AMENDMENT NUMBER 0002
BAA 11-010 ENTITLED

Demonstration System Development for Advanced Shipboard Desalination FNC

The purpose of Amendment 0001 is to provide answers to following questions:

Q1- Do you expect the Phase I technologies (technologies being developed under prior BAA 09-013) to be included in Phase II?

A1 - The time frame of the phase I component development research efforts (BAA 09-013) is such that we will be receiving and testing deliverables this fall, after selection of the full proposals from the current BAA 11-010. If very promising components are developed and seem mature enough for shipboard testing, the government panel may recommend their technology to the BAA 11-010 performer(s) for consideration.

Q2- Paul Armistead is the TPOC on a total residual oxidant sensor SBIR program. Will these sensors be a part of the BAA 11-010 efforts?

A2- The SBIR TRO sensor development program is not directly connected to the FNC program. The sensors are to measure high concentrations of oxidant more typically found in cleaning solutions or concentrated cleaning solutions. There could be applicability to Navy potable water production or other shipboard applications but there is no requirement that the sensors will be used on the demonstrators developed under BAA 11-010.

Q3- Is Phase II (BAA 11-010) of FNC restricted to FNC Phase I participants (BAA 09-013)?

A3- No, it is not restricted to the participants of the FNC Phase I BAA 09-013.

Q4- If Navy Standard Reverse Osmosis, NSRO, units are heavier & bigger than distillation at larger scales, what is the advantage?

A4- Reverse Osmosis was initially installed as replacement for distillation for shipboard desalination application as part of the Navy ship conversion away from steam propulsion and steam-driven systems to all-electric power. The original NSRO design was/is quite conservative and is not as compact as it could be. RO systems could be developed that are significantly smaller than the current shipboard distillers. The main advantage of NSRO over current shipboard distillers is the much greater operational availability and reduced maintenance over distillers for potable water production in the open ocean. The objective of this FNC is the development of shipboard desalination systems that show significant improvement in size, weight, energy requirements, system operational availability, and total ownership costs.

Q5- Does the Navy use ozonation for disinfection?

A5- Ozonation is not currently used on ships as a potable water disinfectant.

Q6- Does the Navy use / allow chemical pretreatment methods (coagulation, flocculation, etc.), back-washable media filter?

A6- The current NSRO design is simple and robust and has been very successful for open ocean potable water production. Demonstrators under this program could employ more elaborate pretreatment to improve desalination capability when the source water has higher levels of suspended solids as long as the methods do not conflict with current Navy priorities and guidance.

Q7- Does the Navy use chemical cleaning of RO elements?

A7- Yes, but it is often up to the ship's force to decide how to prepare for and carry out maintenance and so it is often chosen to take new elements as opposed to the chemicals to clean the old ones.

Q8- What is the energy consumption metric? (for NSRO & FNC objective)

A8-

- Current energy usage: 12K NSRO: 65 kWh/kgal
- FNC Objective: < 20kWh/kgal (with improved metrics for larger systems)

Q9- What are the minimum instrumentation requirements?

A9- The minimum instrumentation requirements are listed in the BAA.

Q10- Are non-profit organizations eligible to submit, or is it only for-profit companies?

A10- Submission requirements are described in the BAA. There is no restriction on participation by non-profits.

Q11- Does everything need to fit within the size / weight metrics listed in the BAA?

A11- Yes, the phase II TRL 5 demonstration unit must show the layout of final robust demonstration unit and that the size and weight metrics can be made. The phase III robust demonstration unit must fully meet the size and weight metrics.

Q12- Are we concerned about space / weight during the "breadboard demonstrator"?

A12- Yes. See answer for the above question #11.

Q13- Where does military ruggedization (shock, vibration, etc.) fit into the Development phases?

A13- Military ruggedization will be a factor in Phase III.

Q14- Several Key Performance Requirements are listed in the BAA. Are systems required to produce water under the most extreme conditions (temperature & TDS)?

A14- Systems must produce water at desired quality at all times, even in extreme conditions.

Q15- How is advancement to Phase II & III accomplished?

A15- See the down-selection language in the Program Plan/Phasing subsection under Section I.6 of the BAA and the "Evaluation Criteria" stated in Section V of BAA.

Q16- When water has to pass EPA standard? - Some membranes allow more boron & need more treatment? Is removal of mercury & boron an issue?

