



Homeland
Security

**Exploratory Research
in
Preventing Nuclear and Radiological
Terrorism**

Broad Agency Announcement No.

70RDND18R00000001

for

Domestic Nuclear Detection Office

(DNDO)

Transformational and Applied Research Directorate

(TAR)

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1 INTRODUCTION

The Department of Homeland Security (DHS), Office of Procurement Operations (OPO) is soliciting proposals for the Domestic Nuclear Detection Office (DNDO) under this Broad Agency Announcement (BAA) for Exploratory Research (ER) that directly supports the DNDO mission. This BAA solicits first white papers and then proposals in the area of Preventing Nuclear and Radiological Terrorism that may lead to a dramatic improvement in national capabilities in nuclear/radiological threat detection and interdiction and in nuclear forensics capabilities.

For this BAA, the Government encourages proposals from the following types of organizations which could serve as the prime contractor: private industry, academic institutions, and non-profit organizations. Prohibited from serving as prime contractors, but encouraged to participate as sub-contractors for this BAA are National Laboratories, Federal Government Laboratories, Federally Funded Research and Development Centers (FFRDCs), Federal Government Activities, Federal Agencies, and Government-Sponsored University Affiliated Research Centers (UARCs).

This BAA is issued in accordance with Federal Acquisition Regulation (FAR) 6.102(d)(2) and 35.016, which provides for the competitive selection of basic and applied research and/or development not related to a specific system or hardware. Proposals submitted in response to this BAA that are selected for award are considered to be the result of full and open competition and in compliance with the Competition in Contracting Act (CICA), 10 U.S.C. § 2304(a)(1); 41 U.S.C. § 3301(a)(1).

The award schedule for this BAA is as follows:

DATE	EVENT
15 AUGUST 2017 TUESDAY	Pre-solicitation Notice Posted
17 NOVEMBER 2017 FRIDAY	BAA Solicitation Posted and Open for White Paper Submission
29 NOVEMBER 2017 WEDNESDAY	Question Submission Deadline for White Papers, 12:00 PM (Noon) ET
1 DECEMBER 2017 FRIDAY	DNDO: Responses Posted to Questions for White Papers
19 JANUARY 2018 FRIDAY	White Paper Submission Deadline, 4:00 PM ET
12 FEBRUARY 2018 MONDAY	DNDO: Responses for White Papers Provided to Offerors and Open for Proposal Submission

2 MARCH 2018 FRIDAY	Question Submission Deadline for Proposals, 12:00 PM (Noon) ET
6 MARCH 2018 TUESDAY	DNDO: Responses for Proposal Questions Provided to Offerors
20 APRIL 2018 FRIDAY	Proposal Submission Deadline, 12:00 PM (Noon) ET
BY SEPTEMBER 2018	Anticipated Award Date

1.1 Background

DHS has been tasked to ensure that the United States remains safe from the illicit importation, development, or procurement of a nuclear or radiological device. In recognition of the catastrophic risk posed by the use of a nuclear weapon within the United States, DHS has integrated all nuclear detection research, development, testing, evaluation, acquisition, and operational support into a single office known as DNDO. DNDO is charged with the mission to prevent nuclear terrorism by continuously improving capabilities to deter, detect, respond to, and attribute attacks, in coordination with domestic and international partners. This mission requires the research and development (R&D) of new technologies which lead to new and improved operational capabilities.

To address this need, the Transformational and Applied Research Directorate (TAR) was established during the foundation of DNDO in 2005, to develop breakthrough technologies that will have a dramatic impact on the capabilities to prevent nuclear and radiological terrorism through an aggressive and expedited R&D program. This R&D focuses on technology to detect threat Special Nuclear Material (SNM) or radiological material out of regulatory control and technology to attribute this material back to its sources through nuclear forensics. The R&D identifies, explores, develops, and demonstrates scientific and technological approaches that address gaps determined from analysis of the global nuclear detection architecture and end user needs; dramatically improves the performance of domestic radiological and nuclear (RN) detection and forensics systems and enabling technologies; or significantly reduces the operational burden for domestic stakeholders such as U.S. Customs and Border Protection (CBP), United States Coast Guard (USCG), Transportation and Security Administration (TSA), Federal Bureau of Investigation (FBI), and state and local law enforcement.

Within TAR, research which transitions from basic to applied research is managed by the Exploratory Research (ER) Program. The ER Program specifically focuses on innovative, high risk, early-stage applied research that is expected to have transformational impact, and when conducted with a clear and well supported technical approach that will provide new capabilities to help counter the threat of nuclear terrorism. Research under this Program is expected to culminate in a Proof-of-Concept (PoC) demonstration, that will then serve to support transitioning to an advanced technology demonstration program or supporting direct commercialization of the technology.

DNDO coordinates and consults with other Government agencies (intra-DHS, Department of Energy (DOE), Department of Defense (DoD), *etc.*) to reduce duplication of effort, leverage related R&D efforts, and encourage collaboration across the R&D community.

1.2 Grand Challenges & Technology Portfolios

DNDO conducts a recurring analyses regarding current state of nuclear detection and forensics for preventing nuclear terrorism. Historically, this has been informed through development of a framework for detecting (through technical and non-technical means), analyzing, and reporting on nuclear and other radioactive materials that are out of regulatory control. The term “out of regulatory control” refers to materials that are being imported, possessed, stored, transported, developed, or used without authorization by the appropriate regulatory authority, either inadvertently or deliberately. Results from the joint interagency annual review of the National Strategic Five-Year Plan for Improving the Nuclear Forensics and Attribution Capabilities of the United States have highlighted a number of long-term technical grand challenges that provide a focus for research activities conducted under the ER Program. Through this process, several important grand challenges were identified to help guide research and development. These grand challenges include:

- Cost effective equipment with sufficient performance to ensure wide spread deployment (Cost Effective)
- Detection of SNM, i.e. uranium or plutonium, especially when shielded (Shielding)
- Enhanced wide area search capabilities in a variety of scenarios, to include urban and highly cluttered environments (Search)
- Monitoring along challenging pathways in the architecture (Pathways)
- Forensics determination of the origin and history of interdicted materials (Forensics)

The collection of R&D projects conducted under the ER Program can be categorized into five unique technology portfolios. These include the following with their linkages to the Grand Challenges indicated above:

- *Materials Research and Supporting Technologies (Materials):* The Materials portfolio has the technical objective of discovering new high performance and/or low cost gamma-ray and neutron sensing materials, significantly improving existing materials or lowering their costs, improving or developing new signal readout methods for these materials, and incorporating these materials into prototypes for test and evaluation. Advances in this project impact most if not all of the other portfolios and Grand Challenges. This Project focuses on the core detection materials used in most radiation detectors: scintillators and semiconductors. The project addresses improvements in types of materials ranging from those appropriate for handhelds, backpacks, and personal radiation detectors with very good energy resolution capable of superior isotope and threat identification, to those used in large portal monitors (14”x68”x3”), which would benefit from better isotope capabilities and discrimination between threat and non-threat. This Project also addresses stability issues in portal plastics, both in terms of understanding the root cause of the

issues as well as finding low cost and robust solutions. Links to the Cost Effective Grand Challenge.

- *Radiation Detection Technology (Radiation)*: The Radiation portfolio emphasizes investigating novel approaches to greatly improve the ability to detect, identify, and locate threat materials based on their intrinsic radiological signatures. Research emphasis has been on improved gamma-ray detection approaches, particularly imaging, enabled by new electronics, sensor fusion, and advanced algorithms. Recent efforts are focused on development of technologies to make low operational burden R/N sensors available for a wide variety of law enforcement vehicles. Links to the Search Grand Challenge.
- *Shielded Special Nuclear Material (Shielding)*: The Shielding portfolio addresses the critical challenge of being able to detect SNM and other threats even when heavily shielded or masked. ER projects under this Sub-Project are focused on development of component technologies to include next generation x-ray and neutron radiation sources for Homeland Security applications, algorithms enabling improved imaging for radiography, and detector materials that can be integrated into large scale systems for screening cargo and conveyances for shielded threats. Also investigates alternative approaches to shielded threat detection that do not rely on the use of ionizing radiation. Links to the Shielding Grand Challenge.
- *Advanced Analytics (Analytics)*: The Analytics portfolio has two thrust areas: Algorithms are developed to improve the means and abilities to detect, locate, and identify threat materials. Modeling and simulation tools are developed to aid in the analyses of R/N detection capabilities as they are, and as they could be, which could be used in identification of capability gaps, risk analysis for system threat reviews, or cost-benefit analysis within DNDO's solutions development process. Links to Cost Effective, Search, and Pathways Grand Challenges.
- *Nuclear Forensics (Forensics)*: The Forensics portfolio directly coordinates with DNDO's NTNFC mission to execute research and development to discover new forensics signatures of R/N material and to also develop the tools enabling comprehensive and timely analytical results. R&D conducted under this sub-project looks to collect signature data to increase our ability to answer questions about the history of interdicted material, develop models to provide predictive associations of that data, and to exploit the validated signatures to answer specific material origin questions.

Technological solutions to these Grand Challenges and other needs required to effectively support the DNDO mission will require sustained, long-term support to develop the fundamental scientific and technological foundation necessary to make such detection capabilities effective and affordable. The topics in this Solicitation are tied to this objective, and aligned with these Grand Challenges. Major advances in capabilities that support the DNDO mission to prevent nuclear terrorism through nuclear detection and forensics can be achieved through focused research in areas ranging from the sensor materials, front-end-electronics, advanced algorithms, modeling, sensor fusion and other research supporting development of passive, active, and ancillary detection systems. Advances in one or more of these areas in-turn can provide new and

improved capabilities for screening, scanning or searching for nuclear and radiological materials of concern, improved identification of these materials and reduced or simplified operations for end-users. The many challenges in developing breakthrough technologies to prevent nuclear terrorism illustrate the need for a well-supported transformational and applied research program to fully explore the limits and potential of physics, engineering, mathematics and computation to counter the radiological and nuclear threat.

