**Attachment A**

**Statement of Objectives (SOO) - BioMaP-Consortium Other Transaction Agreement (OTA) Vehicle**

**Project Title: Advanced Research and Development of Medical Countermeasures Through Agile and Distributed End-to-End Drug Manufacturing**

## 1. SCOPE

### 1.1. Background:

The Administration for Strategic Preparedness and Response, Industrial Base Management and Supply Chain (APSR IBMSC) is seeking to establish advanced research and development of medical countermeasures through agile and distributed drug substance and drug product manufacturing capacities. This includes establishing end-to-end manufacturing capacities under current good manufacturing practices (cGMP) and all associated regulatory filings to include drug master files (DMFs), New Drug Applications, (NDAs) and Abbreviated New Drug Applications (ANDAs). This scope also includes the use of qualified laboratories for product verification, environmental and shelf-life testing, and adherence to industry-recognized consensus standards (e.g., ISO, ASTM).

Required capabilities include the development and commercialization of agile and distributed manufacturing technologies and platforms that can rapidly scale production, conversion, finishing and availing of drug substances and drug products. The specific focus of this effort is the establishment of agile and distributed manufacturing capabilities for small molecule drug products used as medical countermeasures in multiple finished drug dosage forms. The approach must be built on flexibility, innovation, and augmentation. Data-driven production, inventory management and conversion that aligns supply with demand is required. Development and commercialization of repurposable equipment, parallel component production, increased efficiency, reduced waste, automation, digital monitoring for real-time quality assurance, responsive local and regional manufacturing capacities, and innovative inventorying, manufacturing, packaging and fill-finish methods are preferred.

The USG's requirement is for a base and option-type contract subaward structure to establish and fund agile and distributed end-to-end manufacturing capacities. This effort can be done through multiple sub-awards, if determined to be in the best interests of the USG. . Any additional funds added to this requirement will be used to add additional funds on an existing subaward, award new subawards to new performers, or add additional option years.

Additional options may be used to add additional funds on an existing awards or sub-awards and new subawards to new partners to expand agile and distributed end-to end manufacturing capacities.

### 1.2. Introduction:

A key strategic goal of ASPR IBMSC is to support, strengthen, and modernize the Nation's medical countermeasure industrial base. This includes development of new materials, products, technologies, and manufacturing paradigms across pharmaceuticals, medical devices, PPE, and testing and diagnostic product categories. This requirement is for:

- Development and commercialization of agile and distributed manufacturing capabilities for drug substances and drug products used in medical countermeasures;

- End-to-end Key starting materials, drug substance and drug product manufacturing while operating within current good manufacturing practices (cGMP). cGMP refers to the regulatory standards enforced by the U.S. Food and Drug Administration (FDA) under 21 CFR Parts 210–211.

- Completion of all regulatory filings that would allow for commercial sale of drug product(s), including Drug Master File(s) (DMFs), New Drug Applications (NDAs), and/or Abbreviated New Drug Applications (ANDAs).

This effort supports ASPR IBMSC's broader long-term goal of establishing and commercializing infrastructure accessible to a wide community of users for production and distribution of medical countermeasures critical to national health security and preparedness.

## 2. REQUIREMENTS

### 2.1. General Objectives

The primary objective of this project is to develop and commercialize manufacturing capabilities that allow for end-to-end production of drug substances and drug products under cGMP and subsequent regulatory filing that enables broad commercial adoption and sale of domestically produced drug substances and drug products to meet US demands for medical countermeasures. Performers must include activities that enable the commercialization and sustainment of agile and distributed manufacturing capacities, including those that improve cost competitiveness and establish capacities that can rapidly scale up manufacturing of drug substances and drug products during high-demand periods and national emergencies. Approaches must be built on flexibility, innovation, augmentation and commercial sustainability. Data-driven production that aligns in-process metrology with rich data collection to bolster cGMP production and regulatory review is preferred, while traditional batch manufacturing and reliance on global just-in-time supply chains will not be considered.

Offerors are encouraged to submit proposals that commercialize:

- Continuous and fully integrated end-to-end manufacturing of biologically derived or synthetic APIs with high volume, modular and rapidly interchangeable production and finished drug formulation capacities. This includes integrated domestic production of Key Starting Materials, APIs and Finished Dose Form Drugs.
- Production platforms with integrated downstream "wet-to-dry" processing from cell-based or cell-free systems to API and finished dose form drugs. These should include Process Analytical Technology (PAT) and Real-Time Release Testing (RTRT) to enable "release-by-exception" and streamlined regulatory validation.
- Modular lines (including, but not limited to Continuous Direct Compression, sterile fill/finish, or other FDF manufacturing lines) capable of rapid changeover (<24 hours) between distinct drug substances and drug products.
- Micro-scale, AI-governed molecular printers at the point of care that use standardized, stable precursors to manufacture, purify and finish small-molecule drugs from standard digital recipes.
- Large-scale living foundries, including, but not limited to plant crops that produce complex precursors or APIs at low-cost.
- Self-contained units that leverage AI-driven manufacturing and quality by design to operate with limited to no human interaction.
- Miniature manufacturing platforms, including deployable, desktop size units that integrate microfluidics, synthesis and finished drug formulation to achieve hyper-localized production of medicines at the point of need.

Proposals that focus on repurposable equipment, parallel component production, increased efficiency, reduced waste, automation, digital monitoring for real-time quality assurance, responsive and scalable localized manufacturing capabilities, and innovative manufacturing, packaging and fill-finish methods for medical

countermeasures are also preferred. These objectives will be achieved by employing a two-step approach as described below. Performers must be able to complete both steps.

