US FISH AND WILDLIFE SERVICE/NOAA

EcoChem has provided NRDA case management QA/QC support services for several sites across the country. As part of the NRDA process, studies were undertaken to determine injury caused by contaminants of concern to a variety of aquatic and terrestrial species. EcoChem consulted with researchers to develop robust quality assurance practices and thorough documentation procedures. This included the creation of study-specific workplans and standard operating procedures, facility and field sampling audits, and review of generated data, calculations, and logbooks. EcoChem also performed QA/QC review of academic papers resulting from these studies, pathway evaluation reports, and injury assessment reports. In our role as chemistry consultants, we have worked with data users to compile data from disparate sources into relational databases, verify the queries, macros, and spreadsheet calculations used, and interpret chemistry data.

NATURAL RESOURCE DAMAGE ASSESSMENT FOR THE 2010 BP DEEP-WATER HORIZON OIL SPILL, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA)

An oil rig in the Gulf of Mexico sank after an explosion in April 2010, resulting in the release of over 100 million gallons of crude oil. In order to assess the injuries caused by the spill, NOAA and partner agencies immediately initiated the largest Natural Resource Damage Assessment (NRDA) ever conducted under the Oil Pollution Act of 1990. EcoChem provided analytical quality assurance oversight and data validation for more than 20,000 samples collected over five years. Primary tasks undertaken by EcoChem included:

- Authoring the project-wide analytical quality assurance plan and documentation requirements guidance for laboratories
- Advising on quality assurance documents such as workplans and standard operating procedures for special analytical techniques
- Validating data from analysis of water, marine sediment, and tissue samples analyzed for alkylated polycyclic aromatic hydrocarbons (PAH), total extractable hydrocarbons (TEH), volatile organics, dispersants, biomarkers, metals, and additional variables
- Working with the NRDA data management team to develop a project-specific electronic data deliverable format for submitting validated data to NOAA's database
- Auditing field sample collection and laboratory analytical methods
- Monitoring and coordinating with analytical laboratories

QUALITY ASSURANCE/DATA VALIDATION UNDER FEDERAL AND STATE HAZARDOUS WASTE SITE CLEANUP REGULATIONS, VARIOUS CLIENTS

EcoChem has provided data quality support services for environmental investigations and cleanups of hazardous waste sites both domestically and abroad. Some of the major programs include: Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund), Model Toxics Control Act (MTCA), Resource Conservation and Recovery Act (RCRA), Department of Defense Environmental Restoration Program (DoD DERP), US Army Corps of Engineers Dredged Material Management Plan (USACE DMMP), and Washington Department of Ecology Toxics Cleanup Program. EcoChem's responsibilities have included preparation and review of project specific quality assurance/quality control (QA/QC) documents, data validation, data management, and laboratory coordination. Major projects/sites have included: Lower Duwamish Waterway Superfund Site (WA), Bannister Federal Complex (MO), Andersen Air Force Base (Guam), Washington State Sediment Regional Background Study, Portland Harbor Superfund Site (OR), Umatilla Chemical Agent Disposal Facility (OR), San Jacinto River Waste Pits Superfund Site (TX), and Crab Orchard National Wildlife Refuge (IL). Sample matrices and analyses have included soil, sediment, groundwater, storm water, air, and tissue analyzed for dioxin/furans, PCB congeners and Aroclors, polybrominated diphenyl ethers (PBDEs) per- and polyfluorinated alkyl substances (PFAS), pharmaceuticals, volatile and semivolatile organics, pesticides, fuels, explosives, nerve agents, butyl tins, metals, radioisotopes, and general chemistry parameters.