1.3 Strategic Approach

The DNDO approach to transformational and applied research is intended to stimulate the R&D community in academia, private industry, non-profit organizations, FFRDCs), UARCs and other Federally-funded Government activities. As part of this endeavor, TAR executes the ER Program, which is intended to support innovative, high risk, early-stage applied research for nuclear detection technology and supporting fields. Specifically, research is pursued that addresses strategic issues in the current state of nuclear detection and forensics for preventing nuclear terrorism, as well as tactical issues raised by DHS components and state and local jurisdictions in conducting preventative R/N detection operations. Research may focus on a specific DNDO mission need, investigate the improvement of existing capabilities, or support improvement in nuclear technical forensics capabilities. Innovative concepts that successfully complete the exploratory R&D phases are typically brought to a PoC demonstration – a minimal, but functional, realization of the technology for testing and demonstration, typically in a laboratory environment. DNDO anticipates releasing future Exploratory Research BAAs on an annual schedule.

1.4 Scope and Funding

DNDO anticipates making multiple awards under this BAA. DNDO reserves the right to fund all, parts, or none of the proposals received and will fund awards by phases as options under this BAA. Total funding for this BAA in FY18 is anticipated to be \$2M with additional funding potentially available in later years. The actual number and size of awards under this BAA will be at the discretion of DNDO, based on a review of submitted proposals against the criteria listed in Section 6 of this BAA, and the availability of funds.

2 EXPLORATORY RESEARCH TOPICS

DNDO is interested in technologies or methodologies that can dramatically improve the national capability to detect and report attempts to import or transport a nuclear device, SNM, or radiological material outside of regulatory control. For this BAA, the technologies and methodologies are divided into three RTAs as follows:

- RTA-01: Mobile Active Interrogation Using Neutrons
- RTA-02: Radiation Isotope Identification Device Based on Thallium Bromide
- RTA-03: Nuclear Detection through Centralized Data Analytics

Each RTA description below contains a summary of the research area of interest with examples of intended research and overall performance objectives, as appropriate. **Offerors must propose to a specific RTA.** It is anticipated that the topics will change in future exploratory research BAAs, which are scheduled to be released on a yearly basis. Offerors must emphasize the extent to which their proposal provides transformational capability in support of the DNDO mission and compare to current solutions, as applicable. **White papers and proposals that are non-responsive to a specific RTA will be not encouraged for proposal submission and not selected for award, respectively.**

DNDO prefers comprehensive programs that may include elements of scientific theory, modeling, simulation, experimental investigations, algorithm development, and other elements of applied research and development. All exploratory research efforts should lead to a formal PoC demonstration. Note that the intended scope of exploratory research excludes large scale, integrated systems development efforts that are the focus of advanced technology demonstrations and other developmental programs and projects.

Proposals should followed the phased technical approach specified in the below topic areas. A program can enter into a phase later than feasibility if the proposal can show that feasibility has already been demonstrated. Supporting documentation, data, simulations, analytic calculations, and references need to be provided to support the proposed approach. **For this BAA, DNDO is only considering offerings addressing solutions for areas described in the following RTAs.**

2.1 RTA-01: Mobile Active Interrogation Using Neutrons (MAIN)

This topic is looking to develop a mobile active interrogation system that can quickly detect SNM, as well as other types of contraband, such as explosives and drugs. By the end of the project, the system will be built such that it can undergo a proof of concept (POC) demonstration on a mobile platform. During system demonstration, the objects envisioned to be scanned by the MAIN system range from small packages (backpack size) to sea cargo containers. DNDO will work with program partners to better define the types of contraband for awardees. This topic includes two possible paths to a mobile system: 1) Passenger vehicle (i.e., SUV, passenger van); and 2) Robotic. Those using a robotic platform will utilize commercial equipment for the robot, though some minor modifications are acceptable to fit the MAIN system. System components for either platform should be modular to allow portability. In general, the system should utilize single-sided detection. However, when modules are disassembled, dual-sided detection could be utilized.

System performance targets/goals

Metric	Target	Goal
SNM detection	< 8 kilograms	< 4 kilograms
Explosives detection	< 10 kilograms	< 5 kilograms
Drugs detection	< 10 kilograms	< 5 kilograms
Distance for detection	1 meter	3 meters
Time to detection	< 10 seconds	< 2 seconds
Probability of Detection	> 95%	> 99%
Probability of False Alarm	< 5%	< 1%
Dose to driver (vehicle)	Rad worker	Non-rad worker

System unit targets/goals

Metric	Target	Goal
System Unit Cost	< \$1,000,000	
System size and weight	Suitable for the conveyance method (vehicle or robot)	
Module size and weight	Suitable for one person to carry while minimizing number of modules	
Power requirements	Battery required if away from power source (i.e., moving modules)	

Neutron source characteristics are vital to the overall system. Those having high output (i.e., 10^9 neutrons per second via the DD-based reaction) allow for faster scan times. The Defense Advanced Research Projects Agency (DARPA) Intense and Compact Neutron Sources (ICONS) project is developing neutron sources that can meet these needs. DT-based sources can be acceptable, though DD has some preferred advantages. A list of key neutron source requirements is listed below:

- High yield ($> 10^9$ DD)
- Deuteron beam diameter ~ 1 cm
 - Minimizes active cooling required for target
- Compact and lightweight (<20 lbs)
- Fast rise (<1 μ s) / fall time (<10 μ s)

- No dark current ($< 10^{-5}$ after fall time)
- Snout design of target area (~ 1") to minimize moderator size
- Ability to support high dose and low dose modes

Competitive proposals will have detailed descriptions of all main components (neutron source, detectors, shielding, detection methods, algorithms, dose to operator and environment/target, and infrastructure [robotic/vehicle based]). Proposals should include the size and weight of the system (excluding the vehicle or robot) and components. Research should not be proposed on individual components, but work on engineering of components to fit the system and detection algorithms is acceptable.

The envisioned schedule for this program is as follows, though adjustments can be proposed with justification.

- Phase I (6-9 months): Conduct necessary research and development focused on addressing all critical scientific and technical issues and risks, leading to a conceptual design and concluding in a Feasibility Evaluation Review (FER) and report. Phase I efforts will generally be no longer than 6 – 9 months. However, any duration longer than 9 months would require full justification. Generally, funding for Phase I efforts is around \$300k. However, funding greater than \$300k can be acceptable, if justified;
- Phase II (9 months): Following a successful FER, conduct the necessary research and development (experiments, modeling, analysis, and trade studies) to design the proposed system culminating in a Critical Design Review (CDR) and report. A draft Concept of Operation (CONOPS) for testing should also be developed in Phase II in collaboration with DNDO;
- Phase III (9 months): Following a successful CDR, proceed to procure, integrate, and conduct vendor development testing. Based on Phase II feedback and vendor development testing, work with DNDO to develop the final CONOPS for testing. Work with DNDO to develop a Test Readiness Review (TRR), report, and Test Plan for Phase IV;
- Phase IV (6 months): Following a successful TRR, execute the test plan and generate a comprehensive final report for the entire effort. DNDO will likely utilize non-vendor sites for all MAIN vendors. MAIN vendors will have to provide technical support during this time to ensure the test plan can be executed with minimal downtime.

2.2 RTA-02: Radiation Isotope Identification Device (RIID) Based on Thallium Bromide

DNDO seeks to develop a handheld, room-temperature, prototype Radiation Isotope Identification Detector (RIID) using newly developed thallium bromide (TlBr) semiconductor materials. The aim is to provide the next generation of technologies for gamma detection and identification with RIIDs, via an Accelerated Development Approach. This next generation is expected to provide cost/benefit tradeoffs superior to the current COTS (Commercial Off the Shelf) RIIDs with regards to detection efficiencies, energy resolution, cost, volume, weight,

power, gain stabilization, robustness in the field, and (optional) directionality. By the end of this project, a device will be built that will go through a PoC prototype demonstration and testing.

Effort would include demonstration of the TlBr technology, instrumentation of the crystal(s), identification of reliable source of crystals of sufficient quality, integration of core hardware components, and signal processing. The effort shall also include algorithm development and integration, system engineering associated with the power requirements, battery life, volume, weight, and interfacing to controls (GUI). Additionally, handling of long-term stability issues with TlBr (i.e., polarization) has to be addressed, as well as consideration of temperature stability and/or control (e.g., gain stabilization). In order to encourage wide-spread deployment, costs of the crystal semiconductor material has to be shown to be $< 50\$/\text{cm}^3$ for performance capabilities of better than 1% energy resolution and energy range of 25-3000 keV.

Prototype instrument must meet the following requirements:

Parameter	Threshold	Objective
Physical Dimensions	$< 33 \text{ cm} \times 23 \text{ cm} \times 15 \text{ cm}$	Fit within a rectangular solid defined by 10.5 cm in length, 7.5 cm in width, and 3.5 cm in depth
Weight (grams)	1,500	1,100
Power (Battery Life)	8 hr at 25°C	24 hr
FOM* ($\text{cm}^2/\%$) @ 662 keV	1.2	1.5
System shall detect gamma radiation †	0.66 $\mu\text{R/hr}$ of Co-57 @ 1ft/s & 7.53 $\mu\text{R/hr}$ of Ba-33 @ 1ft/s	0.16 $\mu\text{R/hr}$ of Co-57 @ 2 ft/s & 1.88 $\mu\text{R/hr}$ of Ba- 133 @ 2 ft/s
Energy Resolution	2% @ 662 keV	Better than 1% @ 662 keV
Energy Range	25 keV-3 MeV	10 keV – 3 MeV
Device will provide the direction of the radiation source (Optional)	Direction within ± 45 degrees of the radiation source	Direction within a few degrees of the radiation source
Nominal operating conditions	Room temperature	-20°C to 50°C
Replay Tool (Reference 1)	Yes	Yes

* Performance would be gauged against a FOM defined, for gammas, as $FOM=A*\epsilon/R$, where A is the largest 2-dimensional area projection of TlBr crystals facing a radiation source, ϵ is the photopeak efficiency defined as number of counts in the photopeak relative to the incident number of gamma rays incident on the area A , and R is the energy resolution. (Note this FOM is

the same as that used in the SIGMA program [Reference 2].) The FOM shall be calculated for two different energy resolutions: 662 keV and 1.17 MeV.

†For a source which has a real strength (not what is necessarily measured with Offeror's detector) of 0.66 uR/hr Co57 at some distance x , then Offeror's detector needs to detect and identify that source were that source to approach from a long distance away at the given speed and come, at closest approach, within x distance and then continue on to a long distance away.

Competitive proposals shall have detailed descriptions of all the main components (hardware, signal processing methods, software, algorithms) required to meet the requirements set forth above, as well as Replay Tool, internal and external testing, scheduling, and teaming. Proposals shall address all of the "Parameters" listed in the Requirements Table above. Research should not emphasize exploratory work on individual components, but instead should emphasize integration and engineering of components to fit the system. Detection algorithm research is acceptable.