### 2.2. Specific Objectives and Requirements

A. Objective A – 6 Months

1. Objective A is a design and study phase to allow the performer to develop and refine a manufacturing design and technical approach, including management, logistics, pricing/costing and other non-technical elements necessary to achieve the primary goal of enabling commercial end-to-end production of small molecule drug substances used in medical countermeasures. Objective A must result in the development of metrics and milestones to gauge progress for intended technologies and capabilities. Also required is a method to quantify the risks and maturity of each technology and capability. The following incremental objectives are required:

    a. Select proposed target small molecule drug products that are at least at Manufacturing Readiness Level (MRL) 3 (Manufacturing Proof of Concept Demonstrated), including justification of rationale and basis for selection.
        1. Perform supply chain mapping and develop reports that clearly define current manufacturing challenges and dependencies as they relate to meeting US needs as part of the rationale for drug product selection.
        2. USG must approve all drug products developed under this agreement.

    b. Develop a detailed list of molecules and/or molecule classes for each phase of production, as well as other materials and systems and equipment required for each phase of manufacture, for each drug product.

    c. Develop a manufacturing and commercial expansion plan that includes automated and integrated processes across all stages of design, manufacturing, testing, analysis, and subsequent regulatory filing(s) for the selected small molecule drug products that meet U.S. Pharmacopeia (USP) standards for purity, potency, safety, and quality. Establish a cGMP-compliant pilot, engineering and scale-up production capacity. Concepts to be considered in the development and commercialization phases should include:

        1. Design tool innovations to enable forward engineering of novel biosynthetic pathways.

        2. Design evaluation tools to enable massively parallel testing, analysis, validation, and verification of engineered systems, including analysis of intermediates.

        3. Integrated feedback tools exploiting high-volume data generation to inform future designs and processes, including analysis of failure modes, implementation of learning and data mining algorithms, and generation of design rules for assembling biological systems with predictable behavior; and

        4. Fully integrated computational and physical infrastructure supporting design, fabrication, process validation, quality control, analysis, and manufacturing optimization.

    d. Performers must establish a relationship with a business development management company that has an established track record of establishing and implementing for startup pharmaceutical companies

and develop a comprehensive marketing and market development plan. This plan must also demonstrate a path to parity with global competitive benchmarks. Performers must take the lead on identifying the appropriate firm and the USG, if requested by the Performer, shall provide input and advice. The ultimate goal of such a program will be for Performers to work with said company in order to both develop and implement a comprehensive market development and marketing plan, aimed at establishing and ensuring, both in the short-term, as well as in the long-term, the launch of any commercialization effort, as well as to set up and ensure the Performer's ability to reach and grow to financial self-sufficiency in the long term. Performers must meet all milestones established with the business development management company and the USG.

e. Development should begin with the identification of the proposed drug products and incorporate all steps necessary to take each drug substance from MRL 3 to MRL 10 (Full Rate Production demonstrated and lean production practices in place), and which will meet U.S. Pharmacopeia standards for purity, potency, safety, and quality.

f. Establish a governance structure required to achieve commercial scale manufacturing of the selected drug substances, including considerations for each phase of drug substance development.

g. Develop the metrics necessary to gauge and measure domestic market progress of the required technologies and infrastructure needed to achieve commercial scale production.

h. Develop metrics to assess progress towards development and commercial scale production.

i. Refine and finalize development and commercialization plans to achieve commercial scale production.

B. Objective B – 18 Months

1. Establish end-to-end cGMP drug substance (API) and Finished Dose Form drug product manufacturing capacity(ies).

2. Demonstrate production of drug substances and drug products and progress from current MRL to MRL-10 while ensuring compliance with US Pharmacopeia standards for purity, potency, safety and quality.

   a. Process Validation Protocol: Following FDA Guidance on Process Validation (https://www.fda.gov/regulatory-information/search-fda-guidance-documents/process-validation-general-principles-and-practices), develop a written Process Performance Qualification (PPQ) protocol. The protocol combines the actual facility, utilities, equipment (each now qualified), and the trained personnel with the commercial manufacturing process, control procedures, and components to produce commercial batches. This milestone will provide that protocol.

   b. Conduct pilot, engineering and validation production runs, as applicable compliant with cGMP standards.

3. Assess, through multiple product runs the viable pathway towards production at commercial scale that minimizes Cost of Goods and Services (COGS) while maximizing commercial viability as a medical countermeasure. Considered outcomes to be presented to the USG include:

   a. Time to market

   b. Development and deployment costs

c. Optimal time to market with cost consideration

d. Major influencers
e. Whether private investments are necessary to enable commercial scaling, and where those investments will come from

4. Complete FDA Inspection Readiness and Site Training Plan: In preparation for FDA inspection, formalize an FDA inspection readiness plan. This plan will include SOPs for how an FDA inspection is conducted and orchestrated when the FDA arrives on site, inclusive of the data room, documentation review, and planned facility tour approach. In addition, companywide training tailored to individual roles and responsibilities will be defined and executed to prepare the organization for inspection.

5. Develop final cGMP Drug Product Business Plans. Develop business models and plans that identify the best commercial path forward to enable sustainability.

6. Conduct qualification and validation batch runs and place product on stability to enable regulatory submissions.

7. Conduct appropriate regulatory submission and post-submission activities towards final approval of product(s) for sale in the US.

    a. This includes completion of all regulatory filings that would allow for commercial sale of drug product(s), including Drug Master File(s) (DMFs), New Drug Applications (NDAs), and/or Abbreviated New Drug Applications (ANDAs).

## 3. PROGRAM MANAGEMENT:

A. Performer is responsible for overall management and oversight of the work necessary to achieve the objectives of this effort, as specified in Objective A and Objective B. The Performer must provide the overall management, integration, and coordination of all objective activities and performance requirements, including a technical and administrative organization that ensures the efficient planning, initiation, implementation, and direction of all activities.

B. Performer must establish and maintain a project milestone schedule for the entire effort that includes all critical steps, critical path, and phases to include go/no-go and success criteria.

C. Any changes or deviations planned or incurred by the Performer in pursuing the objectives of this effort must be reported to USG. While primary responsibility for management and execution of the effort resides with the Performer, USG shall approve any deviations during the milestone review process and any changes to the objectives.

D. Program Reviews

1. The Performer must conduct monthly and quarterly reviews to provide details [to the USG?] for development, manufacturing and commercialization activities, progress against performance objectives, incurred and forecasted expenditures and detailed progress towards meeting milestones and deliverables.

E. Requirements for Performers and Sub-Performers

1. All Performers, including sub-performers, must be wholly U.S.- owned, U.S. - operated, and have their global headquarters located within the United States of America.

