

**Department of Resources, Recycling & Recovery
Closed, Illegal & Abandoned Site Investigation Program**

SCOPE OF WORK

Laboratory Services Contract

I. INTRODUCTION/OBJECTIVES

The purpose of the laboratory services contract is to provide the Department of Resources Recycling and Recovery (CalRecycle) with diversified environmental sampling and analysis capabilities and ability to provide specialized technical support to Local Enforcement Agencies (LEAs). The analytical capabilities obtained through this contract address the environmental testing and industrial hygiene aspects of CalRecycle's technical support program.

II. WORK TO BE PERFORMED

CalRecycle, LEA and/or authorized contract personnel will collect laboratory field samples in appropriate containers and with the necessary preservatives as required by the analytical methods to be used for the analysis. The types of samples submitted may include bulk material samples (soil, compost, ash, tar), gas bag and solid container samples, filter samples, chemical adsorbent tubes, and other vapor, gas or aerosol collecting media. Applicable sampling and analytical methodologies, along with the necessary sampling equipment shall be discussed with the contractor prior to sample collection.

The contractor shall supply and arrange for delivery of all sample containers and equipment required. The contractor shall pick up or arrange for delivery of the samples and analyze the samples as directed or authorized by CalRecycle and report the results in accordance with the turnaround time requirement of this agreement.

The prospective contractor must have the experience, qualifications and resources to perform the work required by this Scope of Work.

The laboratory must also meet the following criteria:

1. The laboratory must be located within California.
2. The laboratory must comply with the Environmental Testing Criteria.
3. The laboratory must be accredited by the Department of Health Services through its Environmental Laboratory Accreditation Program (ELAP). The laboratory must be certified to conduct those analyses that are certifiable under the program. If the primary contractor is not certified for a particular analysis, the contractor must possess the ability to subcontract the analysis to another certified laboratory without acquiring additional costs related to the analyses, including additional shipping and

- processing costs. The laboratory will submit a copy of their ELAP accreditation to CalRecycle's contract administrator prior to the award of the contract.
4. In order to serve projects in both northern and southern California, the contractor must be able to arrange overnight delivery or same-day pick up anywhere in the state without acquiring additional costs related to the analyses, including but not limited to additional shipping and processing costs.

III. TASKS IDENTIFIED

1. Environmental Testing Criteria

The comprehensive laboratory services contract includes but may not be limited to the following environmental test methods on liquids (water, wastewater, leachate, and gas condensate), solids (soil, burn ash, incinerator ash, compost, sludge, plant materials, paper, plastics, etc.), and/or gases (landfill gas, soil gas, emissions, ambient air, flue gas, etc.) :

- a. Methods to detect the presence of microorganisms including total coliform, fecal coliform or *Escherichia coli* (*E. coli*) in water, wastewater, sludge, or compost.
- b. Methods to determine the presence of inorganic substances and physical properties of water including toxic chemical elements using colorimetric, gravimetric, titrimetric, electrometric, or ion chromatographic techniques and include the following: alkalinity; toxicity, calcium; chloride; corrosivity; fluoride; hardness; magnesium; nitrate; nitrite; sodium; sulfate; total filterable residue and conductivity; iron; manganese; orthophosphate; silica; cyanide.
- c. Methods to detect the presence of inorganic substances, nutrients, physical or chemical demands, or physical properties in the determination of wastewater, leachate and gas condensate quality including but not limited to acidity, alkalinity, biological oxygen demand, chemical oxygen demand, pH, total dissolved solids, turbidity, hardness, conductance, etc.
- d. Methods to determine the presence of trace metals or asbestos in determining water quality using atomic absorption, inductively coupled plasma, inductively coupled plasma/mass spectrophotometer, or an electron microscope device (e.g., arsenic, barium, cadmium, total chromium, copper, iron, lead, manganese, mercury, selenium, silver, zinc, asbestos, EPA 200.7 and 200.8, etc.).
- e. Methods to detect the presence of trace organic compounds in determining water quality requiring and not requiring the use of a gas chromatograph/mass spectrophotometer device (e.g. EPA Methods 501.3, 524.2, 525 and 513, 503.1, 502.2, etc.).
- f. Methods to detect the presence of trace organics in wastewater, leachate and gas condensate including but not limited to the following: EPA 624, 625, 1613, 1625, 601, 602, 603, 604, etc.).