A16- As stated in the BAA, it is our objective for the demonstration systems to meet EPA primary and secondary drinking water standards.

Q17- What ship class is intended for the littoral regions? LCS? Amphibs?

A17- Considering the increased pollution in the seas, large areas prone to red tide events, and shifting military priorities that position ships closer to the shore for longer periods of time (or at least in source waters with higher levels of suspended solids) all ship classes could use the increased capability to purify water from less clean sources.

Q18- Funding – is it up to that amount, or is that fixed? Nominal amount?

A18- The funding amounts in the BAA are recommended maximum funding levels for each phase and production capacity. Cost is one of the review criteria.

Q19- What is meant by open architecture?

A19- Shipboard systems are built to last the life of the ship. Over this time there may be changes in the availability of various component or subsystems. Where possible, it is desired to design a system that is not uniquely dependent on specific parts (there are commercial alternatives). As stated in the BAA on page 6, "The performer should specify alternative components (pumps, replacement membranes, etc…) that can be used without a loss in performance. Where it makes sense, the design should be modular so that components or subsystems can easily be replaced".

Q20- Sharing & Owning Data Rights - If the government owns the data, can they sell it to someone else?

A20- The Government does not "own" the data or software developed under its R&D contracts. The contractor owns the data or software developed, while the Government would have rights in the developed technology. Under DoD contracts, these intellectual property rights would typically be either Unlimited Rights or Government Purpose Rights (GPR). When the data and/or software is developed exclusively with Government funding, the Government gains Unlimited Rights in the resulting data and/or software. When the data and/or software is

developed with mixed Government and private funding, the Government gains Government Purpose Rights in the resulting data and/or software. When the Government has GPR in the data or software, those items can be transferred to or share with Government contractors so long as the products they develop are to be used for Government purposes only and not for commercial sales. The Government cannot use, or allow others to use, GPR technical data or software for the manufacture of commercial products. Limited Rights or Restricted Rights are what the Government gains in technical data or software developed exclusively with private funds. Much of this is pre-existing data that is provided to the Government under a later contract. The Government is restricted from providing such pre-existing data or software to parties outside the Government.

This is a broad-brush description of these types of intellectual property rights. For additional information, offerors may refer to DoD Federal Acquisition Regulation Supplement (DFARS) 252.227-7013, Rights in Technical Data--Noncommercial Items, 252.227-7014, Rights in Noncommercial Computer Software and Noncommercial Computer Software Documentation, and 252.227-7015, Technical Data--Commercial Items. Offerors are reminded to make it clear whether or not they or their subcontractors intend to assert data rights restrictions against the Government. Assertions need only to apply to data or software being provided under any resulting contract. Assertions should not be provided for "background" technology being used in the research, but which will not be delivered to the Government.

Q21- Is a company's IP part of the Government-furnished information? Shared with competitors?

A21- In this BAA, government furnished information is most likely details of the shipboard space on which a demonstrator will be evaluated, common knowledge about engineering systems to minimize corrosion and meet shipboard requirements, and possibly lessons learned from other military testing of desalination systems and components. All technical reports being developed under these contracts will be required to be sent to the Defense Technical Information Center (DTIC), which serves the DoD community as the largest central resource for DoD and government-funded scientific, technical, engineering, and business related information. However, any reports submitted with proper restrictive legends in accordance with DFARs 252.227-7013 and 252.227-7014 will have restrictions on its dissemination. However, reports with data resulting exclusively from a Government contract would not have any restrictive legends.

Q22- Intellectual Property may include the process in addition to the technology. Is this protected?

A22- See answers 20 and 21 above.

Q23- IP developed prior to initiation of contract vs. IP developed under GOVT funding?

A23- See answers 20 and 21 above.

Q24- Should one proposal contain the options for Phase II and Phase III?

A24- Yes, a proposal should include both options.

Q25- Would we consider a proposal just for Phase I?

A25- A proposal for Phase I only would not be considered under this BAA. Engineering design firms may wish to partner with complimentary firms so that they can participate in all phases.

Q26- Does the Base & Options trigger TINA?

A26- The total including base and all options triggers the TINA disclosure.

Q27- Are additional negotiations for IP sharing after delivery of Phase III? (Good faith…)

A27- The intention of this ONR BAA is to build a technology demonstrator. The goal of the ONR shipboard desalination program is to demonstrate performance of newer desalination technologies through land-based and shipboard testing of these demonstrators and broaden the Navy design guidance for shipboard desalination systems. Eventually, it is desired to get new technologies in the fleet. However, the ONR program is a technology development program and not a shipboard systems acquisition program.