2. No exceptions to the requirements of E.1 will be made for Performers. An Agreement Officer's Authorization (AOA) approval request is required for any proposed sub-Performer that does not meet the U.S.-owned and operated requirements specified in paragraph E.1. The supporting documents shall include the following, and additional information may be required at the discretion of the USG:

    a. Competition activities, as well as technical and cost/price evaluation activities performed, in the selection of the sub-Performer(s);

    b. The sub-Performer's qualifications/capabilities statement and past performance as they pertain to the activities included in the proposed subcontract;

    c. The sub-Performer's willingness/commitment to perform under the Performer (i.e. commitment letters/preliminary agreements), with a list of specific duties included in the proposed subcontract;

    d. The priority that the work will be given, how it will relate to other work, how it will be monitored and enforced;

    e. The amount of time and facilities available for the subject requirement; and

    f. A complete sub-Performer cost proposal or quote, in similar format as the Performer's cost proposal.

    g. A detailed risk analysis of engaging a non-U.S.-owned or non-U.S.-operated sub-Performer, focusing on risks to national security, intellectual property protection, supply chain resilience, and remedies for non-performance.

    h. Documentation confirming that the non-U.S. sub-Performer complies with relevant U.S. regulations, including, but not limited to, FDA regulations, and how compliance will be monitored and maintained;

    i. Certifications or third-party audits verifying the sub-Performer's adherence to quality, safety, and environmental standards, and how compliance will be monitored and maintained.

3. Staffing, Training & Infrastructure: Performer must ensure adequate personnel and training programs are in place. Performer must ensure the appropriate chemists, engineers, facility managers, inventory managers, operations, logistics and business/management personnel are in place. Performer must also ensure that analytical chemists are in place and experienced and proficient in various instrumental techniques such as but not limited to HPLC, GC-MS, and Spectroscopy. Performer must ensure that the appropriate microbiologists (if applicable) are hired for APIs requiring microbial limit or sterility testing. Performer must also have access to and provide comprehensive training on United States Pharmacopeia (USP) monographs, specific analytical methods, instrument operation, data interpretation, current Good Manufacturing Practices (cGMP) and Good Laboratory Practice (GLP) regulations, and safety procedures.

4. All facilities must be licensed, comply with all Federal, Local, and State laws and regulations, in addition to all FDA and related regulations.

5. Performer must ensure end-to-end supply chain control and visibility, including establishing an dashboard infrastructure that allows for unrestricted USG access and inspection.

6. Security Requirements

Terms related to specific Security requirements must be established for Performers and sub-Performers.

**Security Reporting Requirements**

The performer facility must notify the Government Security Team within 24-72 hours of any activity or incident that is in violation of established security standards or indicates the loss or theft of government products associated with this Agreement. The facts and circumstances associated with these incidents will be documented in writing for government review.

**Security Audits**

Description: The partner facility agrees to formal security audits conducted at the discretion of the government. Security audits may include both prime and sub-Performers. Minimum length of notification is 10 business days.

**Supply Chain Resiliency Plan**

The Performer must develop and submit within 30 calendar days of contract award, a comprehensive Supply Chain Resiliency Program that provides identification and reporting of critical components associated with the secure supply of drug substance, drug product, and work-in-process through to finished goods.

A critical component is defined as any material that is essential to the product or the manufacturing process associated with that product. Included in the definition are consumables and disposables associated with manufacturing. NOT included in the definition are facility and capital equipment.

Consideration of critical components includes the evaluation and potential impact of raw materials, excipients, active ingredients, substances, pieces, parts, software, firmware, labeling, assembly, testing, analytical and environmental componentry, reagents, or utility materials which are used in the manufacturing of a drug, cell banks, seed stocks, devices and key processing components and equipment. A clear example of a critical component is one where a sole supplier is utilized.

The Performer must identify key equipment suppliers, their locations, local resources, and the associated control processes at the time of award. This document shall address planning and scheduling for active pharmaceutical ingredients, upstream, downstream, component assembly, finished drug product and delivery events as necessary for the delivery of product.

a) Communication for these requirements shall be updated as part of an annual review, or as necessary, as part of regular contractual communications.
b) For upstream and downstream processing, both single-use and re-usable in-place processing equipment, and manufacturing disposables also shall be addressed. For finished goods, the inspection, labeling, packaging, and associated machinery shall be addressed taking into account capacity capabilities.
c) The focus on the aspects of resiliency shall be on critical components and aspects of complying with the contractual delivery schedule. Delivery methods shall be addressed, inclusive of items that are

foreign-sourced, both high and low volume, which would significantly affect throughput and adherence to the contractually agreed deliveries.

The Performer must articulate in the plan, the methodology for inventory control, production planning, scheduling processes and ordering mechanisms, as part of those agreed deliveries.

a) Production rates and lead times shall be understood and communicated to the Other Transaction Agreements Officer or the Other Transaction Agreements Officer Project Agreement Representative (PAR) as necessary.
b) Production throughput critical constraints should be well understood by activity and by design, and communicated to contractual personnel. As necessary, communication should focus on identification, exploitation, elevation, and secondary constraints of throughput, as appropriate.

Reports for critical items should include the following information:

a) Critical Material
b) Vendor
c) Supplier, Manufacturing / Distribution Location
d) Supplier Lead Time
e) Shelf Life
f) Transportation / Shipping restrictions

The OTAO and PAR reserve the right to request un-redacted copies of technical documents, during the period of performance, for distribution within the Government. Documents shall be provided within ten (10) days after OTAO issues the request. The Performer may arrange for additional time if deemed necessary, and agreed to by the OTAO.

