FUNCTIONAL REQUIREMENTS

SLAC NATIONAL ACCELERATOR LABORATORY CHEMICAL MANAGEMENT SERVICES

INTRODUCTION

SLAC National Accelerator Laboratory (SLAC) is one of the world's leading research laboratories. Established in 1962, it is owned by the federal government and occupies 426 acres of Stanford University land. SLAC's mission is to design, construct, and operate state-of-the-art electron accelerators and related experimental facilities for use in a wide spectrum of research endeavors, while providing a safe working environment and maintaining excellence in the matter of environmental concern. SLAC employs approximately 2000 full-time equivalent staff, and more than 3000 scientists from many nations utilize SLAC facilities each year.

To carry out its research mission, SLAC uses a variety of chemicals, including cryogens, compressed gases, process and laboratory chemicals, epoxies, solvents, paints, fuels, and water-treatment chemicals. In 2010, SLAC spent over $3.0 million on chemicals through its chemical management services (CMS) provider. There are approximately 250 direct delivery locations on site at SLAC and about 15 delivery locations at Stanford University

PROJECT OBJECTIVES

SLAC's objective is to develop a strategic long-term relationship with a CMS provider. To be considered for the subject subcontract, the CMS provider must offer SLAC the following capabilities:

- A web-based purchasing interface for chemicals and chemical products that is compatible with SLAC IT security requirements
- A web-based Safety Data Sheet (SDS) management system
- Management and oversight of all direct-delivery chemical suppliers to ensure compliance and implementation of SLAC Work Planning and Control (WPC) program requirements
- Pre-programmed and ad-hoc facility-wide and building-specific chemical usage, compliance, and financial reporting
- An on-site presence providing system and chemical management support.

The goals for implementing of a CMS subcontractor continue to be the following:

- Streamline chemical purchasing
- Facilitate order tracking
- Enhance the safe and timely delivery of chemicals and gases to point-of-use
- Improve security and accountability of the hazardous materials located onsite via localized inventories
- Minimize the costs associated with the purchase, management, and use of chemicals and gases
- Enhance environmental performance through minimizing onsite inventory of chemicals, decreased numbers of containers being deemed off-specification or

excess, reduced waste quantities, and continuous improvement of the chemical supply chain

- When requested, be able to suggest "greener" chemical alternatives including (but not limited to): recycled materials (e.g., re-refined oils), bio-based materials (e.g., products certified USDA Bio-preferred), non-ozone depleting substances (ODS), less toxic and hazardous chemical alternatives, and chemicals with low global warming potential to satisfy Federal Agency and DOE Sustainable Acquisition program goals
- Implement the best management practices for facilities in the DOE complex, as described in the DOE guidance document *Chemical Management Handbook (Volumes DOE-HDBK-1139-2006, DOE-HDBK-1139-2-2006, DOE-HDBK-1139/3-2018)* and sustainable practices in DOE Order 450.1A, *Environmental Protection Program*

SCOPE OF SERVICES

There are five required objective areas of service that need to be addressed to successfully meet the needs of SLAC:

1. Chemical procurement
2. Inventory tracking to point-of-use
3. Off-site storage and inventory
4. Chemical Management Information System (CMIS)
5. On-site presence and chemical management/inventory support

Task tables are provided below to identify program functionality. At this time, SLAC is looking for industry capabilities. Please indicate in the tables below if the program Meets or Does Not Meet the listed requirements.

SLAC's mission includes managing its chemicals in compliance with all federal, state, and local regulations. SLAC's mission critical needs require chemicals, such as He and N2, to keep the accelerators operable. Service providers should use the following websites to familiarize themselves with the chemical management standards applicable to SLAC.