Approach to isotope identification algorithms must be presented and specified whether these would be vendor supplied or government furnished equipment (GFE). Consideration should be given to designs, which can be later expanded to provide for larger area detectors. It should be noted that there may be follow-on efforts to incorporate semiconductor thermal neutron detectors into the prototypes, but this present effort is focused on gamma detection only. Environmental testing outside of the specifications above is not a requirement.

This Program would be executed with the option for design/construction iterations along the development path as early prototypes are built and tested and lessons learned are fed back into improved designs. The envisioned schedule is below, although adjustments can be proposed with justification. Projects that were previously funded by the Government or other funding sources may enter at an advanced phase provided that justification is included in the proposal.

Phase / Milestone	Duration (months)	Description
PHASE I - SYSTEM DESIGN		
I.a	3	<ul style="list-style-type: none"> • Detailed conceptual design. • Performance modeling and comparison to COTS. • Address all critical scientific and technical issues and risks. • Conclude FER and report.
I.b	3	<ul style="list-style-type: none"> • Conduct the necessary R&D (experiments, modeling, analysis, trade studies, etc.) to validate final PoC prototype design choice. • Conclude in Preliminary Design Review (PDR) and report.
I.c	3	<ul style="list-style-type: none"> • Demonstrate FOM and detection limits are met. • Conduct necessary engineering and development to present a CDR and report.
PHASE II - ITERATION ONE		
II.a	6	<ul style="list-style-type: none"> • Develop, fabricate, and assemble prototype device.

		<ul style="list-style-type: none"> • Demonstrate stable spectrum (no gain shift, or correct for gain shift; no off-set change, or correct for same; no degradation).
II.b	3	<ul style="list-style-type: none"> • Integrate isotope identification algorithm and demonstrate desired system functionality by detecting and identifying a set of radionuclides in the requirements. • The initial Replay Tool (Reference 1) should be developed.
II.c	3	<ul style="list-style-type: none"> • Conclude with TRR and report. • Submit Test plan for POC demonstration for DNDO approval.
II.d	3	<ul style="list-style-type: none"> • Vendor Testing & Evaluation and report.
PHASE III - ITERATION TWO		
III.a	3	<ul style="list-style-type: none"> • Redesign as needed to address issues found during testing.
III.b	6	<ul style="list-style-type: none"> • Construction of revised unit. • Based on feedback and vendor testing, work with DNDO to develop final CONOPS for testing.
III.c	3	<ul style="list-style-type: none"> • Vendor Testing & Evaluation and report
PHASE IV - PROOF OF CONCEPT (POC) DEMONSTRATION		
IV.a	3	<ul style="list-style-type: none"> • Finalize Replay Tool and deliver to DNDO
IV.b	3	<ul style="list-style-type: none"> • POC to include testing against other commercial RIIDs in various different CONOPS
Total	42	

References:

Reference 1: [Replay Tool: “DNDO Replay Tool Requirements Specification”](#), APL Johns Hopkins Applied Physics Laboratory AOS Report No. AOS-16-0082; Version 2.0; January 2016.

Reference 2: <https://www.darpa.mil/program/sigma>

2.3 RTA-03: Nuclear Detection through Centralized Data Analytics

With the increase of networking capabilities, it is becoming more common to send data from sensors in the field to a centralized location where the data can be combined with other sources of information, to enhance situational awareness and the capability to detect threats. Conversely, it is more common to send information processed at a centralized location back to the fielded sensor, to improve its performance under the current threat conditions. These fielded sensors could be fixed or mobile, and may or may not be controlled by a human operator.

DNDO is looking to build its capability in centralized data analytics to augment capabilities to detect and prevent the illicit entry, transport, assembly, or potential use of nuclear and

radiological threats against the United States. The goal is interconnected sensors coupled with intelligence and information, to support targeting and detection of threat materials in any number of potential trafficking or smuggling routes. By creating, sharing, and fusing data, the goal is to ensure operators have optimal information to efficiently interdict nuclear and other radioactive materials. Areas of improvement could include nuisance alarm (medical and other legitimate sources) rejection, different inspection protocol for high risk items, predictive analytics to anticipate adversary movements and proactively deploy limited resources, and strategies for moving detection as far “left” as possible (e.g., away from our shores). Approaches that focus on information and data unique to DHS are of particular interest.

Research and development proposals are requested to perform multivariate data analysis, combining information of different types and sources to search for rare events. DNDO’s specific interest is in detection of nuclear and radiological threats, combining physical sensor data (e.g., radiation detectors, video, license plate readers, radiography images) with non-physical information (e.g., cargo manifest, import data, financial information). For the purposes of this BAA, however, proposals that would demonstrate the analysis of any sort of physical and non-physical information (of 4-7 independent streams), are welcomed. Key are analytic techniques that are robust even when labelled data are sparse, for which traditional machine learning techniques may be impaired. The proposal shall state how the information will be combined and how resulting analyses will lead to actionable information and improved overall network performance. The proposal will also indicate what government furnished data may be required to support the research activity, and the offeror’s ability to access and manage said data.

The proposal should be for no longer than a term of three years. After an initial feasibility phase, a spiral development approach is anticipated with approximately six months for each spiral.

This Topic is purposely meant to be very open. Hence, it is highly recommended that a white paper be submitted prior to a full proposal submission.

3 MANAGEMENT APPROACH

3.1 Program Milestone Structure

When responding to the topic descriptions, all offerors should follow the research and development approaches noted in the topic description. If the offeror chooses to propose a management plan that does not follow the phased approaches described herein, the offeror must provide a justification for its own approach, including a discussion of the benefits to the Government with its approach.

Regardless of the approach chosen, all proposals must be submitted with a detailed master plan and schedule, describing the phases of execution to successfully achieve research objectives, and must provide cost information for each phase corresponding to the proposed research structure. Selection for award constitutes commitment of funding for the initial phase, while funding for the subsequent phases will depend on the performance of the preceding phase and availability of funds.

3.2 Deliverables and Review Cycles

The number and types of reviews and deliverables will be specified in the award document, but it is anticipated to include the reports and reviews described in this Section. The reports shall be prepared and submitted in accordance with the award document and mutually agreed on before award. A Final Report that summarizes the project and tasks will be required at the conclusion of the performance period for the award. All reports, briefings, and other documents described below shall be electronically submitted to both the DNDO Program Manager (PM) and either the DHS Contracting Officer or Grants Officer, as appropriate.

The following reports are anticipated in managing funded efforts:

3.2.1 Project Plan, Milestones and Schedule

The project plan includes a task and event-driven plan that documents the significant activities and accomplishments necessary to complete each phase of the project, with greatest detail provided for the initial phase of the effort. The plan should include major milestones for each phase that can be used to assess research progress, and potentially as go/no-go criteria for latter phases of the effort. The plan also includes a detailed spend plan for all tasks necessary to complete the work. The project plan, milestones and schedule should be delivered during the kick-off activities following contract award and should be updated as necessary for each phase of the effort.

3.2.2 Quad Chart and Project White Papers or Summaries

Quad charts are one page documents that provide a very concise summary of the overall effort and are generally updated annually or when significant changes occur within an effort. The quad chart should include a picture, graphic or artist's conception of the effort in the top left, a summary of technical approach and risks in the bottom left, a summary of relevance and goals on the top right, and a summary of schedule, budget and team in the bottom right. A template is provided in Attachment 8.2. The project summaries are one or two page narratives that are usually used to communicate the nature, scope and impact of a research effort to persons or

audiences internal or external to DNDO. Specific templates will be provided for any required white paper or project summary.

3.2.3 Monthly Progress Report (MR)

Brief narrative reports shall be submitted within two weeks after the last day of each month.

These reports will include:

- Program Overview
- A summary of the previous month's activity,
- Progress achieved against planned goals and milestones,
- Technical program details by major task,
- A summary of technical challenges and risks, and risk mitigation strategies (as necessary)
- An account of all funds expended by task to date,
- Details of research planned for the next month by task,
- Contract schedule status with respect to baseline Gantt chart,
- Description of any publications, presentations or intellectual property stemming from the effort,
- Any changes or organization or personnel involved with effort, and
- Any additional information required by the DNDO PM.

Monthly reports generally should follow a standardized template format that will be provided by DNDO.

3.2.4 Performance Reviews

Performance Reviews (PRs) will be held every three to six months, or as needed depending on the project risk and duration. A kickoff meeting will take the place of the initial PR, and shall be held within the first three (3) months after contract or grant award. The PR briefing is due one week prior to the PR, for which a suggested presentation outline will be provided by DNDO. A PR briefing will be comprehensive in nature and must include, where appropriate:

Executive summary (30 min)

- Conceptual Overview
- Capabilities; Performance targets; Goals
- Development Approach (technical tasks, teams, schedule)
- Key Challenges / Issues to Address
- Risks; Mitigation
- Accomplishments & Highlights
- Milestones: list all and progress towards each
- Remaining Issues
- Schedule: Gantt chart with milestones & deliverables indicated
- Cost (planned, actual, commitments)
- Effort for next quarter / phase / year as appropriate slides

Detailed technical and programmatic discussion for last quarter (as long as required)

- Accomplishments: Plan vs Actual, per Task activities
- Milestones: progress for each deliverables
- Schedule: Gantt chart by major task with list of milestones & list of deliverables included
- Cost: Expenditure burn over period of performance – monthly plan, actuals, commitments (to date) in graphical form
- Assessment of Feasibility / Proof of Concept
- Proposed Follow-On Effort
- Key Objectives
- Technical issues: risks and mitigation strategy
- Plans to complete Phase
- Technical Plans for next Quarter / to complete Phase, as appropriate
- Cost & Schedule
- Any additional information required by the DNDO PM.

Meeting minutes shall be generated within one week after the PR. The PR does not replace the monthly progress report, unless agreed upon in advance with the DNDO PM.

3.2.5 End of Phase Performance Evaluation & Report

Each phase concludes with submission of an End of Phase Report, and may also include a performance evaluation. If a performance evaluation is required, the briefing material is due one week prior to the evaluation. The performance evaluation will be the basis for determining continued funding for the follow-on phase. The End of Phase Report does not replace the monthly technical report. The evaluation must include, where appropriate:

- Technical progress achieved against phase goals,
- A summary of technical challenges and risks, and risk mitigation strategies,
- A comprehensive account of all funds by program, project, and tasks expended during the phase along with a comparison of these figures with projections from the start of the contract,
- If follow on work is proposed, updates as required to the project plan, milestones and schedule, statement of work (SOW) and cost breakdown for the next phase,
- Lessons learned and their impact on future R&D, and
- Any additional information required by the DNDO PM.