- g. Methods to detect the presence of radioactive substances in water, wastewater, or solid waste.
- h. Aquatic bioassay methods to detect the presence of toxins in the determination of wastewater quality or in hazardous wastes.
- i. Analyses to determine the physical properties of hazardous and solid wastes including: ignitability by flashpoint determination; corrosivity by pH determination; corrosivity by corrosivity towards steel; and reactivity. EPA 9040, 9045, and 9050, etc.
- j. Analyses to determine the presence of inorganic substances in solid waste or hazardous waste samples including EPA 6010, 6020, and 7000 series, etc.
- k. Methods to prepare waste samples for further testing including: California waste extraction test (WET); extraction procedure toxicity (EP TOX); toxicity characteristic leaching procedure (TCLP).
- l. Analyses to determine the presence of trace organics in solid and hazardous waste samples including: EPA 3500, 5000, 8000, 8100, and 8200 series, etc.
- m. Method to detect the presence of asbestos for complying with GC Section 66261.249 m 2 A using polarized light microscopy.
- n. Methods for determining the concentrations of fixed gases (carbon dioxide, methane, oxygen, nitrogen, hydrogen sulfide, etc.) Individually or in bank in a gas sample (landfill gas, soil gas, ambient air, flue gas samples, etc.) using gas chromatography.
- o. Methods for detecting the presence of organic compounds (e.g. benzene, vinyl chloride, trichloroethylene, total hydrocarbons, etc.) in gas samples individually or in bank, using gas chromatography or gas chromatography/ mass spectrophotometry including EPA TO-14 Analysis with low detection limits for vinyl chloride.
- p. Methods of analysis for constituents in accordance with EPA 413.2, 415.2, 502.1, 503.1, 524.1, 613, 624, 625, etc.)
- q. Methods for determining gas quality for the purpose of combustion efficiency including moisture content, energy capacity (BTUH/SCF), explosivity and ignitability.
- r. Methods for isotopic differentiation and carbon C-14 dating.

The contract laboratory may be required to perform other tests as needed and additional work not normally included on the tasks listed above (e.g. field

sampling, experimental design, statistical analysis, review and evaluation of analytical data, etc.) without introducing additional overhead costs resulting from using subcontractors, including shipping and handling costs.

2. Industrial Hygiene Laboratory Criteria

- a. The laboratory must be accredited under the Laboratory Accreditation Program of the American Industrial Hygiene Association and continue to participate in the National Institute for Occupational Safety and Health (NIOSH) Proficiency Analytical Testing (PAT) Program.
- b. The laboratory must be accredited to analyze all PAT materials including: lead, cadmium, chromium, zinc, asbestos, silica, and organic solvents (carbon tetrachloride, benzene, vinyl chloride, trichloroethylene, p-dioxane, toluene, chloroform, 1,2 dichloroethane, methylene chloride, methyl chloride, methyl ethyl ketone, and o-xylene).
- c. The laboratory must have the instrumentation necessary to perform the following analytical methods: Atomic Absorption Spectroscopy; Graphite Furnace; Colorimetry; Gas Chromatography/Flame Ionization Detector; Gas Chromatography/Electron Capture Detector; Gas Chromatography/Nitrogen Phosphorous Detector; Gas Chromatography/Mass Spectroscopy; Gravimetric; High Pressure Liquid Chromatography; Ion Chromatography; Particle Count with Light Microscopy; Phase Contrast Microscopy; Ultraviolet Spectroscopy.
- d. The precision, accuracy, and sensitivity of analytical methods used at least equal to those specified by NIOSH methods.