United States Department of Energy's (DOE) Chemical Safety Program (Chemical Safety Management Program)

- DOE Chemical Management Handbook, Volume l (*DOE-HDBK-1139-2006*), Chemical Management,
- DOE Chemical Management Handbook, Volume 3(*DOE-HDBK-1139/3-2018*), Consolidated Chemical User Health and Safety Requirements

UNIDOCS guidance on hazardous materials management (UNIDOCS :: Documents:: Hazardous Materials & Hazardous Waste). The California Certified Unified Program Agency (CUPA) responsible for overseeing SLAC's hazardous materials and waste management programs is the San Mateo County Environmental Health Services.

Other applicable requirements include Executive Orders 13423 and 13514, DOE Order 450.1A, FAR Part 23, and the SLAC ES&H Manual: in particular, Chapters: 16, *Spills*; 17, *Hazardous Waste*; 22, *Waste Minimization & Pollution Prevention*; 40, *Hazardous Materials*; 53, *Chemical Safety*; and 58, *Laboratory Safety*.

TASK 1- CHEMICAL PROCUREMENT

#	Function	Doesn't Meet	Meets
1.01	Provide a web-based ordering system that is compatible with SLAC systems (i.e., interface with Accounting Information Database (AID) matrix/procurement system) and meets SLAC IT security requirements.		
1.02	The system requires a user interface that is intuitive and easy to use with limited or no training. The subcontractor will also provide training documentation to be distributed.		
1.03	The interface supports efficient use of data entry minimizing re-entry of same data and allows cut and paste.		
1.04	Provide phone or email backup ordering system		
1.05	Provide system for ongoing communication between chemical requesters and service provider (i.e., on-site presence, help line, contact information)		
1.06	Execute all required chemical purchases		
1.07	Provide chemical requesters with online access to procurement, financial, and real-time delivery data		
1.08	Support commonly used web browsers (Google Chrome, Mozilla Firefox, Microsoft Edge) across all platforms (Windows, Mac) ; compatibility with at least one browser for the Unix operating system, without any additional proprietary software or add-ons.		
1.09	Provide a method for managing and approving procurement of controlled, restricted, or banned materials.		
1.10	Provide electronic invoicing on a consolidated, bi-monthly basis within 30 days of close of billing period		

1.11	Include backup documentation on invoices sufficient to trace material purchases by purchase order (material line item), signed receipt upon delivery (requesting group/department), and suppliers' invoice (SLAC charge codes).		
1.12	Provide a mechanism by which a chemical requester can specify substitutions are acceptable. A default of no substitutions is necessary for several specific trade name formulations, including but not limited to space-rated epoxies (for satellite assemblies), nuclear-grade epoxies (for use in SLAC's radiological facilities), water treatment chemicals, and heat exchanger fluids used in experimental systems. There must be a method of notification if a substitution will be made.		
1.13	Flag catalog pricing that varies with actual cost if there is a discrepancy. Flag prior to order placement by the CMS provider's buyer. The chemical requester will be notified, giving them the opportunity to re-evaluate the order. If this will not be flagged prior to order placement, provide variance flag along with itemized invoice.		
1.14	Interface with SLAC's Financial Accounting System/Accounts Payable to update and upload appropriate accounting information to include current charge codes/numbers that will be used in the ordering of chemicals and other materials.		
1.15	Tie financial approvals to charge numbers allowing chemical requesters to place orders for various work groups. Charge numbers and associated financial approvers will be updated daily at 11:59pm.		
1.16	Update catalog prices weekly to reduce invoice variances		
1.17	Support work area specific catalogs as well as site-wide catalogs. Tie this into approved purchasing		

	Approved purchasing is chemicals that are not flagged or needing approval.		
1.18	Provide catalog listings and order history that is easily searchable.		
1.19	Provide a system that maintains access to historical data by searchable means including mapping to new organization codes, and flags inactive or duplicated work areas.		
1.20	If the first delivery cannot be made as scheduled for a mission critical material, the subcontractor shall have alternative resources in place to ensure delivery of the specified chemical/material within 24 hours of the original delivery date		
1.21	Provide assistance, training, and services in all aspects of the system including requested updates to system interface, placing orders and catalog additions for work groups, and new reporting functions.		