The End of Phase Report and meeting minutes are due two weeks after the evaluation or end of phase, whichever is soonest, and it should address issues raised during the evaluation.

3.2.6 Final Performance Evaluation & Report

Each project concludes with submission of a Final Report due at the end of the final phase of the effort. The final report will be a cumulative, stand-alone document that describes the work of the entire program and project. The final report shall also include “lessons learned” from the effort, recommendations for future research in this area, and a comprehensive accounting of all funds expended. Prior to submission of this final performance report, a final performance evaluation may also occur. If a performance evaluation is required, the briefing material is due one week prior to the evaluation. A final report will be due no later than the end of the final phase’s period of performance.

4 PROCUREMENT OVERVIEW

4.1 Eligible Offerors

Private industry, non-profit organizations, and academic institutions are invited to submit proposals to this BAA, and may team/subcontract with other companies, organizations, and institutions to include FFRDCs, UARCs and other Federally-funded Government activities, as appropriate, to best utilize their individual strengths.

Historically Black Colleges and Universities (HBCU), Minority Institutions (MI), Small and Disadvantaged Businesses (SDB), women-owned businesses, and Historically Underutilized Business Zone (HUB-zone) enterprises are encouraged to submit proposals, and to join others as team members/subcontractors in submitting proposals. However, no portion of the BAA will be set-aside for these special entities pursuant to FAR 19.502-2.

FFRDCs, UARCs and other Federally-funded Government activities may not propose directly as prime contractors to this BAA. However, they may collaborate with eligible offerors by providing explicitly identified supporting capabilities. It is the responsibility of the providing laboratory (not DNDO) to identify which supporting capabilities are available. DNDO will neither encourage nor discourage eligible offerors from utilizing FFRDCs, UARCs and other Federally-funded Government activities. This is at the sole discretion of eligible offerors. All members of the proposed team may participate in proposal preparation and fully participate in the execution of the program. UARCs must include as part of a proposal a statement of permission to participate from the Center's Federal sponsoring activity.

Foreign participants and/or individuals may participate to the extent that such participants comply with any necessary Non-Disclosure Agreements, Security Regulations, Export Laws, and other governing statutes applicable under the circumstances.

Note: Pursuant to FAR 25.701, except as authorized by the Office of Foreign Assets Control (OFAC) in the Department of the Treasury, no contracts shall be awarded as a result of this BAA if any proclamation, Executive Order, or statute administered by OFAC, or OFAC's implementing regulations at 31 CFR Chapter V, would prohibit such a transaction. Except as authorized by OFAC, most transactions involving Cuba, Iran, and Sudan are prohibited, as are most imports from North Korea into the United States or its outlying areas. More information about these restrictions, as well as updates, is available in OFAC's regulations at 31 CFR Chapter V and/or on OFAC's website at <http://www.treas.gov/offices/enforcement/ofac>.

Note: FAR 52.225-13, Restrictions on Certain Foreign Purchases, is applicable to this BAA and will be included in any resulting contract.

Organizational Conflict of Interest issues will be evaluated on a case-by-case basis, as outlined below. Offerors who have existing contract(s) to provide scientific, engineering, technical and/or administrative support directly to DHS DNDO will receive particular scrutiny.

Organizational Conflict of Interest:

- (a) **Disclosure.** The Offeror must represent, as part of its proposal and to the best of its knowledge that: (1) It is not aware of any facts which create any actual or potential organizational conflicts of interest relating to the award of this Contract; or (2) It has included information in its proposal, providing all current information bearing on the existence of any actual or potential organizational conflicts of interest, and has included the mitigation plan in accordance with paragraph (d) of this provision.
- (b) **Determination.** The Contracting Officer may determine that this effort may result in an actual or potential conflict of interest, or may provide one or more offerors with the potential to obtain an unfair competitive advantage based on the information provided or based on knowledge of the Contracting Officer.
- (c) If any such conflict of interest is found to exist, the Contracting Officer may (1) disqualify the offeror, or (2) determine that it is otherwise in the best interest of the United States to contract with the offeror and include the appropriate provisions to mitigate or avoid such conflict in the contract awarded. After discussion with the offeror, the Contracting Officer may determine that the actual conflict cannot be avoided, neutralized, mitigated, or otherwise resolved to the satisfaction of the Government, and the Offeror may be found ineligible for award.
- (d) **Mitigation/Waiver.** If an offeror with a potential or actual conflict of interest or unfair competitive advantage believes the conflict can be mitigated, neutralized, or avoided, the offeror may submit a mitigation plan to the Contracting Officer for review. Award of a contract where an actual or potential conflict of interest exists shall not occur before Government approval of the mitigation plan.
- (e) **Other Relevant Information.** In addition to the mitigation plan, the Contracting Officer may require further relevant information from the offeror. The Contracting Officer will use all information submitted by the offeror, and any other relevant information known to DHS, to determine whether an award to the offeror may take place, and whether the mitigation plan adequately neutralizes or mitigates the conflict.
- (f) **Corporation Change.** The successful offeror shall inform the Contracting Officer within thirty (30) calendar days of the effective date of any corporate mergers, acquisitions, and/or divestures that may affect this provision.
- (g) **Flow-down.** The successful offeror shall insert the substance of this clause in each first-tier subcontract that exceeds the simplified acquisition threshold.

4.2 Review and Evaluation Process

It is the policy of DHS/DNDO to ensure an impartial, equitable, and comprehensive evaluation of all proposals, and to select the source (or combination of sources), whose offer is most advantageous to the Government. Evaluation criteria are stated in Section 6 of the BAA, and include the potential for transformational impact, technical approach, team capability and experience, management approach, and cost/price realism and reasonableness. See Section 6 of the BAA for evaluation criteria and proposal evaluation details.

A review panel drawn from Government and non-Government experts, including system engineering and technical assistant (SETA) support contractors, who have signed appropriate non-disclosure agreements, will support DNDO in performing technical evaluations of the white

papers and proposals. National Laboratory personnel on detail to DNDO will be considered Government personnel, for purposes of the technical evaluation of proposals, and will participate in the evaluation subject to conflict of interest considerations.

The Contracting Officer will notify all unsuccessful offerors in writing, at the time of award. Post-award debriefs may be conducted and specifics regarding debriefs will be included in the notice of award letters and letters to unsuccessful offerors.

4.3 Award Instruments

The Government anticipates multiple awards resulting from this BAA. Although multiple awards are anticipated, the Government does not guarantee that will be the result of this BAA. The awards which are made will typically be issued as FAR-based cost-plus-fixed-fee contracts. Contracts and Other Transactions will be administered by the cognizant DNDO program office.

Academic institutions may request awards as a Cooperative Agreement. Proposals requesting Cooperative Agreement (CA) awards will be forwarded, evaluated and awarded by the Office of Procurement Operations, Grants and Financial Assistance Division. All applicable CA terms and conditions will apply to such awards.

Contracts will typically be awarded as a base contract with options. The base contract will be for the first phase with a separate option for each remaining phase, to be exercised at the Government's discretion. The required phase structure is described in the respective Research Topic Area.

4.4 Award Schedule

The Office of Procurement Operations anticipates multiple awards to be made during Summer 2018. This Schedule is subject to change if circumstances warrant. The complete award schedule is outlined in the table found under Section 1 of this BAA.

4.5 Period of Performance

DNDO anticipates awarding contracts or CAs with a base period and option periods depending on the phase structure provided in the respective Research Topic Area. If the offeror chooses to not follow the phased approaches described herein, the offeror must provide a justification for its own approach, including a discussion of the benefits to the Government with its approach. The maximum total period of performance is five years.

5 WHITE PAPER & PROPOSAL PREPARATION AND CONTENT

DNDO will not reimburse offerors for any white paper or proposal preparation costs.

5.1 White Paper Preparation: Format and Content

Offerors are **STRONGLY ENCOURAGED**, but not required, to submit a white paper in advance of a proposal (see Section 7.1.1 for instructions regarding the submission of white papers). White papers should capture the essence of a complete proposal and are designed to permit offerors an opportunity to obtain feedback from DNDO on their project without having to go to the expense and effort of writing a proposal. A white paper shall consist of a *maximum of four (4) pages*, including all pictures, figures, tables, and charts in legible size. The Quad Chart described below is included in the four page limit. The cover sheet will not be included in the four page limit.

A white paper is a single electronic file in PDF format, viewable by Microsoft Windows-7 compatible machines. The individual white paper file size must be no more than 5 MB. White papers shall not exceed four pages (standard size: 8.5” by 11”) using 1” margins and 12-point fonts or larger for text and 9-point fonts or larger for pictures, figures, tables and charts. The white paper should contain the following information in the following order:

- Cover Sheet (see Section 8. Attachments for format);
- Quad Chart (see Section 8. Attachments for format);
- Proposal title, Offeror, total cost and first phase/year cost;
- Executive Summary (including statement of Transformation Impact and anticipated performance relative to BAA goals and state-of-the-art solutions);
- Technical Approach and Implementation
- Capability and Experience, and Management Approach; and
- Cost/Price Summary

There will be no rating or ranking of white papers. White papers will go through an informal review process instead of a formal evaluation as described in Section 6. White papers will be reviewed by subject matter experts that are Federal employees. The reviewers can also seek the assistance of SETA support contractors, who have signed appropriate non-disclosure agreements.

For additional information about the use of non-federal advisors in the evaluation process, see Section 5.2.6, Notification to Offerors of Contractors Support Services for Proposal Evaluation Process.

After this review, DNDO will promptly notify offerors, either encouraging or discouraging submission of a proposal. If a proposal submission is discouraged, no additional information will be provided. If a proposal submission is encouraged, comments and questions regarding the white paper submission will be provided.

Offerors may submit proposals without submitting white papers. Similarly, offerors that submit white papers and who are subsequently discouraged from submitting proposals may still submit proposals. Either decision should be weighed carefully by prospective offerors relating to the effort required in developing such a proposal.