3. Subcontract Administration

Any subcontracted analysis on a routine basis (i.e., the inability of the primary contractor to perform routine analyses in-house); the subcontractor must meet the specifications for accreditation (items 1 and 2), Quality Assurance Program (item 4), and turnaround times (item 5). There must be adequate sample custody procedures on the part of both the primary contractor and the subcontractor. The following must be included in the bid if the subcontractor will be used routinely:

- a. Identification of analyses to be subcontract;
- b. Identification of subcontracting laboratory;
- c. Outline of quality assurance procedures used by the subcontractor; and
- d. Outline of quality assurance controls for sample and/or extract transportation.

Quality Assurance

The laboratory must have in effect and submit to CalRecycle's contract manager a quality assurance program, which at the minimum, consists of the elements listed below:

- a. Specifications of responsibilities of personnel;
- b. Chain of custody procedures; and
- c. The following data feedback and review procedures:

- i. computation rechecks
- iii. assessment of systematic errors and methods of correction
 - sample spikes by sample matrix
 - reagent blanks
 - method blanks
- iii. assessment of precision and accuracy
 - sample replication by sample matrix
 - determination of warning and control limits
 - procedures for re-analysis
 - quarterly external audits
- iv. records maintained for at least five years from the time of completion of the analysis
- v. regular and appropriate equipment calibration and maintenance
- vi. chemical inventory control
- vii. personnel training and evaluation

5. Sampling Equipment

The contract laboratory will be required to provide sampling media and collection devices, including but not limited to glass soil sample jars, brass/stainless steel sample tubes and end caps, amber jars, VOA's, summa canisters, critical flow orifices, tedlar bags, fibers, sorbent tubes, air pumps, timing devices, impinger solutions, and impingers. Sampling labels, sampling tags, chain-of-custody seals, chain-of-custody forms and both hard and electronic copies of analytical result tables shall also be provided. All costs associated with the additional sampling equipment must be included in the test unit price. No charges shall be applied to unused or defective equipment.

6. Equipment and Sample Shipment

The contract laboratory shall provide pick-up and shipment of media and samples to and from CalRecycle or CalRecycle's project sites throughout California for analysis at no additional cost for regular, urgent or top priority analyses Cost Estimates

Cost estimates for analyses requested shall be transmitted to the CalRecycle contract coordinator within one business day upon receipt of the sampling/analysis request.

7. Payment Requests

Payment request accompanied by a detailed cost breakdown for analyses performed shall be submitted to CalRecycle accounts payable staff after the receipt date of the final analyses report.

8. Quarterly Financial Report

The contractor will provide CalRecycle contract coordinator with a detailed quarterly financial report disclosing all expenditures acquired on CalRecycle behalf under this contract.

IV. CONTRACT/TASK TIME FRAME

All samples must be analyzed in a timely manner so as to maintain the required quality of analytical results. Similarly, analytical results must be submitted to CalRecycle within a reasonable time.

a. Sample Turnaround Time.

The sample turnaround time is the time elapsed between the receipt of the sample by the contractor and the analysis of the sample. The sample turnaround time shall be within the limits defined by the specific methodology used. CalRecycle staff may require a specific turnaround time different from what is defined by the chosen methodology, as dictated by the purpose of the analysis. No payment will be made for analysis of samples if the agreed upon sample turnaround time is exceeded, so as to compromise the sample integrity or timeliness of the results, as determined by CalRecycle staff.

b. Report Turnaround Time.

Laboratory must be capable of supplying CalRecycle with reports of analysis within the turnaround times as follows:

Routine Priority: seven (7) business days from sample receipt date results to be facsimile, ten (10) working days for final written report.

Urgent Priority: two (2) business days from date of sample receipt for facsimiled results, full written report to follow as soon as possible, but no later than seven (7) business days.

Top Priority: 24 hours from date sample receipt for facsimiled results, full written report to follow as soon as possible, but no later than five (5) business days.