

Amendment 0003
Solicitation Number ONRBAA11-016
“Long Endurance Undersea Vehicle Propulsion”

The purpose of Amendment 0003 is to amend the BAA and respond to questions submitted prior to 28 APR 2011. Appendix A contained within BAA 11-106 has been revised to reflect updated information based on questions received and is contained within the question and answer section below. Questions received after that 28 APR 2011 and before the deadline for submissions of questions will be addressed in a subsequent amendment.

BAA 11-016 is hereby amended as follows:

1. Questions and Answers are provided as follows:

1. Question:

What are the pass-through cabling requirement details (dimensions, etc.)?

Answer:

An estimate of pass-through cabling requirement details is 3 pass throughs, each 1.5” in diameter, specific location as specified by the performer. The exact information will be provided to successful offerors during Phase I.

2. Question:

A potential weight savings is possible by using a nonmetallic hull. Is such a savings allowable in our buoyancy calculations and system considerations?

Answer:

Per ONR BAA 11-016, Table 1, the hull and bulkhead are not part of the weight and buoyancy requirements.

3. Question:

Can you provide details of the thermal performance of the GFE hull section and end-caps in air and water, at rest and at speed?

Answer:

This information will be provided to successful offerors during Phase I.

4. Question:

Are the end-caps in contact with sea water when submerged – any appreciable flow?

Answer:

This information will be provided to successful offerors during Phase I.

5. Question:

Does the requirement to operate in 50C air allow external cooling?

Answer:

A source of cooling water will be provided to successful offerors during Phase I.

6. Question:

Can certain areas of the hull be designated for thermal transfer – a milled finish and mounting studs as an example?

Answer:

This information will be provided to successful offerors during Phase I.

7. Question:

Is circulating seawater in and out of the energy section permitted?

Answer:

Refer to Section I, General Information, Table 2, Note 2 of ONR BAA 11-016.

8. Question:

If the proposer to ONR BAA 11-016 were to respond to the statement in the 8 Feb 2011 Industry Day Brief for “Low/No Observables (noise, discharges)” by including an estimate of the underwater radiated noise produced by the proposed energy section, should the radiated noise estimate be considered as classified information and if so, to what level of classification?

Answer:

An otherwise unclassified proposal should not be made classified by the inclusion of classified or potentially classified observables estimates. If necessary, proposals may include a reference to the document(s) containing the classified information.

9. Question:

Is 24-48 volts an acceptable range for output voltage (in other words-any output voltage within that range will be acceptable), or is it a required range (i.e., the vehicle must be able to draw from any point in that range at any time), or is it a requirement to be able to supply some loads at 24 volts and some at 48 volts simultaneously?

Answer:

24-48 volts is the acceptable range for the output voltage.

10. Question:

The solicitation says that all Key Personnel for the proposer must be U.S. citizens. Do all subcontractors also have to be U.S. based? Do all personnel working on the project for the subcontractors have to be U.S. citizens?

Answer:

The details of the proposal submitted by the offeror in large measure determine the extent to which prime contractor employees and subcontractor employees must be U.S. persons. The answer turns on which people will have access to or will generate export controlled data. If some or all of the results to be received will be export controlled data, the presumption is that all of those supporting the effort whether working for the prime or a sub or a consultant must be U.S. persons. A particular subcontractor or consultant can be excluded from this presumption if the proposer can establish to the satisfaction of the ONR Program Manager that the sub or consultant will not either generate or have access to export sensitive data in the course of performing his/her work. Note that the ITAR regulations speak to "U.S. persons" (as defined at 22 CFR Sec. 120.15) rather than "U.S. citizens". Whether an employee is a key person under the proposal or an employee with lesser involvement in the R&D effort is not a meaningful distinction for export control purposes.

11. Question:

Several of the Objective activities (“matrix listing all test parameters” as one example) do not appear to have a direct link to the Deliverables. Is that an oversight or should they be linked to the Final Report, for instance.

Answer:

The proposal matrix requirement is expected to be a high level testing outline including applicable ranges of all key parameters of critical components, subsystems, and systems, to be tested and is required within the proposal submission.

12. Question:

Start-Stop Cycles: In Table 2, Desired Metrics, it is noted that 3 to 5 operational start-stop cycles are desired. Can you please state the duration of the Stop cycle?

