Statement of Objectives (SOO)
for Critical Chemicals Production
5 December 2022

1.0 SCOPE

1.1 The purpose of this effort is to establish domestic supplier(s) of Critical Chemicals that are essential for national defense. Defense Production Act (DPA) Title III funding will be used to mitigate Defense Industrial Base (DIB) reliance on foreign sources for Critical Chemicals. Enabling, maintaining, and expanding domestic sources for Critical Chemicals is a priority for the DPA Title III Program.

1.2 This SOO addresses a need for a chemicals production project to provide a systematic, comprehensive, low cost/risk investment that maximizes industry partners' business case potential while minimizing recurring United States Government (USG) user community costs.

1.3 Successful awardees shall be domestic manufacturers whose proposal(s) demonstrate solutions that emphasize modularity of facilities and equipment to produce as many of the Critical Chemicals as possible, and utilize efficient manufacturing techniques, while minimizing environmental impact.

1.4 The anticipated total Government investment for this call is estimated to be $200M utilizing DPA Title III Funding for between one (1) and twenty (20) projects with each award between $2M and $20M. It's anticipated production requirements will range between 1,000 and 200,000 lbs/year per chemical. It's anticipated Periods of Performance (PoPs) will range from twelve (12) to sixty (60) months based on the scope and complexity of the proposed solutions.

2.0 BACKGROUND

To improve supply chain resilience and protect against material shortages, President Biden signed Executive Order (E.O.) 14017, America's Supply Chains. In support of this EO, the DPA Title III Program is looking to invest to onshore production of critical chemicals for the defense industry that are difficult to produce or are produced in foreign countries. The ideal candidate/s shall be company/ies that can not only produce as many chemicals as possible, but can also successfully commercialize to industries beyond the Department of Defense, such as the pharmaceutical, agriculture, etc.

3.0 OBJECTIVES

The objectives identified in Sections 3A, 3B, 3C, and 3D are standard requirements for a DPA Title III project. The objectives identified in Section 3E are the specific technical requirements for this effort. The offeror shall propose a technical effort, in a prioritized list, to address as many of the objectives in Section 3.E as deemed possible with the currently available DPA Title III funding and anticipated company cost share for this effort.

A. Program Management, Administration, and Reporting

1. Manage and implement the project. Monitor and control the project's cost, schedule, and performance parameters.

2. Establish a cumulative monthly expenditure profile baseline for the government funds. Track the actual and forecasted monthly expenditures against the baseline and report it to the government quarterly.
3. Participate on the project's Integrated Product Team (IPT) and interface with DPA Title III project managers and agreements personnel.
4. Conduct Quarterly Project Management Reviews (PMRs) and ad hoc Technical Interchange Meetings (TIMs) as required. At least one PMR in any year shall be conducted at the recipient's facility. Remaining PMRs shall be conducted by conference call, at the Recipient's facility, or at the DPA Title III Executive Agent Program Offices at Wright-Patterson Air Force Base. Key sub-awardees should actively participate in PMRs.
5. Conduct a Technical Project Kickoff Meeting no later than 30 days after Agreement award.
6. Insure, maintain, operate and service all government and non-government owned capital equipment and tooling (if any) required to produce Critical Chemicals. Update and provide the Government Equipment Property List at the time of quarterly PMRs and as required.
7. Prepare for a No Cost Monitoring Phase after the conclusion of the technical effort to demonstrate and support the long-term goals of this project. This No Cost Monitoring effort shall provide the government with insight into the continuing operations and business viability of the Recipient.
8. Establish and track Key Performance Parameters (KPPs) with DPA Title III IPT concurrence. Threshold (minimum) and Objective (stretch) targets shall be established for at least two KPPs in each of the following four categories: Product Performance, Manufacturing, Financial, and Marketing. Report KPP performance at quarterly PMRs and as required.
9. The Government reserves the right to use Advisory and Assistance Services (A&AS) contractors to advise the Government during the length of the Agreement and participate in PMRs and company site visits as required. A&AS contractor support may include conducting a production process assessment on a yearly basis. This assessment shall be performed at the recipient's facility.
10. Conduct the following reviews as appropriate: preliminary and critical design reviews, test readiness reviews, manufacturing readiness reviews, post-test reviews, and any anomaly reviews. For the manufacturing readiness reviews, a baseline manufacturing readiness assessment (MRA) shall be conducted at the beginning of the effort and a final MRA shall be conducted after any new equipment is put in place and various cost reduction process improvements are completed.
11. Manage, including flow-down requirements, partnerships or other business arrangements needed to complete productization and qualification of the tool/equipment to be produced under Section 3.E of this effort.