**Manufacturing Data Requirements**

The Performer must submit within 30 calendar days of contract award detailed data regarding project materials, sources, and manufacturing sites, including but not limited to: physical locations of sources of raw and processed material by type of material; location and nature of work performed at manufacturing, processing, and fill/finish sites; and location and nature of non-clinical and clinical studies sites. The Government may provide a table in tabular format for the Performer to be used to submit such data which would include but not be limited to the following:

- Storage/inventory of ancillary materials (vials, needles, syringes, etc.)
- Shipment of ancillary materials (vials, needles, syringes, etc.)
- Disposal of ancillary materials (vials, needles, syringes, etc.)
- Seed development or other starting material manufacturing
- Bulk drug substance and/or excipient production
- Fill, finish, and release of product or adjuvant
- Storage/inventory of starting materials, bulk substance, or filled/final product or adjuvant
- Stability information of bulk substance and/or finished product
- Shipment of bulk substance of final product
- Disposal of bulk substance or final product

**Performer Locations**

The Performer must submit detailed data regarding locations where work will be performed under this contract, including addresses, points of contact, and work performed per location, to include sub-Performers.

Performer will submit Work Locations Report:

- Within 5 business days of contract award
- Within 30 business days after a substantive location or capabilities change
- Within 2 business days of a substantive change if the work performed supports medical countermeasure development that addresses a threat that has been declared a Public Health Emergency by the HHS Secretary or a Public Health Emergency of International Concern (PHEIC) by the WHO

**Operational Security (OPSEC)**

The performer must develop an OPSEC Standard Operating Procedure (SOP)/Plan within ninety (90)-calendar-days of project award to be reviewed and approved by the responsible Government OPSEC officer. This plan will be submitted to the PAR for coordination of approvals. This SOP/Plan will include identifying the critical information related to this contract, why it needs to be protected, where it is located, who is responsible for it, and how to protect it.

**Security Plan**

The Performer must develop a comprehensive security program that provides overall protection of personnel, information, data, and facilities associated with fulfilling the Government requirement. This plan shall establish security practices and procedures that demonstrate how the Performer will meet and adhere to the security requirements outlined below prior to the commencement of product manufacturing, and shall be delivered to the Government within 30 calendar days of award. The Performer shall also ensure all sub-Performers, consultants, researchers, etc. performing work on behalf of this effort, comply with all Government security requirements and prime Performer security plans.

a) The Government will review in detail and submit comments within ten (10) business days to the Other Transaction Agreements Officer (OTAO) to be forwarded to the Performer. The Performer shall review the Draft Security Plan comments, and, submit a Final Security Plan to the U.S. Government within thirty (30) calendar days after receipt of the comments.
b) The Security Plan shall include a timeline for compliance of all the required security measures outlined by the Government.
c) Upon completion of initiating all security measures, the Performer shall supply to the Other Transaction Agreements Officer a letter certifying compliance to the elements outlined in the Final Security Plan.

At a minimum, the Final Security Plan shall address the following items:

1. **Facility Security Plan**
   Description: As part of the partner facility's overall security program, the Performer shall submit a written security plan with their proposal to the Government for review and approval by Government security subject matter experts. The performance of work under the contract will be in accordance with the approved security plan. The security plan will include the following processes and procedures at a minimum:

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| Security Administration | • organization chart and responsibilities<br>• written security risk assessment for site<br>• threat levels with identification matrix (High, Medium, or Low)<br>• enhanced security procedures during elevated threats<br>• liaison procedures with law enforcement<br>• annual employee security education and training program |
| Personnel Security | • policies and procedures<br>• candidate recruitment process<br>• background investigations process<br>• employment suitability policy<br>• employee access determination<br>• rules of behavior/ conduct<br>• termination procedures<br>• non-disclosure agreements |
| Physical Security Policies and Procedures | • internal/external access control<br>• protective services<br>• identification/badging<br>• employee and visitor access controls<br>• parking areas and access control<br>• perimeter fencing/barriers<br>• product shipping, receiving and transport security procedures<br>• facility security lighting<br>• restricted areas<br>• signage<br>• intrusion detection systems<br>• alarm monitoring/response<br>• closed circuit television<br>• product storage security<br>• other control measures as identified |
| Information Security | • identification and marking of sensitive information<br>• access control<br>• storage of information<br>• secure transmission of data to the USG<br>• document control procedures<br>• retention/ destruction requirements |
| Information Technology/Cyber Security Policies and Procedures | • intrusion detection and prevention systems<br>• threat identification<br>• employee training (initial and annual)<br>• encryption systems<br>• identification of sensitive information/media<br>• password policy (max days 90)<br>• lock screen time out policy (minimum time 20 minutes)<br>• removable media policy<br>• laptop policy<br>• removal of IT assets for domestic/foreign travel |

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| | • access control and determination<br>• VPN procedures<br>• WiFi and Bluetooth disabled when not in use<br>• system document control<br>• system backup<br>• system disaster recovery<br>• incident response<br>• system audit procedures<br>• property accountability |
| **2. Site Security Master Plan**<br>Description: The partner facility shall provide a site schematic for security systems which includes: main access points; security cameras; electronic access points; IT Server Room; Product Storage Freezer/Room; and bio-containment laboratories. | |
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| **3. Site Threat / Vulnerability / Risk Assessment**<br>Description: The partner facility shall provide a written risk assessment for the facility addressing: criminal threat, including crime data; foreign/domestic terrorist threat; industrial espionage; insider threats; natural disasters; and potential loss of critical infrastructure (power/water/natural gas, etc.) This assessment shall include recent data obtained from local law enforcement agencies. The assessment should be updated annually. | |
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| **4. Physical Security**<br>Description: | |
| Closed Circuit Television (CCTV) Monitoring | a) Layered (internal/external) CCTV coverage with time-lapse video recording for buildings and areas where critical assets are processed or stored.<br>b) CCTV coverage must include entry and exits to critical facilities, perimeters, and areas within the facility deemed critical to the execution of the contract.<br>c) Video recordings must be maintained for a minimum of 30 days.<br>d) CCTV surveillance system must be on emergency power backup.<br>e) CCTV coverage must include entry and exits to critical facilities, perimeters, and areas within the facility deemed critical to the execution of the contract.<br>f) Video recordings must be maintained for a minimum of 30 days.<br>g) CCTV surveillance system must be on emergency power backup. |
| Facility Lighting | a) Lighting must cover facility perimeter, parking areas, critical infrastructure, and entrances and exits to buildings.<br>b) Lighting must have emergency power backup.<br>c) Lighting must be sufficient for the effective operation of the CCTV surveillance system during hours of darkness. |
| Shipping and Receiving | a) Must have CCTV coverage and an electronic access control system.<br>b) Must have procedures in place to control access and movement of drivers picking up or delivering shipments. |