5.1.1 File Name for White Paper Submission

In the subject line: Please use “FY18 ER BAA White Paper Submission for <organization>”
Each white paper file name will include the following:

FY18ERBAA-##-WP-0##-XXXX

= research topic number

0## = number of white paper submission

XXXX = four letter character shortcut for organization name

Example: Company A, Inc.’s submission for one white paper to RTA-01 comprised of one (1) file in the attached email:

Subject: FY18 ER BAA White Paper Submission for Company A, Inc.

The email submission should at least include the following information:

- **Organization:** Company A, Inc.
- **Submitted by:** <first last name>, <title>, <email of submitter>
- **Attached file for submission:**
 1. White Paper: *FY18ERBAA-01-WP-001-COMA.pdf*
- **Request for receipt confirmation?** (YES or NO)

5.1.2 Quad Chart

The Quad Chart shall contain a title bar and the four quadrants as described below. A template is also provided in Section 8.

- Title Bar: Proposal Title, Lead Organization, and Exploratory Research Topic Area.
- (Upper Left): A clear photograph, drawing, or diagram of concept.
 - Provide a simple, legible, but sufficiently detailed graphic to convey the main concept or idea of the research effort and/or development prototype.
- (Upper Right): Relevance and Goals
 - Research goal and desired end state including performance targets
 - Transformational impact or uniqueness over existing techniques and state-of-art
 - Relevance to and specific contribution in addressing a specified research topic area
 - Other broader impacts of the research
- (Lower Left): Technical Approach
 - Hypothesis or theory supporting the approach, as appropriate.
 - Specify how the problem will be addressed
 - Describe current status of the proposed effort and the first phase
 - Describe the key technical challenges and/or risks
- (Lower Right): Cost/Price, Schedule, and Team
 - Provide milestones, primary deliverables, and task durations for the current phase
 - Provide duration for future phases (if applicable)
 - Provide estimated cost per phase

- List the prime organization, principal investigator, and program manager
- List subcontractors and main team members

5.1.3 Title & Performers

Provide the title of the proposed effort, the name and address of the offeror, the name and contact information of the principal investigator and program manager (if different), the names and addresses of key team member organizations and key personnel. Clearly identify the Research Topic Area number to which you are responding.

5.1.4 Executive Summary (to include statement of Transformational Impact)

Provide a brief summary of your concept's anticipated performance relative to the research topic goals and current state-of-the-art solutions, and why, if the research is successful, it could have a transformational impact in preventing nuclear or radiological terrorism. Describe what is unique about this proposed technology, how it fits within the topic area, and how it would, if successfully realized, have a significant impact on the DNDO mission objectives to prevent nuclear terrorism through nuclear detection and forensics. Provide a concise description of the scientific, technical, and/or engineering, approach you propose to pursue and address in this effort. Describe the key aspects, core concepts or components and/or prototype device proposed and relevant details about how they will function or perform. This summary should contain enough information to fully capture the program concept/intent and should completely describe the overall program in its entirety without relying on other sections of the white paper.

Note: When submitting white papers, entry of cover page material will include submission of an abstract (see Section 8, Attachments). It is highly recommended the abstract be different than the executive summary, emphasizing the main research objective(s) and technical approach (as discussed below), and exclude any proprietary information.

5.1.5 Technical Approach and Implementation

Describe the basic scientific/technical concepts or methodology (if applicable) that will be used in each component, subsystem, or stage comprising the proposed research effort that addresses the relevant research topic area. This section should contain the following information:

- **Concept Description:** Describe the basic scientific or technical concepts.
- **Novel Approach:** What is unique about the approach and the advantages it might afford compared to alternate approaches other performers in this field have taken or are taking?
- **Performance Potential:** Explain the performance your proposed solution can be expected to achieve in as quantifiable a manner as possible. If a topic has specific technical attributes or metrics, explain the potential performance of your technical solution against those attributes or metrics. Be as quantitative as possible.
- **Current State-of-the-Art:** Describe the current state-of-the-art for this proposed technology and who/what achieved this capability.
- **Technical Approach and Critical Path:** Describe the main research goals, and main tasks and methodologies to be employed to achieve these goals. Point out the critical research path to the proposed investigation, to include what will specifically be accomplished during the initial phase(s) of the effort to achieve research objectives.

- Key Issues: What key scientific, technical and/or engineering issues or challenges need to be addressed and resolved in the initial phase to demonstrate feasibility? What are the foreseen technical risks in the research effort, how significant are these risks, and what is the mitigation strategy for these risks.

5.1.6 Capability and Experience, and Management Approach

List and describe the extent of your team's past experience and current capabilities to successfully execute the proposed research project. Provide a summary description of the management structure and approach for the effort. Include a summary Gantt chart for the effort, including major milestones and phase durations.

5.1.7 Cost/Price Summary

Provide a brief summary of the estimated cost and schedule to execute the proposed approach by Phase. Itemize any unusual or large cost items.

5.2 Proposal Preparation: Format and Content

Offerors may submit proposals, irrespective of the review and recommendation from the white paper process. Offerors may choose to alter their ideas, concepts, technical approaches, etc. or expand on their original ideas between their submission of a white paper and their submission of the proposal. Discussions, suggestions, or advice between the Government and offerors based on white papers is not binding. Offerors are free to submit a proposal regardless of whether they submitted a white paper or not, and regardless of any feedback or advice about white papers that offerors may have received. Even if the feedback from the Government, in response to the white paper, is that a proposal is discouraged, a proposal may still be submitted and will be evaluated in accordance with the requirements of this BAA. Although it is highly recommended, a white paper does not have to be submitted in order to submit a proposal.

Proposals shall remain valid from the date of submission for six (6) months.

Proposals consist of three separate documents described in detail below:

- Volume I: Technical and Management Proposal (Not to exceed 16 pages. The cover sheet will not be included in the 16 page limit.);
- Volume II: Supplemental Data (Not to exceed 30 pages);
- Volume III: Cost Proposal (no page limit).

Volume I is the primary document to be evaluated by the technical reviewers, with Volumes II and III providing supporting information. Note that Volume I should be a stand-alone document. The supplemental material in Volumes II and III are to be used **at the discretion of the technical reviewers, and may not be reviewed.** Although Volumes II and III may not be used by reviewers, they will be evaluated by the Contracting Officer to ensure compliance with the BAA. Volume III will serve as the formal cost submission for future contracting discussions, should the proposal be recommended for award.

5.2.1 File Name for Proposal Submission

In the subject line: Please use “FY18 ER BAA Proposal Submission for <organization>”

Each proposal file name will include the following:

FY18ERBAA-VOL#-##-FP-0##-XXXX

VOL# = volume number

= research topic area

0## = number of proposal submission

XXXX = four letter character shortcut for organization name

Example: Company A, Inc.’s submission for one proposal to RTA-01 comprised of the three separate files in the attached email:

Subject: FY18 ER BAA Proposal Submission for Company A

- Volume I file name: *FY18ERBAA-VOL1-01-FP-001-COMA* (.pdf file)
- Volume II file name: *FY18ERBAA-VOL2-01-FP-001-COMA* (.pdf file)
- Volume III file name: *FY18ERBAA17-VOL3-01-FP-001-COMA* (.xls or .xlsx file)

The email submission should at least include the following information:

- **Organization:** Company A, Inc.
- **Submitted by:** <first last name>, <project title>, <email of submitter>
- **Attached Files for Submissions:**
 1. Volume 1 – *FY18ERBAA-VOL1-01-FP-001-COMA.pdf*
 2. Volume 2 – *FY18ERBAA-VOL2-01-FP-001-COMA.pdf*
 3. Volume 3 – *FY18ERBAA-VOL3-01-FP-001-COMA.xls* (or .xlsx)
- **Request for receipt confirmation?** (YES or NO)

5.2.2 Format and Size Limitations

The three-volumes consist of three separate electronic files. Volumes I and II will only be accepted in PDF format. Volume III will only be accepted in Microsoft Excel format (only .xls and .xlsx files are acceptable). The **maximum file size for each volume is 10 MB**. Memory sizes of graphic images should be minimized before insertion into any of the files and should support clear display and document printing. **Non-conforming proposals may be rejected without review.**

Volume I, the Core Technical and Management Proposal, shall not exceed sixteen (16) pages of standard size (8.5” by 11”) in 12 pt fonts or larger for text and 9-point fonts or larger for pictures, figures, tables and charts for all Research Topic Areas. **Proposals for which Volume I exceeds the 16 page limit will have any pages above the 16 page limit removed and those pages will not be reviewed or evaluated.**

Volume II, the Supplemental Data Proposal, may not exceed thirty (30) pages of standard size (8.5” by 11”) in 12 pt fonts or larger. Only the Resumes and Statement of Work are required, with the remaining sections optional. These remaining sections are used at the discretion of reviewers and may not be reviewed.

Volume III, the Cost/Price Proposal, has no page limit and **must show the costs/price for the entire effort**.

5.2.3 Volume I, Technical and Management Proposal

Volume I shall provide the primary technical and management description of the proposal.

Volume I is the primary document to be evaluated by the technical reviewers, with Volumes II and III used as supplementary material at the discretion of individual reviewers. Volume I shall include the sections described below. The section headings below are mandatory, the page limits for each section are suggestions, and only the **overall limit of 16 pages** will be considered during compliance checks. Pages after the 16 page limit will be removed during the compliance check and will not be reviewed or evaluated.

5.2.3.1 Executive Summary (0.5 page or less than 2500 characters w/ spaces)

Provide a brief summary of your concept's anticipated performance relative to the Topic goals and current state-of-the-art solutions, and why, if the research is successful, could have a transformational impact in preventing nuclear or radiological terrorism. Describe what is unique about this proposed technology, how it addresses the topic area if not self-evident, and how it would, if successfully realized, have a significant impact on the DNDO mission to prevent nuclear terrorism through nuclear detection and forensics. Provide a concise description of the scientific, technical, and/or engineering approach you propose to pursue and address in this effort. Describe the key aspects, core concepts or components and/or prototype device proposed and relevant details about how such will function or perform. This summary should contain enough information to fully capture the program concept/intent and should completely describe the overall program in its entirety without relying on other sections of the proposal.

Note: When submitting proposals, entry of cover page material will include submission of an abstract. It is highly recommended the abstract be different than the executive summary, emphasizing the main research objective(s) and technical approach (as discussed below), and excluding any proprietary information.

5.2.3.2 Quad Chart (1 page)

The general Quad Chart is described in Section 5.1.2, and Section 8. The proposal Quad Chart content does not have to be the same as the white paper Quad Chart, but should be in a similar format.