B. Strategic Business Planning

1. Develop and maintain a strategic business plan to include:
    a. Submit initial plan nine months after initial award; update and resubmit the plan on an annual basis thereafter.
    b. Include in the plan the key issues related to the establishment of a competitive and commercially viable merchant supplier Critical Chemicals, including but not limited to unit cost(s), impacts of environmental and similar regulations (financial and schedule), minimum sustaining rates, etc.

c. Identify a plan to cultivate and maintain viable sub-tier suppliers. Define sub-tier supplier risks or challenges whether engineering, manufacturing (capacity), or schedule related.
d. The comprehensive strategic business planning should cover a minimum outlook of three years, and preferably five years, including all financial statements, actual and forecasts.
e. Provide performance-to-plan evaluations at regular intervals, with management review comments, to the DPA Title III project manager so long as an Agreement relationship exists.

C. Market Planning and New Business Development

1. Develop and maintain a Marketing Plan to include but not be limited to:
    a. Submit initial plan six months after initial award; update and resubmit the plan on an annual basis thereafter.
    b. Address in the plan current and future customer needs for Critical Chemicals, including but not limited to similarities and differences in DoD vs commercial market (including pricing), variability of pricing from multiple suppliers (e.g. price differences between domestic and foreign sources of supply), and make vs buy decisions based on impacts of domestic production related regulations.
    c. Survey, be responsive to, and report to the government on (DoD and commercial) customer needs, requests, and trends for Critical Chemicals. Include any additional capabilities that were proposed.
    d. Provide performance-to-plan updates at regular intervals, including reports on business capture plans (target business awards, actual awards, and missed opportunities), to the DPA Title III project manager so long as an Agreement relationship exists.
    e. Communicate other factors relevant to markets for the material produced by this facility.

D. Business Viability and Manufacturing Capability/Experience

1. Address the availability of resources employed to become, or maintain a position as, a competitive, economically viable, responsive merchant supplier to the government and commercial sectors for Critical Chemicals.
2. Provide evidence of technical understanding and institutional knowledge with respect to Critical Chemicals. Evidence may include, but is not limited to, intellectual property, documented manufacturing capability and experience, technical specifications for existing devices, and dossiers of key personnel.

E. Technical

1. Task 1: Domestic Production of Critical Chemicals

Establish sustainable full-rate production of proposed chemicals to the minimum quantities and specifications as shown in Addendum 1 (to be provided separately upon request and Government approval to disseminate, reference Call 012, Page 1, “Supplemental

Information").

Offerors must clearly demonstrate in their proposal how they will meet/exceed the required annual domestic production quantity of 1,000 – 200,000 lbs. of one or more of the following Critical Chemicals IAW the applicable specification (see Addendum 1, to be provided separately upon request and Government approval to disseminate, reference Call 012, Page 1, "Supplemental Information"):

- Barium Nitrate
- Lead Nitrate
- Potassium Nitrate
- Strontium Nitrate
- Strontium Peroxide
- Strontium Oxalate
- Hydrazine
- Boron Carbide
- Potassium Sulfate
- Potassium Chlorate
- Potassium Perchlorate
- Diphenylamine (DPA)
- Methyl Centralite
- Ethyl Centralite
- 4-Nitroaniline (4-NA)
- 2,4-Dinitroanisole (DNAN)
- Magnesium
- Amorphous Boron
- Trichlorobenzene (TCB)
- Triaminotrinitrobenzene (TATB)
- Titanium Powder
- Zirconium Powder
- Salicylic Acid
- Sebacic Acid
- Viton B
- Lead Azide
- Smoke Dyes:
    - Sublimized Quinizarin
    - Tech Quinizarin
    - Nitroanthraquinone (NAQ)
    - Quinaldine

Proposals that best accomplish the following objectives will be given preference for award (the Government preferences are presented in order of importance):

a. Modularity of Capital Equipment – producing the most Critical Chemicals with the

least amount of capital expenditures.

b. Modularity of Manufacturing Processes – producing multiple Critical Chemicals using the same flexible manufacturing process versus separate individual lines for each material.

c. Modern Manufacturing Techniques – producing Critical Chemicals utilizing novel and efficient manufacturing techniques (e.g., continuous flow chemistry vs batch processing).

d. Commercial Market Strategy – ability to capture both DoD and commercial customers to maximize business sustainability.

e. Green Manufacturing Techniques – producing Critical Chemicals with the least waste and environmental impact.

f. Other Supply Chain Priorities – see Addendum 2, to be provided separately upon request and Government approval to disseminate, reference Call 012, Page 1, "Supplemental Information."

g. Schedule – minimizing time from award to reaching full production capacity.

2. Task 2: Manufacturing Line Test

a. Develop and conduct Manufacturing Line Test. Document findings in Manufacturing Line Test Report that assesses the safety and success of the production line and the quality of products released from it. Assess the ability of the production line to maintains adherence to relevant standards and regulations.

