**Request for Expressions of Interest (EOI)**

**ORP 222-S Laboratory Analytical Services and Testing (LAS&T)**

**Attachment 1 – Draft Statement of Work**

# 1. SUMMARY DESCRIPTION OF WORK

The scope of this anticipated contract is to perform the Analytical Services production functions of receiving, handling, analyzing, storing samples, performing special tests and reporting the results of these analyses and tests to the contractors of Department of Energy Offices at the Hanford Nuclear Site near Richland, Washington. These functions will be performed through a contract with the DOE Office of River Protection. The analytical services to be acquired will be performed at the 222-S Laboratory complex located in the 200 West Area of Hanford. These services support cleanup and closure of the Hanford site and are a critical activity in achieving closure goals of all Hanford projects. This scope may also include other DOE work supporting scientific research and other DOE sites.

The successful contractor shall provide these analytical chemistry production services for the Hanford Site projects, operations, and environmental cleanup activities in support of the Hanford Site environmental cleanup and restoration activities. Handling of high level radioactive material is an essential part of the analytical work.

The contractor is required to annually perform approximately 15,000 inorganic, organic and radionuclide analyses. This number of analyses includes analyses for blanks, calibrations, equipment checks and actual samples analyzed. The sample analyses will be performed on approximately 2,000 intermediate to high level radioactive and/or hazardous samples received from multiple locations and entities on the Hanford site. Samples received into the hot cell may be 300 Rad/hr, with a significant part of that from gamma radiation. Those high rad samples are generally diluted so that they can be analyzed in a ventilation hood.

The existing work force is trained and qualified to perform this work and will be employed by the successful bidder to continue performing this scope. The successful bidder may be required to participate in and/or administer the pension and post-retirement plans for the existing workforce covered by such plans while performing the requirements of the anticipated contract.   Pension and other post retirement benefits are developed in accordance with the applicable state and federal regulations and Departmental policy principles.

# 2. WORK SCOPE

The work performed by the Analytical Services Production Contractor (ASPC) will be to plan analytical work using priorities from customers, receive samples which are usually highly radioactive, prepare them for analysis, record and track all sample and related waste materials, perform the analyses using necessary quality control and quality assurance, report the results and archive material as required by the customer. Customers at times will require special tests and the ASPC is responsible for providing assistance in developing those test methods and then performing them in the lab. Customers consist of DOE prime contractors who perform program activities primarily at the Hanford site and may include some work from other DOE sites and DOE research.

This work shall be performed while using facilities and infrastructure which are maintained by the Tank Farm Contractor (TFC) and using work processes and work behavior which meets overall Hanford site programs. The ASPC is required to interface with the TFC, customers and managers of these programs in a manner so that the overall Hanford programs and objectives are consistent among all prime contractors. This will require close coordination with customers and the TFC facility and infrastructure provider. Typical interfaces with the TFC will be driven by services provided as identified in Section C.3. Laboratory facilities or services off the Hanford site may be used for this scope if it is demonstrated that all requirements can be met, e.g., contract, packaging, shipping, schedule, etc.

Monthly work loads are expected to vary widely from 15% utilization to 125% utilization. Utilization in this case relates to the amount of time that analytical personnel are engaged in hands-on sample analysis work.

Planning shall require use of the priorities and analytical data needs of customers and managing the lab workload in accordance with those needs. Planning also requires readiness to perform new analyses, testing or infrequent analyses when these are defined by the customers. Analysis of samples shall be performed by the ASPC trained and qualified workforce in accordance with approved procedures, using appropriate test and handling equipment. The currently installed Laboratory Information and Management System (LIMS) shall be used for sample tracking, records and data gathering and reporting. The ASPC will provide Standards Laboratory services for the Hanford Site. This will include preparation and maintenance of required standards and reagents.

Results shall be reported to meet customer's specified needs. The most common formats for Required Data Reporting are as follows:

* Full Data Package including raw data, Data Summary Reports with Method Detection Limits (MDL) and qualifiers, QA data.
* Summary Data Package including Data Summary Reports with MDL
* Summary Data Package with Quality Assurance and Data Upload including Data Summary Reports with MDL, QA qualifiers, and defined electronic deliverables.

The ASPC shall perform all work in accordance with existing laws, applicable permits and good practice consistent with safety and quality in the laboratory.

The ASPC shall provide annual projections for labor and equipment needs.

A nuclear materials safeguard and security program shall be developed by the ASPC, approved by DOE and implemented.

The ASPC shall develop an Integrated Safety Management System (ISMS) as required in by DOE Order DOE O 420.1B and 48 Code of Federal Regulations (CFR) 970.5223-1, Integration of Environment, Safety, and Health into Work Planning and Execution The ISMS will reflect the scope of this anticipated contract and describe interfaces and interactions with safety programs of other contractors. The ISMS shall be developed by the ASPC and implemented in coordination with the TFC's ISMS to provide overall Integrated Safety Management for the 222-S complex.

# 3. GOVERNMENT FURNISHED FACILITIES AND SERVICES

The ASPC will be provided with facilities and analytical equipment to accomplish this scope of work. The ASPC shall integrate these services with the analytical services scope. Facilities and analytical equipment will be provided and maintained as described below. A nuclear safety program implementing a Documented Safety Assessment (DSA) is established by the TFC. The ASPC will be required to support implementation of these requirements.