Answer:

Refer to question number 9, Amendment 0001 to ONR BAA 11-016, published 20 April 2011.

13. Question:

In the BAA 11-016, Amendment 0001, which shows answers to contractor questions. Question number 17 asks about available space between the ribs of the UUV hull. The answer states that this inter-rib space is available for packaging of energy system components. Can you please define the details of these inter-rib spaces, OD, ID, rib spacing, rib thickness?

Answer:

This information will be provided to successful offerors during Phase I.

14. Question:

Section V, Evaluation Information, Paragraph 1, Ability to Meet Program Technical Metrics: The second sentence states three separate evaluation criteria as follows.

- a. Mature, substantiated, and quantitative understanding of the program technical objectives/metrics.

- b. Statistical Confidence with which they may be measured. This criterion is unclear. Can you please expand on or explain what “statistical confidence” refers to?
- c. Relationship to Concept of Operations that will result from successful performance in the program. Does “concept of operations” refer to the technical CONOPS for the UUV vehicle or the Power System or is it referring to the general multi-phase program plan? A technical CONOPS can be inferred from the data in Tables 1,2 and 3 but is inferred, not definitive. If this evaluation criterion is specifically associated with a technical CONOPS can you please provide a more definitive statement of that CONOPS?

Answer:

- b. “Statistical confidence” refers to the extent to which the proposal basis of information (data, testing analysis, etc) imparts confidence that the proposer can achieve program objectives.
- c. Refer to Section I, General Information Tables 1, 2, and 3 and figures 1 and 2 of ONR BAA 11-016.

15. Question:

Ship-board Handling Equipment: Power system refueling on the deployment vessel may require unique and potentially large or complex handling equipment. It is unclear if this is a subject of ONR BAA 11-016. Does ONR require under this BAA address of special handling equipment for performing operations such as refueling, reactant storage, etc? Would such equipment and operations be expected to be addressed in the safety and hazards analysis work and/or in address of the refueling time-line?

Answer:

Special handling equipment for performing operations such as refueling, reactant storage, etc, external to the energy section is beyond the scope of ONR BAA 11-016.

16. Question:

For ONR BAA 11-016, Long Endurance Undersea Vehicle Propulsion, Phase II. Do we need to provide a separate complete Cost Proposal spreadsheet, or is a high level estimation included in the technical part sufficient?

Answer:

Refer to question 8 of Amendment 0002 to BAA ONR 11-016 published 28 April 2011.

17. Question:

We understand that for Phase I base and Phase I Option, separate cost proposal spreadsheets need to be completed. Please confirm

Answer:

Yes. Refer to Section 6.2, page 3 of ONR BAA 11-016.

18. Question:

What are the mechanical design constraints on the panels or ports installed in the UUV hull? For example could a removable or hinged cover panel 30" long x ½ the UUV diameter be used to access the energy section of the UUV.

Answer:

The proposer should specify the mechanical design constraints/requirements on the refueling panels or ports for their approach.

19. Question:

Item 1 at the bottom of table 2 on page 7 of ONR BAA 11-016, states "refueling solutions that involve sectioning or disassembly of the UUV will not be considered" what is the definition of "sectioning", or "disassembly" in the context of this BAA?

Answer:

Refer to question 18 above. Refueling of the UUV energy section will occur when it is mated to other sections of the UUV and thus cannot be separated in any fashion. Refueling must occur through the available port in the UUV hull.

20. Question:

What is meant by "Energy Mass (KG) w/o hull & bulkhead" in table 1 on page 2 of ONR BAA 11-016? Is this the UUV hull & bulkhead?

Answer:

This is the energy mass without the UUV hull and bulkhead.

21. Question:

The operating depth is shown as 152.4M. Is having the hull of the UUV watertight in the energy bay an option, so the energy section would not see the pressure?

Answer:

Yes, having the hull of the UUV watertight in the energy bay would be an option.

22. Question:

Is having the hull of the UUV open to seawater in the energy section an option? The energy section would be under pressure at depth.

Answer:

Yes, having the hull of the UUV open to seawater in the energy section would be an option.

23. Question:

Is there a limit to the voltage used inside the energy section?

Answer:

No, there is no limit to the voltage used inside the energy section, as long as the proposal addresses the BAA metrics in Tables 1, 2 and 3 of ONR BAA 11-016.