5.2.3.3 Transformational Impact (1 Page)

Describe how the intended research will provide a transformational impact on the DNDO mission to prevent nuclear terrorism through nuclear detection and forensics.

- What innovation or discovery is expected?
- How will this discovery provide transformational capabilities to support the DNDO mission as intended by the relevant topic area? (Section 1.2)
- What is the expected performance of the technology or system with respect to the research topic objectives and/or current-state-of-art? What are the quantitative performance improvements expected?

- How will this performance dramatically reduce the technical, performance or cost risks in achieving DNDO mission objectives?

5.2.3.4 Technical Approach and Implementation (7.5 Pages)

Technical Approach (3.0 pages)

This narrative section should describe in detail what is intended to be accomplished and the premise or theory justifying the approach taken. It should describe the fundamental principle, premise or theory that the work will explore, the scientific approach being pursued to explore this premise, and how the results or data from the effort will be analyzed and/or evaluated. This Section should also provide some detail as to why this particular approach was taken, and an estimate of the risk in achieving research goals. In developing the technical approach, the following should be considered:

- Is there a clear understanding of the research objectives and driving goals?
- Are the research objectives/goals clearly supported by appropriate performance modeling, analysis or existing literature, and are quantitative performance metrics defined, as appropriate?
- What technological choices were made and why, including trade studies which were made and alternate technologies/approaches which were considered?
- What is the likelihood the research goals are achievable as proposed in pursuit of the stated research objectives?

Technical Implementation (4.5 Pages)

This Section should provide a detailed outline of the plans and rationale for technical implementation including a summary of proposed tasks (work breakdown structure) for each phase of the effort. The discussion of Phase I tasks is expected to be more comprehensive than those of the follow-on phases. The narrative should answer the following questions:

- What key research or development tasks are needed to execute the effort?
- Is the technical plan clear, detailed and complete so as to fully explain how research objectives will be met?
- Have likely risks in the proposed technical approach been identified and is there a risk mitigation strategy?
- What is the critical path and milestones for the effort? Have methods been proposed for assessing technical progress?

5.2.3.5 Capability and Experience (2.5 Pages)

This Section should provide an overview of the team composition and experience, and must include short biographies of all key personnel. This section should address the following:

- Team's understanding of past scientific and technical accomplishments and the current state-of-the art knowledge or technology;
- Prior experience and performance of the team (to include history of subcontractor performance, if applicable) in related efforts demonstrating an ability to perform innovative research and deliver results/products within proposed budgets/schedules.

- Completeness of the proposed team. That is, are key personnel and partners identified who have the required range of competencies to execute this effort?
- 1-2 paragraph biographies for each key team member to include education, relevant experience and proposed roles; and
- Ongoing related efforts of each team member, with source and level of funding. Explain, as appropriate, how ongoing or relatively recent efforts relate to the proposed work.

5.2.3.6 Management Approach (2 Pages)

This Section should provide an overview of the proposed management approach, tools, and management processes to be used to execute the project. This section must provide:

- Delineation of schedule, phasing and milestones via integrated master plan and schedule (including all hardware deliverables and reviews). The schedule shall be presented in a Gantt chart.
- Delineation of roles, responsibilities and coordination among all team members and organizations, to include description of subcontractors (if applicable) will be managed;
- Approach for project management including management experience of the team and use of appropriate management tools, as applicable
- If necessary, a brief summary of required information, facilities, equipment, materials and data which must be provided by the Government to support the proposed work;
- If necessary, a security plan that describes the rationale for what aspects of the work need to be protected, at what level, and proposed strategy for doing so.

5.2.3.7 Cost/Price (1.5 Pages)

This Section should provide an overview of the total cost of the proposed work. This section must provide:

- The type of award vehicle proposed.
- A narrative description of the cost and cost-estimation approach.
- Cost allocation among team members summed over all phases.
- An itemized description of any individual material and supplies or capital equipment item that exceeds \$10K.
- A listing costs per task for Phase I, itemized as shown in the table below.

Task	Labor (\$k)	Materials and Supplies (\$k)	Capital Equipment (\$k)	Travel (\$k)	Subcontracts (\$k)	Total (\$K)
1						
...						
N						

Total						
-------	--	--	--	--	--	--

- A listing of costs per phase, over the entire project, itemized as shown in the table below.

Phase	Labor (\$k)	Materials and Supplies (\$k)	Capital Equipment (\$k)	Travel (\$k)	Subcontracts (\$k)	Total (\$k)
I						
...						
V						
Total						

Note 1 – For each Subcontractor and Consultant cost, the prime Offeror must submit a detailed breakdown by labor, materials, equipment, travel and other costs.

5.2.4 Volume II, Supplemental Data Proposal

This Volume is used **at the discretion** of the technical reviewers and will be used by the Government Contracting Officer to ensure the proposal guidelines have been met. The first two sections are mandatory (Resumes and Statement of Work); the other sections (Technical Approach, Management Approach, Small Business Considerations, Employee Eligibility Verification, and Assertion of Data Rights) are optional. Volume II shall not exceed 30 pages.

5.2.4.1 Resumes

Provide a resume for each key personnel listed in Volume I. A list of relevant publications (if any) must also be included. Each resume shall be no more than two (2) pages.

5.2.4.2 Statement of Work

Provide a detailed statement of work (SOW), by task, for all phases of the proposed work using the template provided. Tasks and sub-tasks up to three levels are recommended for efforts of high complexity. Quantitative performance or time milestones must be defined. Describe all deliverables proposed under this effort, including data, software, and reports, material or systems consistent with objectives of the work involved.

5.2.4.3 Technical Approach

Provide additional or supplemental technical information and data not included in Volume I.

5.2.4.4 Management Approach

Provide additional or supplemental information describing how the overall effort will be managed.

5.2.4.5 Small Business Considerations

Proposals that exceed \$700,000, except for those submitted by small business concerns, must include a Small Business Subcontracting Plan, in accordance with FAR 19.7 and FAR 52.219-9. The Small Business Subcontracting Plan is included in the 40 page limit. This is a requirement of the proposal, but not an evaluated factor.

Regardless of the proposed dollar value, all offerors shall indicate their business size status and list all subcontractors and their business size statuses. All offerors are encouraged to offer subcontracting opportunities to small businesses to the maximum extent practicable.

5.2.4.6 Employment Eligibility Verification

Include a statement specifying compliance with FAR Clause 52.222-54.

5.2.4.7 Assertion of Data Rights

Include a summary of any assertions of rights to any technical data or computer software that will be developed or delivered under any resultant award. This includes any assertions to pre-existing results, prototypes, or systems supporting or necessary for the use of the research, results, or prototype. Any rights asserted in other parts of the proposal that would impact the rights in this section must be cross-referenced. If less than unlimited rights in any data delivered under the resultant award are asserted, the offeror must explain how these rights in the data will affect its ability to deliver research data, subsystems, and toolkits for integration as set forth below. Additionally, the offeror must explain how the program goals are achievable in light of these proprietary and/or restrictive limitations. If there are no claims of proprietary rights in pre-existing data, this section shall consist of a statement to that effect.

Proposals submitted in response to this Announcement shall identify all technical data or computer software that the offeror asserts will be furnished to the Government with restrictions on access, use, modification, reproduction, release, performance, display, or disclosure. Offeror's pre-award identification shall be submitted as an attachment to its offer and shall contain the following information:

- (1) *Statement of Assertion* Include the following statement: "The Offeror asserts for itself, or the persons identified below, that the Government's rights to access, use, modify, reproduce, release, perform, display, or disclose only the following technical data or computer software should be restricted."
- (2) *Identification of the technical data or computer software to be furnished with restrictions.* For technical data (other than computer software documentation) pertaining to items, components, or processes developed at private expense, identify both the deliverable technical data and each such item, component, or process as specifically as possible (e.g., by referencing specific sections of the proposal or specific technology or components). For

computer software or computer software documentation, identify the software or documentation by specific name or module or item number.

- (3) *Detailed description of the asserted restrictions.* For each of the technical data or computer software identified above in paragraph (2), identify the following information:
- (i) Asserted rights. Identify the asserted rights for the technical data or computer software.
 - (ii) Copies of negotiated, commercial, and other non-standard licenses. Offeror shall attach to its offer for each listed item copies of all proposed negotiated license(s), offeror's standard commercial license(s), and any other asserted restrictions other than Government purpose rights; limited rights; restricted rights; rights under prior Government contracts, including SBIR data rights for which the protection period has not expired; or Government's minimum rights.
 - (iii) Specific basis for assertion. Identify the specific basis for the assertion. For example:
 - Development at private expense, either exclusively or partially. For technical data, development refers to development of the item, component, or process to which the data pertains. For computer software, development refers to the development of the software. Indicate whether development was accomplished exclusively or partially at private expense.
 - Rights under a prior government contract, including SBIR data rights for which the protection period has not expired.
 - Standard commercial license customarily provided to the public.
 - Negotiated license rights.
 - (iv) Entity asserting restrictions. Identify the corporation, partnership, individual, or other person, as appropriate, asserting the restrictions.
- (4) *Previously delivered technical data or computer software.* The Offeror shall identify the technical data or computer software that are identical or substantially similar to technical data or computer software that the Offeror has produced for, delivered to, or is obligated to deliver to the Government under any contract or subcontract. The Offeror need not identify commercial technical data or computer software delivered subject to a standard commercial license.
- (5) *Estimated Cost of Development.* The estimated cost of development for that technical data or computer software to be delivered with less than Unlimited Rights.
- (6) *Supplemental information.* When requested by the Contracting Officer, the offeror shall provide sufficient information to enable the Contracting Officer to evaluate the Offeror's assertions. Sufficient information must include, but is not limited to, the following:
- The contract number under which the data or software were produced;
 - The contract number under which, and the name and address of the organization to whom, the data or software were most recently delivered or will be delivered; and

- Identification of the expiration date for any limitations on the Government's rights to access, use, modify, reproduce, release, perform, display, or disclose the data or software, when applicable.

(7) *Ineligibility for award.* Failure to submit or complete the identifications and assertions required by this provision may render the Offeror ineligible for award.

Please Note: The section entitled "Assertion of Data Rights," must be severable, i.e. it must start on a new page. It is anticipated that the proposed Assertion of Data Rights section will be incorporated as an attachment to the resultant award instrument. Proposals must include a severable self-standing Assertion of Data Rights section without any proprietary restrictions, which can be used to make the contract or agreement award.