NOTE THAT RADIOACTIVE MATERIAL WILL NOT BE PURCHASED THROUGH THE CMS PROVIDER.

TASK 2- DELIVERY TO POINT OF USE

#	Function	Doesn't Meet	Meets
2.01	Own and be responsible for chemicals until delivered to the approved delivery location		
2.02	Conform to all WPC requirements and manage all lower tier subcontractors that make direct deliveries in conformance with WPC requirements.		
2.03	Arrange for the return shipment and replacement of any out-of-spec products, including products damaged in transit.		
2.04	Conduct annual safety audits on all direct deliveries by suppliers or lower tier subcontractors. Provide documentation to SLAC.		
2.05	Bar code (RFID, QR code, or equivalent) all containers prior to or upon delivery. Make all tracking data available to SLAC.		
2.06	Design system for delivery to end users: delivery schedules, container strategy and standardization, labeling, user support		
2.07	Deliver to all existing bulk and gas cylinder storage locations		
2.08	Maintain and update lists/figures of delivery locations		
2.09	100% on-time delivery to point-of-use, consistent with quoted turnaround times (note: especially one day turnaround for orders of liquid helium)		
2.10	Provide written process and procedures that detail how the Subcontractor will ensure delivery of priority shipments along with contingencies plan that will address alternative methods should the initial process fail or for unforeseen circumstances that may arise		

2.11	Include original hard copy Safety Data Sheets (SDS) with deliveries to point of use, if included in shipment from supplier/manufacturer.		
2.12	Delivery information supplied by chemical requester must be part of delivery instructions to driver		

NOTE THAT CHANGE OUT OF GAS CYLINDER AT THE POINT OF USE WILL CONTINUE TO BE PERFORMED BY SLAC EMPLOYEES.

TASK 3 – OFF-SITE STORAGE AND INVENTORY

#	Function	Doesn't Meet	Meets
3.01	Stock all current min/max chemicals (i.e., solvents, paints, epoxies/adhesives, oils) in an off-site warehouse/hub to meet a one business day turnaround time.		
3.02	Provide inventory management plan within 90 days of award of subcontract for: reordering procedures, forecast management, opportunities for automation; expiration date tracking. Review/update bi-annually to reflect any changes.		
3.03	Load information system with all relevant information about delivered chemicals, including but not limited to: manufacturer name and number; trade name; constituent composition, by name and CAS number, for all chemical products; mass of chemical; units of measures; hazard and DOT classifications; Safety Data Sheets (SDSs) in pdf format; type of container; and any additional information required to track specified products (e.g. Nanomaterials, Greener Choice such as bio-based, lower toxicity, etc); whether material was procured from a small business or can be used to satisfy DOE Affirmative Procurement guidelines.		
3.04	Provide an off-site storage hub in a location that allows one business day delivery.		
3.05	Provide for "scan-out" of bar codes upon containers being sent to waste management or otherwise disposed of		

Note that product quality testing for any material hooked up to an experimental system will continue to be performed by SLAC employees.

#	Function	Doesn't Meet	Meets
4.1	**Container Tracking**		
A	Track chemical containers to point-of-storage area and use (e.g., hazard cabinets, shelves, rooms, areas, buildings)		
B	Enable container location and ownership transfers within the information system		
C	Allow for entry of non-hazardous inventory		
D	Allow importing data/inventory from other sources (e.g., Excel), including custom solutions and chemicals		
4.2	**SDS**		
A	Maintain Safety Data Sheets (SDSs) online. This must be available to all employees and users to meet Hazard Communication (ESH Manual Chapter 53) requirements without the need for passwords or log-in. It should be accessible by mobile/wireless devices to support Emergency Management.		
B	SDS platform/database that allows searches for specified fields, presence on regulatory lists, common name/trade name, secondary labeling information per current OSHA Hazard Communication requirements (29 CFR 1910.1200).		
C	Link catalog product listing to SDS and SDS to catalog listing.		