24. Question:

On the “Desired Metrics” table on page 7:

- a. How are proposals evaluated if not all of the desired metrics are met?
- b. Are there things on the “Desired Metrics” table that absolutely must be met for a proposal to be considered?

Answer:

- a. Refer to Section V.1 of ONR BAA 11-016.
- b. Refer to Section 6.2, page 4 of ONR BAA 11-016

25. Question:

Concerning the Environmental Metrics:

- a. Do the systems or subsystems used to demonstrate Phase 1 base period performance need to pass the environmental tests identified in the Environmental metrics table? Or is a development plan sufficient for phase 1?
- b. Are there any electromagnetic signature requirements for the materials used in the energy section?
- c. Are there limitations on the selection of materials that can be used in the energy section as long as they conform to the safety and environmental requirement outlined in the BAA? For example is RoHS compliance required?
- d. Are mil spec materials required?

Answer:

- a. A development plan is sufficient for the environmental metrics for Phase I.
- b. There are no material limitations as long as the BAA requirements are met. Refer to Table 2 note 2 of ONR BAA 11-016.
- c. There are no material limitations as long as the BAA requirements are met. Refer to Table 2 note 2 of ONR BAA 11-016.
- d. Refer to Table 3 of ONR BAA 11-016.

26. Question:

Is there a size or weight limit to the ancillary equipment needed to provide the 1-2 hour refueling turnaround time?

Answer:

Refer to question 15 above.

27. Question:

Is the UUV energy section refueled prior to the first use, or does it need to be installed and ready to go? How long might it be between installation and first use?

Answer:

Refer to question 12 of Amendment 0001 to BAA ONR 11-016 published 20 April 2011.

28. Question:

How long is the projected time between refueling of the UUV and the next use of the UUV?

Answer:

Refer to question 12 Amendment 0001 to BAA ONR 11-016 published 20 April 2011.

29. Question:

Does the location of the center of gravity in the energy section matter?

Answer:

The center of gravity and center of buoyancy should be identified by the proposer and should be maintained during operation as close as possible with minimal variations.

30. Question:

Section 6.2: Is the UUV Energy Section hull that will be provided by ONR a pressure vessel that can withstand the 500 foot depth limit? (This hull is supposed to be provided for integration of the energy section developed by offerors.)

Answer:

Yes, that is an option.

31. Question:

Appendix A: We understand that when a time in the power profile has two power entries that this indicates a more or less instantaneous power transition from one level to another. But, what does it mean when one time entry has more than two power entries? Example times from the threshold power profile that have more than two power entries include times 5.1, 5.7, 6.5, 10.3, 12.2

Answer:

ONR BAA 11-016 Appendix A has been modified as shown below and reflects higher precision values but otherwise has no effect on mission profiles.

Threshold	
Time (H)	Power (W)
0	113
1	113
1	1436
2	1436
2	797
2.55	797
2.55	1436
3.25	1436
3.25	2126
3.55	2126
3.55	797
4.1	797
4.1	2126
5.07	2126
5.07	909
5.1	909
5.1	797
5.65	797
5.65	909
5.69	909
5.69	1328
6.45	1328
6.45	909
6.52	909
6.52	2126
6.65	2126
6.65	797
7.2	797
7.2	2126
8.2	2126
8.2	797
8.75	797
8.75	2126
8.89	2126
8.89	909
8.96	909
8.96	1328

Objective	
Time (H)	Power (W)
0	113
1	113
1	1535
2	1535
2	823
2.55	823
2.55	1535
3.25	1535
3.25	3825
3.55	3825
3.55	823
4.1	823
4.1	3825
5.07	3825
5.07	946
5.1	946
5.1	823
5.65	823
5.65	946
5.69	946
5.69	2932
6.45	2932
6.45	946
6.52	946
6.52	3825
6.65	3825
6.65	823
7.2	823
7.2	3825
8.2	3825
8.2	823
8.75	823
8.75	3825
8.89	3825
8.89	946
8.96	946
8.96	2932

9.72	1328
9.72	909
9.75	909
9.75	797
10.3	797
10.3	909
10.34	909
10.34	2126
11.3	2126
11.3	797
11.85	797
11.85	2126
12.15	2126
12.15	909
12.23	909
12.23	1328
12.85	1328
12.85	797
13.4	797
13.4	1328
13.54	1328
13.54	909
13.61	909
13.61	2126
14.4	2126
14.4	797
14.95	797
14.95	2126
15.42	2126
15.42	909
15.5	909
15.5	1328
15.95	1328
15.95	797
16.5	797
16.5	1328
16.81	1328
16.81	909
16.88	909
16.88	2126