## 3.1. Facilities

The 222-S complex consists of the 222 S Building, a 70,000 square foot laboratory facility, which includes 11 hot cells for handling and analyzing highly radioactive samples, and the auxiliary buildings that support the analytical chemistry mission. The analytical services to be acquired will be primarily performed at the 222-S Building with some space in nearby offices available for other personnel. Potential for performing a portion of the analyses off-site exists dependent upon the shipping and handling capabilities of the analytical services performance contractor.

## 3.2 Instrumentation provided

Types of available laboratory equipment that will be provided to the analytical services performance contractor are listed below. Instrumentation availability is subject to routine downtime for maintenance, repairs and upgrades.

* Liquid/liquid extractors
* Solid phase extraction apparatus
* Toxicity Characteristic Leaching Procedure apparatus
* Acid digestion apparatus
* Water digestion apparatus Inorganic Instrumentation
* Inductively Coupled Plasma/Mass Spectrometer systems (ICP/MS)
* ICP/AES (Atomic Emission Spectrometer systems)
* pH meters
* Ion Chromatographs (IC)
* Thermal Gravimetric Analyzers (TGA)
* Organic Instrumentation:
* Total Organic Carbon analyzers (TOC)
* Gas Chromatographs
* Gas Chromatograph/Mass Spectrometers (GC/MS) Radiochemistry Instrumentation
* Liquid Scintillation Counters
* Alpha/Beta Proportional Counters, and
* Gamma (GEA) and Alpha Energy Analyzers (AEA)

In addition to the analytical equipment above, the ASPC will use hot cells with remote manipulators for sample handling. The hot cells will be shared by the TFC and the ASPC for their respective scopes of work.

## 3.3. Laboratory Information Management Systems (LIMS)

The LIMS will be made available to the ASPC. This system has the capability to upload a large proportion of the analytical data from the instruments to the analytical reporting system after approval by the responsible chemists.

## 3.4. Other Government Furnished Services

Government furnished services will be provided or coordinated through the TFC or with the on-site services contractor. The ASPC shall integrate analytical services work scope to support these programs. Specific arrangements concerning needs, charges between prime contractors will be made, and updated, in a formalized memorandum of agreement, or equivalent. These services include items such as site-wide training, personal protective equipment, site access, software licenses and waste operations.

# 4. SUPPLEMENTAL INFORMATION

## 4.1. Material Control and Accountability

* The ASPC shall be responsible for specific portions of the special nuclear material contained in the 222-S facility.
* The ASPC shall follow the DOE Order DOE O 474.1A for material control and accountability. A typical Material Control Plan takes about three months for approval.

## 4.2. Interactions with other DOE offices and other DOE prime contractors

* Analytical services work is performed for the DOE Office of River Protection and all direction shall be provided through that office.
* Daily interaction between the ASPC and other DOE prime contractors shall occur to set priorities, work loads and define expected results from analyses.

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

* The QA and QC program for nuclear facilities is required by 10 CFR 830.120.

## 4.4. Technical Authorizations

* The ASPC shall comply with approved technical authorization basis and associated safety management programs.

## 4.5. Permits

* The ASPC shall comply with all applicable permits.

# ATTACHMENT :

The following is a list of the types of analyses, handling methods and processes that are typically performed in the lab. Specific analytical methods typically follow established procedures that meet requirements of the Environmental Protection Agency and the Washington Departments of Ecology and Health and the Hanford Analytical Services Quality Assurance Requirements Document, DOE/RL-96-68, found at <http://www.hanford.gov/orp/?page=141&parent=14>.

SAMPLE PREPARATION AND METHODOLOGY CAPABILITIES

Sample Preparation and Methodology Capabilities

* The ability to receive and handle shielded containers, "pigs" for grab samples; onsite-transfer casks for tank core samples
* The ability to use manipulators in remotely controlled “hot-cells” to handle highly radioactive/hazardous samples
* Required sample preparation and methodology
* Sample Breakdown
* Homogenize Sample
* Centrifuge Sample
* Composite Sample
* Bulk Density
* Volume of % Centrifuged Solids
* Liquid Weight
* Solid Weight
* Volume of Solid
* Acid Dilution for ICP/AA/Radiochemistry
* Water Digest for ICP/AA/Radiochemistry
* Fusion with KOH
* Water Digest (no acid)

Methodology for Inorganic, Physical Analyses, Total Organic Carbon (TOC)

* Ammonium by Ion Chromatography (IC)/Cations by IC
* DSC exotherms by TA
* Iso Uranium by ICP/Mass Spectrometry(MS)
* Specific Gravity
* % Water by Gravimetric Measurement
* Anions by IC • ICP Acid Digest/Routine Analysis
* Total Organic Carbon (TOC) Use “TOC” only by Persulfate/Coulometry

Methodology for Organic Analyses

* PCB Sample Preparation
* PCB Analyses (SW846 8082) • Volatile Analyses (SW846 8260)
* Semivolatile Analyses (SW846 8270) Methodology for Radionuclide Analyses
* Alpha in liquid sample
* Am 241, Cm 243 by TRU-SPEC Resin
* Plutonium (Pu) 238, 239 by TRU-SPEC Resin
* GEA • Strontium (Sr) 89/90 High Level

Note: Additional analytical methodology must frequently be implemented. The ASPC shall work with the TFC personnel to mutually develop this new methodology.