

# Inorganic Superfund Methods (ISM) Analytical Services



The EPA Analytical Services Branch (ASB) of the Office of Superfund Remediation and Technology Innovation (OSRTI) offers analytical services that provide data from the measurement of various pollutants in environmental samples from known or suspected hazardous waste sites. EPA standardized analytical methods to measure pollutants provide critical data to the Superfund decision making process.

## Description of Services

The ISM analytical service defines the analytical methods for the isolation, detection, and quantitative measurement of 23 metals and cyanide in aqueous/water and soil/sediment samples, and total metals analysis in wipes. The SOW also includes Toxicity Characteristic Leaching Procedure (TCLP) and Synthetic Precipitation Leaching Procedure (SPLP) leachate extraction procedures. ASB provides the methods to be used and the specific technical, reporting, and contractual requirements, including Quality Assurance (QA), Quality Control (QC), and Standard Operating Procedures (SOPs), by which EPA evaluates the data.

Data delivery turnaround times (TAT) include 7-day, 14-day, and 21-day service. Preliminary data submission includes 48-hour turnaround for all fractions. Flexible options are available and may be added to contractual requirements.

EPA clients may request modifications to the Statement of Work (SOW) in the form of a Modified Analysis. Examples of possible Modified Analyses include: lower detection limits, unique matrices, TAT, and/or additional target analytes.

## Data Uses

The inorganic analytical service provides data that can be used by EPA to determine: the nature and extent of contamination at a hazardous waste site; priorities for response based on risks to health and the environment; appropriate clean-up actions; and when remedial actions are complete. The data may be used in the investigation of hazardous waste sites, including: site inspections; Hazard Ranking System (HRS) scoring; remedial investigation/feasibility studies; remedial design; treatability studies; and removal actions. In addition, this service provides data that are available for use in Superfund enforcement/litigation activities.

## Target Analytes

The target list of analytes and the associated quantitation limits can be accessed in Exhibit C of the SOW. The SOW may be accessed at: <https://www.epa.gov/clp/epa-contract-laboratory-program-statement-work-inorganic-superfund-methods-multi-media-multi-1>. Specific detection limits are method and matrix dependent.

## Methods and Instrumentation

Samples of water, sediment, sludge, wipe, filter, and soil are analyzed for inorganic analytes and cyanide using Inductively Coupled Plasma-Atomic Emission Spectroscopy (ICP-AES), Inductively Coupled Plasma-Mass Spectrometry (ICP-MS), Cold Vapor Atomic Absorption (CVAA), and colorimetric techniques. Additional information about these methods is provided in Exhibit D of the SOW which may be accessed at: <https://www.epa.gov/clp/epa-contract-laboratory-program-statement-work-inorganic-superfund-methods-multi-media-multi-1>.



## Data Deliverables

Data deliverables for this service include hardcopy data reporting forms and supporting raw data, as well as a PDF of the hardcopy data package. Laboratories must also submit the data electronically, referred to as an Electronic Data Deliverable (EDD), within the contract required TAT. EPA then processes the EDD through a web-based data assessment tool - the Electronic Data eXchange and Evaluation System (EXES). EXES provides data users with electronic data assessment/validation reports and spreadsheets within 24 to 48 hours of data receipt. EXES reports also facilitate the transfer of analytical data into client databases. In addition to the data assessment/validation reports, laboratories are provided with a data assessment report documenting instances of noncompliance. All EXES generated reports and spreadsheets, as well as the PDF of the hardcopy data package are posted in EXES Data Manager (EDM). Reports can be accessed via the web 24/7.

## Quality Assurance (QA) and Quality Control (QC)

The QA process consists of management review and oversight at the planning, implementation, and completion stages of the environmental data collection activity. This process ensures that the data provided are of known and documented quality.

Each contract laboratory prepares a Quality Assurance Plan (QAP) to provide sound analytical chemical measurements. The QAP must specify the policies, organization, objectives, and functional guidelines, as well as the QA and QC activities designed to achieve the data quality requirements in the contract.

The QC process includes those activities required during analytical data collection to produce data suitable for decision making. The analytical data acquired from QC procedures are used to evaluate the analytical results and to determine the necessity for, or the effect of, corrective action procedures. More detailed QA/QC procedures for this analytical service are provided in Exhibit E of the SOW, which can be accessed at: <https://www.epa.gov/clp/epa-contract-laboratory-program-statement-work-inorganic-superfund-methods-multi-media-multi-1>.

## Performance Monitoring Activities

Laboratory performance monitoring activities are provided primarily by ASB and the Regions to ensure that contract laboratories are producing data of the appropriate quality. EPA performs on-site laboratory audits, data package audits, ICP/AES, ICP/MS/ and/or CVAA electronic media audits, and evaluates laboratory performance through the use of blind Performance Evaluation (PE) samples.

**For more information**, or for suggestions to improve this analytical service, please contact:

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