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| | c) Must identify drivers picking up Government products by government issued photo identification. |
| Access Control | a) Must have an electronic intrusion detection system with centralized monitoring.<br>b) Responses to alarms must be immediate and documented in writing.<br>c) Employ an electronic system (i.e., card key) to control access to areas where assets critical to the contract are located (facilities, laboratories, clean rooms, production facilities, warehouses, server rooms, records storage, etc.).<br>d) The electronic access control should signal an alarm notification of unauthorized attempts to access restricted areas.<br>e) Must have a system that provides a historical log of all key access transactions and kept on record for a minimum of12 months.<br>f) Must have procedures in place to track issuance of access cards to employees and the ability to deactivate cards when they are lost or an employee leaves the company.<br>g) Response to electronic access control alarms must be immediate and documented in writing and kept on record for a minimum of 12 months.<br>h) Should have written procedures to prevent employee piggybacking access<br>i) to critical infrastructure (generators, air handlers, fuel storage, etc.) should be controlled and limited to those with a legitimate need for access.<br>j) Must have a written manual key accountability and inventory process.<br>k) Physical access controls should present a layered approach to critical assets within the facility. |
| Employee/Visitor Identification | a) Should issue company photo identification to all employees.<br>b) Photo identification should be displayed above the waist anytime the employee is on company property.<br>c) Visitors should be sponsored by an employee and must present government issued photo identification to enter the property.<br>d) Visitors should be logged in and out of the facility and should be escorted by an employee while on the premises at all times. |
| Security Fencing | Requirements for security fencing will be determined by the criticality of the program, review of the security plan, threat assessment, and onsite security assessment. |
| Protective Security Forces | Requirements for security officers will be determined by the criticality of the program, review of the security plan, threat assessment, and onsite security assessment. |
| Protective Security Forces Operations | a) Must have in-service training program.<br>b) Must have Use of Force Continuum. |

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| | c) Must have communication systems available (i.e., landline on post, cell phones, handheld radio, and desktop computer).<br>d) Must have Standing Post Orders.<br>e) Must wear distinct uniform identifying them as security officers. |
| **5. Security Operations**<br>Description: | |
| Information Sharing | a) Establish formal liaison with law enforcement.<br>b) Meet in person at a minimum annually. Document meeting notes and keep them on file for a, minimum of 12 months. POC information for LE Officer that attended the meeting must be documented.<br>c) Implement procedures for receiving and disseminating threat information. |
| Training | a) Conduct new employee security awareness training.<br>b) Conduct and maintain records of annual security awareness training. |
| Security Management | a) Designate a knowledgeable security professional to manage the security of the facility.<br>b) Ensure sub-Performer compliance with all Government security requirements. |
| **6. Personnel Security**<br>Description: | |
| Records Checks | Verification of social security number, date of birth, citizenship, education credentials, five-year previous employment history, five-year previous residence history, FDA disbarment, sex offender registry, credit check based upon position within the company; motor vehicle records check as appropriate; and local/national criminal history search. |
| Hiring and Retention Standards | a) Detailed policies and procedures concerning hiring and retention of employees, employee conduct, and off boarding procedures.<br>b) Off Boarding procedures should be accomplished within 24 hour of employee leaving the company. This includes termination of all network access. |
| **7. Information Security**<br>Description: | |
| Physical Document Control | a) Applicable documents shall be identified and marked as procurement sensitive, proprietary, or with appropriate government markings.<br>b) Sensitive, proprietary, and government documents should be maintained in a lockable filing cabinet/desk or other storage device and not be left unattended.<br>c) Access to sensitive information should be restricted to those with a need to know. |

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| Document Destruction | Documents must be destroyed using approved destruction measures (i.e, shredders/approved third party vendors / pulverizing / incinerating). |
| **8. Information Technology & Cybersecurity** Description: | |
| Identity Management | a) Physical devices and systems within the organization are inventoried and accounted for annually.<br>b) Organizational cybersecurity policy is established and communicated.<br>c) Asset vulnerabilities are identified and documented.<br>d) Cyber threat intelligence is received from information sharing forums and sources.<br>e) Threats, vulnerabilities, likelihoods, and impacts are used to determine risk.<br>f) Identities and credentials are issued, managed, verified, revoked, and audited for authorized devices, users and processes.<br>g) Users, devices, and other assets are authenticated (e.g., single-factor, multifactor) commensurate with the risk of the transaction (e.g., individuals' security and privacy risks and other organizational risks) |
| Access Control | a) Limit information system access to authorized users.<br>b) Identify information system users, processes acting on behalf of users, or devices and authenticate identities before allowing access.<br>c) Limit physical access to information systems, equipment, and server rooms with electronic access controls.<br>d) Limit access to/ verify access to use of external information systems. |
| Training | a) Ensure that personnel are trained and are made aware of the security risks associated with their activities and of the applicable laws, policies, standards, regulations, or procedures related to information technology systems. |
| Audit and Accountability | a) Create, protect, and retain information system audit records to the extent needed to enable the monitoring, analysis, investigation, and reporting of unlawful, unauthorized, or inappropriate system activity. Records must be kept for minimum must be kept for 12 months.<br>b) Ensure the actions of individual information system users can be uniquely traced to those users.<br>c) Update malicious code mechanisms when new releases are available.<br>d) Perform periodic scans of the information system and real time scans of files from external sources as files are downloaded, opened, or executed. |
| Configuration Management | a) Establish and enforce security configuration settings.<br>b) Implement sub networks for publicly accessible system components that are physically or logically separated from internal networks. |