5.2.5 Volume III, Cost Proposal

The Cost Proposal shall consist of a cover page and two parts, Part 1 and Part 2. Part 1 will provide a detailed cost breakdown of all costs by cost category by period (base and all options) and Part 2 will provide a detailed cost breakdown by task/sub-task using the same task numbers in the Statement of Work. Options must be separately priced. The purpose of this volume is to provide detailed backup information for the summary costs provided in Volume 1. There should be a clear correlation between the information in these two volumes, including, but not limited to, total amounts proposed. Volume 3 has no page limitations.

Detailed Bases of Estimates (BOEs) are required for all tasks in the SOW. For the Government to determine the reasonableness, realism, and completeness of the cost proposal, the offeror shall submit Microsoft Excel spreadsheet(s) with a detailed cost breakdown of all proposed costs by cost categories, including quotes, receipts, historical pricing, payroll records, catalogue pricing, etc.

The cost of preparing proposals in response to this BAA is not considered an allowable direct charge to any resulting contract or any other award.

Those who have not been audited by DCAA for a cost-type contract will be required to undergo an audit prior to a cost-type contract award. The DCAA website at: <http://www.dcaa.mil/index.html> has been prepared by DCAA to assist contractors in understanding applicable requirements and to help ease the contract audit process.

5.2.5.1 Cover Page

The words "Cost Proposal" should appear on the cover page in addition to the following information:

- BAA number;
- Proposal ID of Volume I;
- Title of proposal;
- Topical Area;
- Identity of prime Offeror's name and address and complete list of subcontractors name and address, if applicable;
- Technical contact (name, address, phone/fax, electronic mail address)

- Administrative/business contact (name, address, phone/fax, electronic mail address);
- Duration of effort (separately price out the basic effort and any options) and;
- DUNS number and CAGE code.

5.2.5.2 Cost Proposal, Part 1

Detailed Bases of Estimates are required for all tasks in the SOW. For the Government to determine the reasonableness, realism, and completeness of the cost proposal, the offeror shall submit Microsoft Excel spreadsheet(s) with the following sets of data:

Labor: Labor cost is defined as the number of direct labor hours multiplied by their respective hourly rates (unburdened). Labor cost shall be segmented by task for the initial phase. Provide a breakdown of labor hours and rates for each task by category of personnel. A labor cost summary is required by phase for ALL phases under this proposal.

Direct Materials: Total direct material that will be acquired and/or consumed during the project. Summary information shall be supplied for all material items. Provide detailed information only for all material items (e.g. how the estimated expense was derived) to include copies of price lists or quotes or price estimates for proposed materials. Material costs shall be assigned to specific work tasks.

Subcontracts: Describe the work in detail to be subcontracted, the source, the estimated cost, and the basis for this estimate. Subcontract labor and material shall be accounted for per the two paragraphs above. A summary chart showing each major subcontractor labor and material effort by work phase is required. For each subcontractor, provide the basis for selection, a narrative explaining why the price is reasonable and any adjustments the prime may have made to the subcontractor's price.

Travel: Total proposed travel expenditures relating to the period of performance. Limit this information to the number of trips, location, duration, number of travelers, and purpose of each trip. Travel should include travel to Washington, DC for performance reviews. Travel costs must be itemized for each segment listed above, and then totaled.

Indirect Costs: Include current negotiated indirect rate agreements, letters, and the names of cognizant audit agencies. If no such agreements exist, provide a detailed listing and explanation of indirect costs and/or rates. DCAA or other audit organization's audited statements are required to support indirect cost rates. The proposal must list the name, telephone number and email address of the Offeror's DCAA contact person/office.

Other Direct Costs: Any direct costs not included above. List the item, the estimated costs, and the basis for the estimate with supporting documentation.

Fee: Any proposed fee/profit and appropriate justification.

5.2.5.3 Cost Proposal, Part 2

Cost breakdown by task/sub-task using the same task numbers in the Statement of Work. When phases/options are contemplated, phase/options must be separately identified and priced by task/sub-task.

Note: FAR Subpart 15.4 contains the basic requirements related to requiring certified cost or pricing data, including the procedural requirements for submitting certified cost or pricing data to the Contracting Officer. Certified cost and pricing data will be required, prior to contract award, for awards exceeding the dollar threshold outlined in FAR 15.403-4 (\$650,000). This applies to awards to UARCs and Federal Government activities.

Note: The Prime and Sub-contractors using exchange rates must include the exchange rate used, and shall provide the origin/source of the exchange rate in the proposal submission.

5.2.6 Notification to Offerors of Contractors Support Services for Proposal Evaluation Process

(a) Offerors are advised that employees of the firm identified below may serve as Source Selection Organization members in the source selection process. These individuals will be authorized access to only those portions of proposal data and discussions that are necessary to enable them to perform their respective duties. The firm is expressly prohibited from competing on the subject acquisition and from scoring or rating of proposals or recommending the selection of a source.

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3811 Fairfax Dr #400, Arlington, VA 22203
(703) 516-6000

(b) In accomplishing their duties related to the source selection process, the aforementioned firm may require access to proprietary information contained in the offeror's proposals. Therefore, pursuant to FAR 9.505-4, the firm must execute an agreement with each Offeror that states that it will (1) protect the offeror's information from unauthorized use or disclosure for as long as it remains proprietary, and (2) refrain from using the information for any purpose other than that for which it was furnished.

For all RTAs, each offeror must contact the company listed above at BGS_TAR_NDA@belcan.com, at least four weeks prior to the white paper submission deadline to effect execution of such an agreement.

DNDO highly recommends that offerors use the standard one page NDA included in Section 8 of the BAA. It is imperative that a copy of the fully executed NDA be sent to the firm at the email address above, in addition to providing a copy with the white paper. If an offeror chooses not to submit a white paper, but only a proposal, the firm shall be contacted at the email address above, at least four weeks prior to the proposal submission deadline to effect execution of such an agreement and shall submit a copy of the fully executed NDA with its proposal.

Failure to execute such an agreement with the above firm will result in the Offeror's white paper/proposal submission being found non-compliant. Non-compliant submissions will not be reviewed or evaluated.

6 EVALUATION CRITERIA

Each proposal will be evaluated on the merit and relevance of the proposal, as it relates to the specific exploratory research topic area, rather than against other proposals because no common work statement exists. Awards will be made based on proposal evaluation against the below criteria and funds availability. Selection for award constitutes commitment of funding for the initial phase, while funding for the subsequent phases will depend on the performance of the preceding phase and availability of funds.

DNDO reserves the right to enter into exchanges with any Offeror through the Contracting Officer, if needed, to (a) clarify our understanding of that offeror's proposal, and/or (b) to address any areas of concern in an otherwise highly meritorious proposal. Such exchanges, if they occur, may result in amended proposals from the affected offeror(s). However, if DNDO initiates exchanges with one offeror, this does not obligate DNDO to conduct exchanges with or obtain amended proposals from other offerors.

Proposals submitted under the Research Topic Areas (RTA) will be evaluated against the following criteria in descending order of relative importance:

- Transformational Impact,
- Technical Approach and Implementation,
- Capability and Experience,
- Management Approach, and
- Cost/Price Realism and Reasonableness

The following sections describe the evaluation criteria.

6.1 Criterion I: Transformational Impact

The following items will be considered and evaluated:

- How the proposed concept/methodology/approach/effort, if successfully executed and realized, is likely to enhance capabilities relevant to and have a significant impact on the DNDO mission objectives to prevent nuclear terrorism through nuclear detection and forensics, as intended by the relevant topic area;
- Likelihood of providing risk or threat reduction, dramatically improving performance, reducing costs and/or increasing effectiveness in achieving DNDO mission objectives relative to current state-of-the-art. This will include how the proposed concept/methodology/approach addresses the goals and objectives of the research topic area; and
- Whether this effort is being duplicated, or is redundant under funding from either DNDO or another government activity, and the risk and/or reward, if successful, does not warrant multiple efforts in the same area.

6.2 Criterion II: Technical Approach

The following items will be considered and evaluated:

- Understanding of the research objectives and driving goals, to include appropriate performance modeling and analysis, and development of quantitative performance metrics and technical milestones for the project, as appropriate;
- Clarity, completeness, feasibility and achievability of the proposed technical plan (and supporting statement of work), with task descriptions and associated technical elements in a logical sequence with all proposed deliverables; Proposed trade studies, performance modeling, analyses and experiments required during the initial phase of the effort; Proposed methods for assessing technical progress to include milestones and go/no-go criteria; and Adequacy of initial identification of key technical risks and their associated mitigation strategies; and
- Likelihood the research is achievable as proposed, in pursuit of the stated research objectives.

6.3 Criterion III: Capability and Experience

The following items will be considered and evaluated:

- Completeness of the proposed team to perform the required research, to include identification of key team members and their qualifications/competencies;
- Prior experience and performance of the team (to include history of subcontractor performance, if applicable) in related efforts demonstrating an ability to 1) perform innovative research, 2) deliver results within proposed budgets and on schedule, and 3) successfully transition or commercially develop subsequent products; and
- Team's understanding of past scientific and technical accomplishments, and the current state-of-the-art of knowledge or technology. Similar efforts completed/ongoing by the offeror in this area are fully described including identification of other Government sponsors.

6.4 Criterion IV: Management Approach

The following items will be considered and evaluated:

- Delineation of schedule, phasing and milestones that is consistent with the proposed technical approach and the SOW. The proposed schedule identifies and mitigates any potential schedule risk;
- Delineation of roles, responsibilities and coordination among all team members and organizations; and
- Approach for project management, including management experience of the team and use of appropriate project management tools, as applicable.

6.5 Criterion V: Cost/Price Realism and Reasonableness

Note that while cost/price realism and reasonableness is a criterion for award, it will not be analyzed or evaluated unless a proposal is recommended for an award. No cost/price feedback will be provided for those proposals not recommended for award.

The objective of this criterion is to establish that the proposed costs are reasonable and realistic for the technical and management approach offered, as well as to determine the offeror's practical understanding of the effort. The proposed costs should be based on realistic assumptions, reflect a sufficient understanding of the technical thresholds and objectives of the BAA, and are consistent with the offeror's technical approach (to include the proposed Statement of Work). The cost proposal should substantiate the proposed costs with the type and number of labor hours proposed per task, as well as the types and kinds of materials, equipment and fabrication costs proposed. This will be principally measured through an independent Government cost estimate consisting of cost per labor-hour and number of labor-hours proposed, by major capital expenditures and consumables in the early phase and evaluating the likelihood of completing the effort on time and at the proposed costs. Cost realism analyses shall be performed to determine the probable cost of performance for each offeror that is recommended for award.