D	Update SDSs as soon as newer versions are available. Make all previous versions still available via archive. Ensure non-catalog archived SDSs are captured to meet SLAC's 30-year obligation to keep historical SDSs (include MSDSs where applicable). Verify that any SDS that has not been updated within the prior 5 years are current. Verify that all SDSs are current within the first six months of award of the subcontract.		
E	Provide a system where system users can generate SDS update notifications or reports.		
F	Back-up SDS on archival media annually and send to client in duplicate. Archived data must be indexed and searchable.		
G	Allow for entry of Stanford University Chemical Storage Categories		
4.3	**Reports** (Refer to Section J: Sample Reports)		
A	Ability to generate facility-wide and local chemical usage reports over variable time periods.		
B	Customizable notifications to stakeholders of soon-to-expire and expired chemicals for both off-site and on-site storage. Need to be chemical-specific.		
C	Ability to generate a custom and filterable procurement history and/or inventory (including but not limited to per area/room/storage cabinet, owner, division, etc.). Must be printer friendly.		
D	Ad hoc and formatted report function for both regulatory, financial, inventory and safety queries – one-off request or run by an end-user.		

E	Description of reports, including the dates of regulatory reports (i.e., chemical lists)		
F	Report "snapshots" of facility-wide and local chemical inventory in format required for the Hazardous Materials Business Plan (HMBP) electronic submittal per California Environmental Reporting System (CERS) as well as SLAC defined fields.		
G	Must have robust QA for reports.		
4.4	**System Requirements**		
A	Provide additional product information and short safety summary such as spec sheet links, GSA type icons for various types of preferable purchase categories.		
B	Ability to choose the number of search results per page on a search of the SDS platform.		
C	Provide customizable/adjustable access to selected roles regarding chemical inventory.		
D	System information/data records must be downloaded annually to SLAC database		
E	Provide the ability to create data records for chemical containers brought on-site via routes other than through the CMS provider or created onsite; provide the ability to bar-code such containers onsite at point of use.		

F	Ability to add key descriptors/icons allowing system users to both 1) generate reports and track chemicals and products purchased with specified characteristics (e.g. Bio-preferred, Nuclear materials, Nanomaterials, "green" products) 2) ability to readily identify preferred products in the catalog to support sustainability initiatives.		

In addition, the subcontractor will keep such full and detailed records as necessary to demonstrate that, in the performance of its obligation under this subcontract, it has complied with all of the requirements of the subcontract, as well as any requirements of any applicable laws or government regulations. Such records must be kept for a period of three (3) years after the termination of the subcontract or longer if stipulated by any applicable law or government regulations. SLAC, its employees, agents, or other authorized representatives will have access to said records. Records will be made available either electronically or by written format.

The subcontractor will provide SLAC access to SLAC's data concerning the status of the Services (including a current inventory and outstanding order of Chemical Materials or other materials) to enable SLAC to perform its ongoing chemical management operations and data mapping requirements biannually. These records may also be requested for any option periods or years that may be exercised under the awarded subcontract, and at any times as may be deemed necessary. The subcontractor will assist SLAC with testing of the proposed system to ensure access and to ensure compatibility between the selected subcontractor's computer/operating systems and SLAC's computer/operating systems and to any associated hardware/software or any other operating systems as may be deemed necessary. This may also include 3rd party inventory systems used across SLAC.