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| Contingency Planning | a) Establish, implement, and maintain plans for emergency response, backup operations, and post-disaster recovery for information systems to ensure the availability of critical information resources at all times. |
| Incident Response | a) Establish an operational incident handling capability for information systems that includes adequate preparation, detection, analysis, containment, and recovery of cybersecurity incidents. Exercise this capability annually. |
| Media and Information Protection | a) Protect information system media, both paper and digital.<br>b) Limit access to information on information systems media to authorized users.<br>c) Sanitize and destroy media no longer in use.<br>d) Control the use of removable media through technology or policy. |
| Physical and Environmental Protection | a) Limit access to information systems, equipment, and the respective operating environments to authorized individuals.<br>b) Intrusion detection and prevention system employed on IT networks.<br>c) Protect the physical and support infrastructure for all information systems.<br>d) Protect information systems against environmental hazards.<br>e) Escort visitors and monitor visitor activity. |
| Network Protection | Employ intrusion prevention and detection technology with immediate analysis capabilities. |
| 9. **Transportation Security**<br>Description: Adequate security controls must be implemented to protect materials while in transit from theft, destruction, manipulation, or damage. | |
| Drivers | a) Drivers must be vetted in accordance with Government Personnel Security Requirements.<br>b) Drivers must be trained on specific security and emergency procedures.<br>c) Drivers must be equipped with backup communications.<br>d) Driver identity must be 100 percent confirmed before the pick-up of any Government product.<br>e) Drivers must never leave Government products unattended, and two drivers may be required for longer transport routes or critical products during times of emergency.<br>f) Truck pickup and deliveries must be logged and kept on record for a minimum of 12 months. |
| Transport Routes | a) Transport routes should be pre-planned and never deviated from except when approved or in the event of an emergency.<br>b) Transport routes should be continuously evaluated based upon new threats, significant planned events, weather, and other situations that may delay or disrupt transport. |

| | |
|---|---|
| Product Security | a) Government products must be secured with tamper resistant seals during transport, and the transport trailer must be locked and sealed.<br>• Tamper resistant seals must be verified as "secure" after the product is placed in the transport vehicle.<br>b) Government products should be continually monitored by GPS technology while in transport, and any deviations from planned routes should be investigated and documented.<br>c) Contingency plans should be in place to keep the product secure during emergencies such as accidents and transport vehicle breakdowns. |
| **10. Security Reporting Requirements**<br>Description: The partner facility shall notify the Government Security Team within 24 hours of any activity or incident that is in violation of established security standards or indicates the loss or theft of government products. The facts and circumstances associated with these incidents will be documented in writing for government review. | |
| | |
| **11. Security Audits**<br>Description: The partner facility agrees to formal security audits conducted at the discretion of the government. Security audits may include both prime and sub-Performer. | |
| | |

7. Reporting and Analytics Requirements.

    a. Standard GMP-compliant reports (stock on hand, expiry, batch traceability)
    b. Real-time dashboards for KPIs (inventory accuracy, warehouse utilization, picking efficiency).

    c. Audit-ready reports for regulatory agencies

    d. Configurable reporting and data export functionality

8. Method Validation Requirements

    Verification/Validation: While USP methods are generally considered validated, their suitability for a specific laboratory's equipment and conditions must be verified. For non-compendial methods or significant modifications, full method validation (specificity, linearity, accuracy, precision, detection/quantitation limits, robustness) is required as per ICH Q2(R1) guidelines

9. Reagent and Consumables Management Requirements

    a. Inventory Control: Maintain adequate stock of all necessary reagents, solvents, columns, and other consumables

b. Quality Control: Ensure all reagents are of appropriate grade (e.g., HPLC grade solvents, USP grade chemicals)

10. Quality Management System (QMS) Requirements.

a. SOPs: Develop and implement Standard Operating Procedures for all aspects of acceptance testing, retesting, stability testing, equipment operation, calibration, maintenance, sample management, data handling, and out-of-specification (OOS) investigations

b. Documentation System: Establish a robust document control system for all quality records

c. Change Control: Implement a change control system for any modifications to procedures, equipment, or specifications. Establish expedited change control processes for the strategic active pharmaceutical ingredients reserve -impacted modifications, such as shifts in API suppliers to prioritize U.S.-based production or updates to the critical drug list. Require impact assessments on supply chain resilience, with mandatory notifications to HHS/ASPR for federally funded stockpiles.

d. Audit Readiness: Be prepared for internal and external audits to ensure compliance with regulatory requirements (e.g., FDA).

## 4. DELIVERABLES

A. Deliverables include the following:

1. Kickoff meeting that must occur within 30 days of award.

2. Monthly progress reports. These reports must be delivered to the USG by the XX day of every month to include a detailed technical progress report and report on all problems, technical issues, major developments and the status of external collaborations during the reporting period.

3. Special technical reports. These reports must be provided, as needed and when requested by the USG, to include special reports on significant events such as significant target accomplishments or deviations by the Performer or sub-Performer, significant tests, experiments or symposia.

4. Detailed Project Plan (2 months after award).

a. Describe in detail the proposed plan to achieve all objectives and requirements.

b. Plan should include all assumptions that will be employed in preparing and executing the program.

c. Plan should include a range of assumptions/variables that can be used to assess various market conditions.

d. Plan should include metrics, variables, and milestones for gauging domestic market progress of required technologies and infrastructure that will be needed for market entry.

e. Plan should include all metrics, variables and milestones that define the various gates and decision points (distinct from the bullet above).

f. Plan should include details for each phase of program execution (anticipated to follow the various MRLs from 3-10).

g. Plan should include identification of risks associated with execution of the plan.

5. Provide a complete description of the infrastructure, manufacturing and management structure, including but not limited to addressing all elements that will accomplish the program's goals and milestones.

6. Final report. The Performer shall submit a final report making full disclosure of all major developments by the Performer upon completion of this Agreement or within sixty (60) calendar days of termination of this agreement.

7. See also Section 7 and Appendix 1 for other programmatic milestones and deliverables.

**5. PHYSICAL PROPERTY**

Title or interest in equipment acquired with USG funds must be established for Performers and sub-Performers.

Title to Property: Fixed Price Project Agreements. Performer retains title to all property acquired as necessary to execute the work under the Project Agreement, unless otherwise dictated in the Project Agreement.