3. Task 3: First Article Acceptance Test

a. Develop and conduct First Article Test IAW the applicable chemical specification. Document results in First Article Test Report. The test must follow the latest version of the MIL specification, which ensures suitability for defense applications.

4. Task 4: Manufacturing Process Analysis

a. Value Stream Analysis (VSA) or Capacity Model: The recipient shall hold an onsite review of the VSA or Capacity Model with Project IPT and DPA Title III.

b. Manufacturing Readiness Assessments (MRA): Conduct an MRA for each product, to include generating a component risk matrix and Manufacturing Maturation Plan (MMP) that includes funding sources and schedule. Recipient shall lead the MRA effort as a team that includes the recipient, Project IPT, and DPA Title III. Onsite events shall be held after the initial self-assessment to review critical products and processes. Baseline MRAs shall be conducted at the beginning of the effort and final re-assessments shall be conducted prior to the end of the technical period of performance.

c. Process Failure Mode and Effects Analysis (PFMEA): Conduct PFMEA on critical manual processes, and processes that don't allow follow on inspection or test. Per PFMEA standard practice, PFMEA events shall witness the critical processing activities. Recipient shall lead the PFMEA events as a team that includes the recipient, Project IPT, DPA Title III, and others as required by DoD.

d. Risk Management Review: Recipient shall hold a risk management review meeting with the Project IPT, DPA Title III, and others as required by DoD. This review shall include supply chain risks as well.

e. Material Review Board (MRB): Recipient shall hold an MRB planning review after manufacturing line prove-out, relative to a real or relevant product.

f. Depiction of the entire supply chain at all tiers, including country of origin of the supplier and potential alternate suppliers.

5. Task 5: Demonstrate Manufacturing Approach

   a. Once an initial process is established, the Recipient shall provide a 50–200-gram sample (exact amount to be agreed upon by Government and Recipient) of each chemical produced per the approved schedule for Government analysis per the appropriate specification(s). Once the analysis is successfully completed, the Recipient shall scale up the manufacturing process to deliver 100-300 pounds (exact amount to be agreed upon by Government and Recipient) of each chemical product produced for further Government analysis and end item testing per the appropriate specification(s). Further analysis and end item testing will be performed at the expense of the Agency with end item use.

6. Task 6: Regulatory Compliance

   a. Comply with all relevant federal, state, and local safety, transportation and environmental laws, regulations, and permit conditions.

4.0 SECURITY REQUIREMENTS

4.1 Operations Security (OPSEC) Requirements

The recipient shall participate in all activities associated with the disciplines of the organization's Industrial Security, Information Security, Personnel Security, Operations Security (OPSEC), and Antiterrorism programs, following appropriate measures in each program as required for this particular agreement. Security measures are required to reduce program vulnerability from successful adversary collection, exploitation of critical information, and violations of export control requirements. The prime recipient shall ensure all sub-recipients, if applicable, conform to these requirements as required by the prime recipient.

4.2 Program Protection Plan (PPP)

Any potential critical program information (CPI) generated as part of this effort will be reviewed to determine the need for a PPP or to be included as part of an existing PPP.

4.3 Foreign Participation: Not at Prime Recipient level.

Foreign Nationals (FNs) (including individuals from countries other than the United States who are working for a company considered a "domestic source" as defined in the Defense Production Act of 1950) can be employed by the Prime Recipient or Sub-awardee; however, FNs will be limited to Public Domain information unless the Recipient has obtained the proper License of Technical Assistance Agreement that authorizes disclosure of Classified Military

Information (CMI) and/or Controlled Unclassified Information (CUI) to foreign entities pursuant to the Department of State's ITAR or Department of Commerce's EAR.

Public Domain information is defined as information that is releasable to the general public and sometimes referred to as open-source material. Examples include but are not limited to newspapers, magazines and information posted on the internet.

5.0 DELIVERABLES

The Recipient will have the following required deliverables:

Deliverable Item	Submittal Requirement
Final Report	Draft Final Report due 30 days after completion of the technical phase, Final Report due 90 days after completion of the technical phase
Funds & Man-hour Expenditure Report	Quarterly
Recipient's Progress, Status and Management Report	Quarterly
Strategic Business Plan	9 months ARA* and annually thereafter
Property Control List	Quarterly/As Required
Presentation Materials	As Required
Copy of Recipient's Billing Voucher	As Required
Marketing Plan	6 months ARA* and annually thereafter
Manufacturing Readiness Assessment (MRA)	As Required
50-200-gram material sample(s)	Per Contractor's Approved Schedule
100–300-pound Pilot Line sample(s)	Per Contractor's Approved Schedule
Manufacturing Line Test Report	Per Contractor's Approved Schedule
First Article Test Report	Per Contractor's Approved Schedule

* *After Receipt of Award (ARA)*