Q28- What is the time period for official submission of questions?

A28- All questions shall be submitted in writing by electronic mail. Questions regarding White Papers must be submitted by 2:00 p.m. Eastern Time two weeks before the date and time for receipt of White Papers (**18 April 2011**). Questions after this date and time may not be answered and due date will not be extended. Questions regarding Full Proposals must be submitted by 2:00 p.m. Eastern Time two weeks before the date and time for receipt of Full Proposals (**1 June 2011**). Questions after this date and time may not be answered and due date will not be extended.

Q29- Are zip files allowed? (PDF – problems with zip files?)

A29- There are potential problems with zip files. Do not send zip files.

Q30- Can full proposals be submitted via email?

A30- No, as stated in the BAA; The only acceptable methods for submission of full proposals are 1) by mailing to the technical point of contact by the United States Postal Service (USPS), 2) via a commercial carrier (FedEx, DHL, and UPS), or 3) by hand delivery. NOTE: Full proposals sent by email, fax, or other means not in accordance with the requirements herein will not be considered.

Q31- Will feedback be provided to offerors for proposals that are of "no particular value"?

A31- Feedback will be provided to those offerors requesting a debrief in a timely fashion.

Q32- If a company does not have a capability to accept a cost type contract, can they propose using an alternative style of contract?

A32- It is the duty of the contractor to establish a DCAA approved accounting system which will accept a cost type contract. ONR does not anticipate awarding any other types of contracts.

Q33- Once we select a process, are we going to solicit bids for systems using their final designs?

A33- Under this BAA, ONR is going to fund the development of robust demonstration systems, at least a portion of which will be tested installed on a ship. The goal is to demonstrate the enhanced performance of newer desalination technologies over current Navy systems. The ONR mission is science and technology development and not procurement of systems for ships.

Q34- Where do questions go (to which email address)?

A34- As stated in the BAA:

Any questions regarding this solicitation must be provided to both the Technical Point of Contact and Business Point of Contact listed in this solicitation. All questions / communication shall be submitted in writing by electronic mail.

Q35- Does a design submission have to include equipment to help meet SDTF discharge limits, or is this handled by NFESC SDTF?

A35- The government should be made aware of any and all materials and chemical usage that may affect the composition of all the product streams. This is described in the BAA under the "Technical Approach and Justification" and "Operational Utility Assessment Plan" sections.

Q36- What is the feed pressure to the RO system?

A36- Could be from fire main (150psi), typically through a pressure reduction system; may also be coming from non-pressurized system; it depends on system requirements. For proposal and initial Phase I design considerations, a pressurized feed to the RO system can be assumed.

Q37- Is the testing cost included in the stated budget for this program?

A37- All factory performance and safety assessment tests will be performed by the contractor and costs will need to be from funding under the BAA contract. The costs of land based testing for government evaluation purposes will be covered by ONR and handled separately. However, it is expected that the contractor will work with the Government personnel as an active consultant in the test and operation of the proposed product(s) throughout all government land-based demonstrations.

Q38- Will the specifications of the NSRO design be available for offerors to use a baseline comparison?

A38- The NSRO design was used as a basis for the FNC, and the metrics presented in the BAA represent significant energy savings, and size and weight reductions.

Q39- For the performance specifications on any of the three desired desalination systems... Is there a requirement for operation while the ship is underway?

A39- Yes, the demonstration systems units are for installed application on the ship for the purpose of providing potable water while under deployment.

Q40- Is there a limitation on what can be dragged or deployed from the ship?

A40- The demonstration systems will be for installed application on the ships. No hardware should be deployed outside the hull or be dragged by the ship. The seawater feed will be taken from dedicated piping or from the fire main.

Q41- I would like to propose a particular component technology for use in an overall system in response to the Advanced Shipboard Desalination Demonstration System Development solicitation. Since only complete system concepts are acceptable under this solicitation, can you identify companies that have been involved in the previous developmental work for ONR, and that you expect to receive proposals from? The component technology that we would propose could be a great enhancement to the performance of the systems proposed by other companies that we could team with.

A41- See Industry Day attendees posted to ONR website and FedBiz Opps.