Title to Property: Expenditure Based (and other) Project Agreements. Items of property with an acquisition value equal to or less than $10,000 vest with the Performer upon acquisition. For items greater than $10,000, the Performer must obtain approval from the OTAO, through the CMF, prior to purchasing property using Government funds in order to retain title. Property listed in the cost proposal is considered as having received OTAO approval. For those items of real property or nonexpendable personal property having a unit acquisition cost of $10,000 or more, which will be acquired with Government funds received through the CMF, the Government reserves the right to transfer the title to the Federal Government or to a third Party named by the Government. If a Project Agreement includes the use of real property or equipment that is purchased with non-federal funds or that is donated by a third party to meet a portion of any required cost sharing or matching, the Government will have a financial interest in the property equal to the Federal funding in the project and such property shall be subject to this Article.

Disposition of Property. At the completion of Project Agreements containing property in which title does not vest with the Performer, property shall be disposed of in the following manner:

1. Purchased by the Project Awardee at an agreed-upon price, the price to represent fair market value, with the proceeds of the sale paid to the Government; or
2. Transferred to a Government research facility with title and ownership being transferred to the Government or to an eligible third party; or
3. Any other Government approved disposition procedures as approved by the Project OTAO, through the CMF. The Government shall provide disposition procedures within 120 days of being requested by the CMF to provide disposition.

**6. TERMS RELATED TO CONSIDERATION FOR USG INVESTMENT**

Terms related to consideration for USG investment must be established for Performers and sub-Performers. By entering into this agreement, the Performer agrees to be legally bound to provide priority access for a 10-year period, starting from the date of the agreement's award, notwithstanding the conclusion of any other contractual

commitments at the end of this contract's period of performance. "Priority access" is defined, for the purposes of this agreement as: "PRIORITY ACCESS: Means that the U. S. Government has priority access to established manufacturing capacities over performance under any other contract, agreement or order, and, for the purpose of assuring such priority, shall be required to accept and perform such contracts, agreements or orders in preference to any other contracts, agreements or orders during this 10 year period." If the Performer novates or otherwise transfers responsibility for performance under this contract and commitments herein to any other entity, the priority access requirement shall follow the transfer and be the transferee will be legally bound to provide the priority access for the full 10-year period.

**7. Milestones and Deliverables:**

A preliminary schedule and high-level tasks (milestones) are expected to be as follows:

| ***Milestones and Deliverables*** | ***Due Date*** |
|---|---|
| ***Objective A*** | |
| Kickoff meeting | Within 30 days of award |
| Detailed project plan and a complete description of the infrastructure and management structure, including addressing all elements that will accomplish the program's goals and milestones. | Within 30 days of award |
| 1. Jointly select proposed target small molecule drug substances that are at least at Manufacturing Readiness Level (MRL) 3 (Manufacturing Proof of Concept Demonstrated).<br>2. Develop a detailed list of molecules and/or molecule classes, as well as other materials and systems and equipment required for each phase of manufacture, for each drug product.<br>3. Develop a manufacturing and commercial expansion plan.<br>4. Identify the proposed drug products and incorporate all steps necessary to take each drug substance from MRL 3 to MRL 10.<br>5. Establish a governance structure required to achieve commercial scale manufacturing of the selected drug substances.<br>6. Develop the metrics necessary to gauge and measure domestic market progress of the required technologies and infrastructure needed to achieve commercial scale production.<br>7. Develop metrics to assess progress towards development and commercial scale production.<br>8. Final commercialization plan and business strategy to achieve commercial scale production and domestic market sustainment. | Within 6 months of award |
| ***Objective B*** | |
| 1. Demonstrated production of drug substances and drug products with progress from current MRL to MRL-10.<br>a. Submit a process performance qualification (PPQ) validation protocol.<br>2. Complete all building modifications and infrastructure upgrades identified in the infrastructure design plan and perform EMPQ activities to demonstrate the required environmental controls following the building modifications and infrastructure completion.<br>a. Submit report on the completion of environmental monitoring performance qualification (EMPQ)<br>3. Assess, through multiple product runs the viable pathway towards production at commercial scale that minimizes Cost of Goods and Services (COGS) while maximizing commercial viability.<br>4. Complete an FDA inspection readiness plan which shall include | Within 24 months of award |

| *Milestones and Deliverables* | *Due Date* |
|---|---|
| ***Objective A*** | |
| establishing a data room, documentation review, and planned facility tour approach.<br>a. Complete remediations to address observations from FDA pre-approval inspection and any FDA response documentation.<br>5. Draft final validation and stability batch reports.<br>6. Conduct formal regulatory submission, summarize all FDA correspondences and establish and implement corrective action plans based on regulatory feedback from the FDA.<br>a. Complete any required process validations batches of drug products as required by the corrective action plan.<br>b. Submit process validation reports summarizing release data for drug products.<br>7. Gain approval to market approved FDF products. | |

**8. RISK MANAGEMENT OBJECTIVES**

The performer shall identify all anticipated project risks and track them via a Risk Register in accordance with deliverables requirements. The performer shall manage all project risks using its in-house risk management capabilities, and report to the USG changes to all identified risks as they occur/arise. USG shall be permitted to participate in the risk management and mitigation processes associated with this project.

**9. INTELLECTUAL PROPERTY:**

Terms related to intellectual property must be established for Performers and sub-Performers. All rights to data, copyrights and inventions outlined in OTA 75A50123D00003 will be applicable to all Performers and sub-Performers.

**10. TEAMING AND PARTNERSHIPS**

It is anticipated that multi-disciplinary teams of performers and sub-performers will approach this program, and that successful implementation will be required through industrial collaborations. Teams of performers and sub-performers may be led by industrial, academic, or non-profit entities, and along with other organizations. It is expected that the proposed leadership team will include individuals with significant experience and expertise in pharmaceutical manufacturing and cGMP operations. These teams of performers and sub-performers will lead large and diverse cohorts with industrial partners and have significant experience in industrial process design and identify industrial and commercial partners to aid in achieving the milestones and implementing the deliverables outlined within this SOO. Efforts should be fully integrated and demonstrate that all components are necessary and inseparable. Teams will incorporate members with experience in diverse fields such as computer science, engineering, automation, regulatory, supply chain, industrial process development, chemistry/chemical engineering, cGMP manufacturing, and drug substance and drug product manufacturing, among others.