#	Function	Doesn't Meet	Meets
5.1	**Physical Inventories**		
	Perform initial baseline chemical inventory. Develop strategy and perform a wall-to-wall inventory of the SLAC site and bar code labeling of all chemical containers. Assume:		
	Total number of storage locations that contain chemical containers <= 250 Total number of unique chemicals/chemical products <= 3000 Total number of chemical containers <= 15,000		
	Transfer approximately 5000 MSDSs (in pdf format) for current and historical SLAC chemicals into the CMIS. Obtain any missing SDSs for current SLAC chemicals and load them into the CMIS.		
	90% of the containers have current CMS provider bar-codes that can be used or replaced		
	For data entry, subcontractor will provide the necessary hardware/software		
	Provide qualified personnel for wall-to-wall inventory		
	Provide and affix bar code labels to all chemical and chemical product containers found during inventory		
	Develop strategy for dealing with issues like material compatibility (Stanford/SLAC chart), adequacy of storage infrastructure according to SLAC Chemical Safety (e.g., tanks, containments, sheds, and cabinets), container labeling, signage, missing SDS information, expired/past shelf-life containers.		
	For each storage area, the service provider shall compile a "punch list" of all instances where current management practices do not appear to follow the standards noted above and the service provider cannot resolve the practice in concert with SLAC's building/area manager at the time of inventory.		
	The service provider shall meet weekly with SLAC's project manager or their designee in order to review the status of the facility-wide "punch-list" as well as to review progress towards completion of the facility-wide inventory		

5.2	**Equipment**		
A	Provide professional recommendation of best methods to maintain inventories, and be able to help provide/procure scanners/tablets/etc.		
B	Furnish a label printer capable of printing various sizes of formatted waterproof labels for secondary containers meeting OSHA Hazard Communication Standard (29CFR 1910.1200) requirements.		
C	Must be able to produce small QR/barcodes (e.g., centrifuge tubes).		
5.3	**Support Sustainability Efforts**		
A	Provide personnel and expertise to provide recommendations for chemical and product substitutions in support of SLAC sustainability initiatives when requested (e.g., less toxic, less flammable, non ODS, lower global warming potential, certified Bio-Preferred, conforming to LEED Green Cleaning requirements). Assume 5 requests per month.		
B	Arrange for and coordinate supplier presentations for greener choices as opportunities arise.		
C	Support Sustainability and Toxic reduction initiative through various services including:		
	Provide recommendations for toxic chemical reduction opportunities within 2 months of subcontract award and update annually.		
	Provide quarterly report on accomplishments toward Sustainable Acquisitions (e.g., recycled content materials, toxics reduction, USDA Bio-preferred, etc).		
	Develop and maintain a user-friendly Greener Choices catalog		
D	Use as a metric for performance. This task may be phased in over the first 6 months of the subcontract.		
5.4	**On-Site Services**		
A	Provide dedicated on-site personnel to effectively manage the day-to-day operations of the Chemical Management Services Program. The personnel shall be available during business hours (nominally 7:00 AM to 4:00 PM , Monday through Friday), may include weekends, SLAC observed holidays		

B	Provide personnel and expertise to manage interim chemical staging areas for deliveries to user laboratories, including hazardous and toxic gases. Direct deliveries from selected laboratory chemical supply vendors will be processed for inventory and bar-coded at the SLAC site and distributed to specified locations by service provider personnel. This task may be phased in and not immediately implemented		
C	Provide product specific secondary labels when requested		
D	Administer emergency response and governmental notice obligations for chemical emergencies related to provider activities (i.e., through delivery to loading docks)		
E	Special one-time projects are supported (e.g., area chemical inventories, tank decommissioning, chemical storage and delivery equipment leasing/sales, installation, maintenance).		
F	Service provider shall provide an option to perform monthly cylinder gas checks in accordance with SLAC ES&H requirements. Documentation of each cylinder inspection will be provided in electronic format.		
H	Service provider will present to SLAC, and SLAC will work with Service provider to develop a Contract Management Plan for the effective governance of this subcontract.		

Note that service providers will not be responsible for any management activities (transport, disposal, posting on SLAC and DOE material/waste exchanges, etc.) for on-site chemicals and chemical products deemed to be surplus materials or requiring disposal. Neither will the service provider be responsible for completing any internal SLAC paperwork leading to such activities. Service providers will also not be responsible for providing equipment or services necessary to resolve infrastructure issues identified in the "punch lists" (i.e., certifying tanks, repairing containers, or replacing containers that are cannot be repaired, upgrading containments, providing new cabinets or gas racks).

SLAC will provide office space, including furniture, telephone, and computer for the dedicated on-site resource.