The Government recognizes that undue emphasis on cost may motivate proposers to offer low-risk ideas with minimum uncertainty and to staff the effort with junior personnel in order to be in a more competitive posture. DNDO **discourages** such cost strategies.

The following items will be considered and evaluated:

- Offeror's practical understanding of the effort. Realism of the scope of effort and the likely labor-hours and major capital expenditures required to execute;
- Realism and reasonableness of proposed costs as they relate to the technical and management effort for each phase; and
- Realism of the schedule for the completing the proposed effort on time at the proposed cost.

7 INSTRUCTIONS TO OFFERORS

7.1 Submission of White Papers and Proposals

7.1.1 White Paper Submission

If prospective Offerors elect to submit white papers, white papers shall be submitted on or before the deadline listed in the award schedule table of January 19, 2018 at 4pm ET. Late white papers will not be reviewed. White papers shall be submitted in electronic format and emailed to the inbox – DNDOERP@hq.dhs.gov. Hard copy, facsimile, or hand delivered white papers will not be permitted or accepted, except for classified white papers (see Section 7.6).

White Paper submissions consist of one (1) attachment (see Section 5 for white paper format and content) in the email submission. Any white paper submissions received by the Government after the deadline for submission **will not** be accepted. It is highly encouraged that offerors do not wait until the last minute to submit their white paper(s).

NOTE: White papers should be submitted well in advance of closing time to ensure completion of the electronic submission process by the date and time of the deadline, as stated in this BAA. Receipt of proposals and white papers will be handled in accordance with FAR 15.208 and FAR 52.215-1. For receipt confirmation on the white paper proposal submission, please include in your submission

7.1.2 Proposal Submission

Proposals shall be submitted on or before the deadline listed in the award schedule table of April 20, 2018 at noon ET. Proposals shall be submitted in electronic format and shall be submitted to the following DNDOERP@hq.dhs.gov. Late proposals will not be considered. Hard copy proposals, facsimile proposals or hand-delivery proposal will not be permitted or accepted, except for classified proposals (see Section 7.6).

Proposal submissions contain three (3) separate attachments for Volumes I, II, and III (see Section 5 for proposal format and content). Any proposal submissions received by the Government after the deadline for submission **will not** be accepted. It is highly encouraged that offerors do not wait until the last minute to submit their proposals.

NOTE: Proposals should be submitted well in advance of closing time to ensure completion of the electronic submission process by the date and time of the deadline as stated in this BAA. Receipts of proposals and white papers will be handled in accordance with FAR 15.208 and FAR 52.215-1.

7.1.3 Confirmation Receipt

White papers and proposals should be submitted well in advance of closing time to ensure completion of the electronic submission process by the date and time of the deadline for submission, as stated in this BAA. Receipt of proposals and white papers will be handled in accordance with FAR Part 15.208 and FAR 52.215-1.

7.2 Questions

All questions related to the submission of proposals or white papers shall be submitted in writing to the following email address: DNDOERP@hq.dhs.gov. Questions regarding white papers and proposals shall be submitted by the submission deadline provided in the award schedule table in Section 1 of this BAA (November 29, 2017 at noon ET for white papers and March 2, 2018 at noon ET for proposals). When submitting questions, place the word “Question” as the leading text in the subject line. Questions received after the dates and times specified will not be addressed. DHS/OPO may post amendments to this BAA and updates to questions and comments periodically to FedBizOpps.

7.3 System for Award Management

Offerors must be registered in the System for Award Management (SAM), in order to be eligible for award. Information on SAM registration is available at <http://www.sam.gov> or by calling toll-free: 1- 866-606-8220.

7.4 Representations and Certifications

Offerors shall complete the annual representations and certifications at <https://acquisition.gov> in accordance with FAR 4.12. Representations and certifications are not required for the white paper process, but will be required if selected for contract award.

7.5 Safety Act

Congress enacted the Support Anti-terrorism by Fostering Effective Technologies Act of 2002 (the “SAFETY Act”), as part of the Homeland Security Act of 2002. The SAFETY Act provides limitations on the potential liability of those firms that develop and provide qualified anti-terrorism technologies. DHS encourages the development and deployment of anti-terrorism technologies by making available the SAFETY Act’s system of “risk management” and “liability management.” Offerors submitting proposals in response to this BAA may submit SAFETY Act applications on their existing technologies and are invited to contact the Office of SAFETY Act Implementation (OSAI) for more information at 1-866-788-9318 or helpdesk@safetyact.gov or visit OSAI’s website at www.safetyact.gov.

7.6 Security/Classified White Papers/Proposals

The Government anticipates that white papers/proposals submitted under this BAA will be unclassified.

However, for work categorized For Official Use Only (FOUO), Offerors shall follow Department of Homeland Security procedures for processing, transmitting, and storing said material. These procedures are outlined in the Department of Homeland Security Management Directive System MD Number 11042, Issue Date: 5/11/2004, SAFEGUARDING SENSITIVE BUT UNCLASSIFIED (FOR OFFICIAL USE ONLY) INFORMATION, and can be found on the DHS website under the “Security” side-bullet.

Security classification guidance via a DD Form 254 will not be provided at this time since DNDO is soliciting ideas and concepts only. **Classification does not eliminate the requirement to comply with all other instructions and deadlines under this BAA.**

If a white paper or a proposal contains classified information up to the S/NSI (Secret/National Security Information) level, it may be submitted electronically, via SIPRNET to the following address: mark.wrobel@dhs.sgov.gov. At the same time, an unclassified note must be sent to mark.wrobel@hq.dhs.gov and the contracting officer Cheri.Redding@hq.dhs.gov, to alert DNDO that a classified white paper or proposal has been sent.

If you choose to submit a classified white paper or proposal, you must first receive permission of the Original Classification Authority (OCA) to use their information in replying to this BAA and submit the applicable OCA classification guide(s) to ensure that the white paper or proposal is protected appropriately.

Classified submissions shall be in accordance with the following guidance:

Collateral Classified Data: Use classification and marking guidance provided by previously issued security classification guides, the Information Security Regulation (DoD 5200.1-R), and the National Industrial Security Program Operating Manual (DoD 5220.22-M) when marking and transmitting information previously classified by another original classification authority.

Classified white papers or proposals up to Top Secret may be faxed via STE on a classified line. Contact Trevor Whaley, the DNDO Security Liaison Officer, at Trevor.Whaley@hq.dhs.gov, for up-to-date instructions.

Sensitive Compartmented Information (SCI) Data: Contact Trevor Whaley, the DNDO Security Liaison Officer, at Trevor.Whaley@hq.dhs.gov, for the correct SCI courier address and instructions. All SCI should be transmitted through your servicing Special Security Officer (SSO) / Special Security Contact Officer (SSCO). All SCI data must be transmitted through SCI channels only (i.e., approved SCI Facility to SCI Facility via secure fax).

Offerors must have existing, and in-place prior to execution of an award, approved capabilities (personnel and facilities) to perform research and development at the classification level they propose.

8 ATTACHMENTS

8.1 White Paper/Proposal Cover Sheet

FY18 ER BAA Cover Sheet for Exploratory Research		
White Paper/Proposal <input type="checkbox"/> Contains <input type="checkbox"/> <u>Does Not</u> Contain Proprietary Information		
White Paper/ Proposal ID:	Research Topic Area:	Solicitation Number:
Proposed Amount:	Proposed Duration (in months):	Anticipated Start Date (month/day/year):
Proposal Title:		
Abstract (500 words or less)		
Organization Information		
Organization Name:	Organization Address 1:	Organization Address 2:

Organization City/Province:	Organization State (2 letter designation):	Organization ZIP + Four:
Country:		
Principal Investigator (PI)/Project Leader Information		
PI First Name:	PI Middle Initial:	PI Last Name:
PI Address 1:		PI Address 2:
PI City/Province:	PI State (2 letter designation):	PI ZIP + Four:
PI Phone (include area code):	PI Fax (include area code):	PI E-mail:
President/Company Officer/Technical Representative (For Business and Financial Matters)		
First Name:	Middle Initial:	Last Name:
Address 1:		Address 2:
City/Province:	State (2 letter designation):	ZIP + Four:
Phone (including area code):	Fax (including area code):	E-mail:
DUNS:	TIN/EIN:	
Banking Information		
Bank Name:		Bank Routing Number (ABA):
Swift (BIC - Bank Identifier Code; Applicable for Foreign Vendor Payments to non-US Banks):		Bank Account Number:

IBAN (<i>Applicable for Foreign Vendor Payments to Non-US Banks</i>):	Account Type (<i>Checking/Savings</i>):
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8.2 Non-Disclosure Agreement

NON-DISCLOSURE AGREEMENT
SOLICITATION 70RDND18R00000001

The Parties to this Agreement agree that Schafer Government Services, LLC, a Belcan Company, may have access to proprietary information of Offeror contained within the technical and cost proposals, solely to perform technical advisory services for the Government, in evaluating proposals submitted in response to this Solicitation.

The Parties agree to protect the proprietary information from unauthorized use or disclosure for as long as it remains proprietary, and to refrain from using the information for any purpose other than that for which it was furnished.

Company Name (Offeror)

Name of Company Official, Printed

Signed

Dated

Name of Company Official, Printed
Schafer Government Services, LLC
A Belcan Company

Signed

Dated

8.3 Quad Chart Template

Title: *Project Title*

Org/Area: *Lead Organization/Topic Area*

Photograph or Artist's Conception

Provide a simple, legible, but sufficiently detailed graphic to convey the main concept or idea of the research effort and/or development prototype.

Relevance and Goals

- Research goal and desired end state including performance targets
- Transformational impact or uniqueness over existing techniques and state-of-art
- Relevance to and specific contribution in addressing a specified research topic area
- Other broader impacts of the research

Technical Approach

- Hypothesis or theory supporting the approach, as appropriate.
- Specify how the problem will be addressed
- Describe current status of the proposed effort and the first phase
- Describe the key technical challenges and/or risks

Schedule

- Provide milestones, primary deliverables, and task durations for the current phase
- Provide duration for future phases (if applicable)
- Provide estimated cost per phase

Team

- List the prime organization, principal investigator, and program manager
- List subcontractors and main team members