**APPENDIX 1. Meetings, Site Visits and Reports**

| Deliverable Description | Content Requirements and Instructions[i] | Reporting Frequency[ii],[iii] |
|---|---|---|
| Kick Off Meeting | Recipient to develop Agenda and host an in-person or virtual kick-off meeting to discuss overall project objectives, key personnel, deliverables, risks, schedule and funding/payment procedures.<br><br>Provide meeting minutes. | Kickoff meeting conducted within 5 days of award.<br><br>Minutes to be submitted within 3 business days of meeting. |
| Ad-hoc Project Team Meetings | Recipient to schedule and create and agenda. Follows Agenda mutually agreed upon in advance of meeting. RECIPIENT to provide meeting minutes within 3 business days from date of meeting. | As needed for special topics, when specifically requested by the OTAO or OTTR. |
| Inventory Reports | Report of all APIs and FDF drugs in inventory provided on a daily basis - available on cloud or remote access by ASPR | Daily |
| Monthly Project Team Meetings | Purpose is to review monthly progress report findings, any changes since last month and any projected issues or challenges. | Virtual. Monthly, 5 business days after the monthly report deliverable. 1 hour duration, hosted by the recipient.<br><br>Minutes to be submitted within 3 business days of meeting. |
| Monthly Project Progress Report | Monthly report of overall status including cost, performance and schedule progress and variance from plan. Include discussion of important design considerations and milestones, such as Process Flow Diagrams complete, P&IDs Issued for Design, Process Description complete, etc. Include status of other engineering disciplines, project delays, risk management, funding issues, Construction, Startup, Commissioning/Validation, and Regulatory progress. Level of detail for various aspects of project may decrease or increase in detail as the project moves through the various phases of execution. | Monthly. Due 15th of the month. Performer format acceptable, in PDF. |
| Quarterly In-Process Review (IPR) | Organized, scheduled and hosted by Recipient. May be virtual or physical at the Recipient's facilities based on USG preference. High level project progress review of overall objectives including, but not limited to Schedule, Budget, Quality, Cost Control (i.e. changes), Design, Construction, Validation, Regulatory. Projections against project expectations, including risks and mitigation plans. | Every 3 months from start of project.<br><br>Recipient to send brief 3 working days in advance of meeting. |

| Deliverable Description | Content Requirements and Instructions[i] | Reporting Frequency[ii],[iii] |
|---|---|---|
| Integrated Master Project Schedule | MS Project Detailed Project Schedule, full detailed schedule for entire Project, including all major activities, critical path, and milestones. Status updated regularly. | Status updated monthly and when milestones and/or major events change. |
| Project Budget | Excel Detailed Project Budget, full detailed budget for entire Project | Notify USG via e-mail whenever Project Budget is revised/updated and post to shared documents site |
| Project Documents and List(s) | Full listing of project, documentation organized by engineering discipline or other category (e.g. drawings list, specifications list, procurement packages list, instrument index, URS/FRS, etc.) | Submitted, uploaded and updated as required to USG specified site. |
| Project Documentation | Project Design, Procurement, Construction, Validation, Regulatory, and other related project execution related documents | When specifically requested via e-mail by USG Project Manager (or designee), post latest version of requested documents to shared documents site |
| Project Risk Register | Project risks identified throughout the project shall be tracked via a Risk Register Log (or similar list/tracking vehicle). Log should contain information regarding identification date, severity of risk, mitigation plan(s) and dates for implementation, risk owner, etc. | Updated monthly and submitted with Monthly Technical Progress Report and posted to USG identified document site. |
| Project Action Items List | Actions identified throughout the project, which are not tracked by some other project management tool, and which require follow up and monitoring for completion, will be captured in an Action Items List. (Or similar list/tracking tool.) List should contain information regarding identification date, target completion, responsible individuals/groups, etc. | Submitted if/as required with monthly technical progress report. |
| Site Visits | Host visits from USG following agenda/schedule mutually agreed upon with USG in advance of visits. Provide visit notes within 3 business days from date of visit. | Typically, quarterly, commensurate with quarterly IPR, ad-hoc and no-notice inspections will occur at the Agreements Officer's discretion. |
| Annual Project Progress Report | High level project progress review of overall objectives. Updated projections against project expectations, including risks and mitigation plans, should be reported with respect to the previous annual report. Summary of critical changes that took place over the year. Recommended to not exceed 20 pages. | Annually from award. To review progress over the previous 12 months. A Draft to be submitted 30 days after the completion of each year of performance. Within 15 days of receipt, the USG will provide review comments. The Respondent shall respond within 15 days of receipt of comments. Report format: Microsoft Word and PDF |

| Deliverable Description | Content Requirements and Instructions[i] | Reporting Frequency[ii],[iii] |
|---|---|---|
| Final Report | Final report summarizing stated objectives and the progress that was achieved in meeting those objectives; summary of risks incurred, impacts and mitigation; quantitative discussion of production improvements achieved; financial summary of project; schedule summary for project, comparing original schedule to final schedule; recommendations for path forward as applicable. | Initial submission to be submitted 30 days prior to the end of the period of performance. Within 15 days of receipt, the USG will provide review comments. The Respondent shall respond within 15 days of receipt of comments. |
| Security Plan | The Security Plan must detail how the RECIPIENT will adhere to established ASPR Informational Technology (IT) and Operational Security (OPSEC) policies and requirements.<br><br>The Security Plan must include but is not limited to;<br>• Internal management security measures that meet the ASPR, IT, and OPSEC security requirements<br>• Plan to ensure Project Agreement security compliance, to include roles and responsibilities<br>• Plan to manage Consortium member physical, IT, and OPSEC security compliance as a contingency of Consortium membership | Submission within 60 days post-award, updated as necessary. |

[i] Unless otherwise specified, RECIPIENT's format is acceptable. Submissions may be in MS Office or PDF format. Funding and schedule information shall be MS Excel and MS Project, respectively.

[ii] Unless otherwise specified, ALL deliverables shall be emailed to the Other Transaction Agreements Officer (OTAO) and Other Transaction Technical Representative (OTTR) listed in the Agreement AND uploaded to USG-specified database/folder.

[iii] All Final Deliverable Submissions are subject to USG review and comment which may result in additional Deliverable submissions by the RECIPIENT.