9.72	2932
9.72	946
9.75	946
9.75	823
10.3	823
10.3	946
10.34	946
10.34	3825
11.3	3825
11.3	823
11.85	823
11.85	3825
12.15	3825
12.15	946
12.23	946
12.23	2932
12.85	2932
12.85	823
13.4	823
13.4	2932
13.54	2932
13.54	946
13.61	946
13.61	3825
14.4	3825
14.4	823
14.95	823
14.95	3825
15.42	3825
15.42	946
15.5	946
15.5	2932
15.95	2932
15.95	823
16.5	823
16.5	2932
16.81	2932
16.81	946
16.88	946
16.88	3825

17.5	2126
17.5	797
18.05	797
18.05	2126
18.69	2126
18.69	909
18.77	909
18.77	1328
19.05	1328
19.05	797
19.6	797
19.6	1328
20.08	1328
20.08	909
20.15	909
20.15	2126
20.6	2126
20.6	797
21.15	797
21.15	2126
21.96	2126
21.96	909
22.03	909
22.03	1328
22.15	1328
22.15	797
22.7	797
22.7	1328
23.34	1328
23.34	909
23.42	909
23.42	2126
23.7	2126
23.7	797
24.25	797
24.25	2126
25.23	2126
25.23	909
25.25	909
25.25	797

17.5	3825
17.5	823
18.05	823
18.05	3825
18.69	3825
18.69	946
18.77	946
18.77	2932
19.05	2932
19.05	823
19.6	823
19.6	2932
20.08	2932
20.08	946
20.15	946
20.15	3825
20.6	3825
20.6	823
21.15	823
21.15	3825
21.96	3825
21.96	946
22.03	946
22.03	2932
22.15	2932
22.15	823
22.7	823
22.7	2932
23.34	2932
23.34	946
23.42	946
23.42	3825
23.7	3825
23.7	823
24.25	823
24.25	3825
25.23	3825
25.23	946
25.25	946
25.25	823

25.8	797
25.8	909
25.85	909
25.85	1328
26.61	1328
26.61	638
26.8	638
26.8	797
27.35	797
27.35	638
28.16	638
28.16	113
29.16	113

25.8	823
25.8	946
25.85	946
25.85	2932
26.61	2932
26.61	642
26.8	642
26.8	823
27.35	823
27.35	642
28.16	642
28.16	113
29.16	113

32. Question:

Section 6.2: Will the UUV Energy Section hull be submerged in a water filled test tank during the land-based test?

Answer:

There is no requirement for submersion in a water filled test tank during land based testing as long as all BAA metrics are met at a TRL of 6 with hardware integrated into a UUV energy section hull.

33. Question:

Section 6.2 and Table 3: Does the energy section need to remain neutrally buoyant taking into account the temperature and salinity variations provided in the environmental requirements?

Answer:

Yes, the energy section would need to remain neutrally buoyant for a given set of environmental conditions ($\pm 5\%$)

34. Question:

Section 6.2: What is the tolerance value for the neutral buoyancy requirement? (e.g., $\pm 5\%$)

Answer:

The tolerance value for the neutral buoyancy requirement is $\pm 5\%$

35. Question:

Figures 1 and 2: We assume that the time needed for fuel cells to reach operating temperature occurs before the start of the threshold and objective power and energy profiles. Is this correct?

Answer:

Proposers should describe startup requirements and time frames in addition to any assumptions made.

36. Question:

Figures 1 and 2: We assume that shipboard or other outside power may be used to provide thermal energy to heat fuel cells to the proper operating temperature prior to starting endurance runs. Is this correct?

Answer:

Yes, that is an option.

37. Question:

Would you please clarify the page limit for the technical section excluding supplementary attachments? The Technical and Cost Template specifies up to 15 pages while the solicitation limits the technical section to 20 pages (page 16). Does this mean the technical section is limited to 15 pages plus five additional supplementary pages?

Answer:

The Technical Approach and Justification, Section III, item 1 is limited to a total of 20 pages, 6-15 pages as stated on the template and an additional 5 pages for attachments as stated in the BAA. The maximum number of pages for the Technical Approach and Justification is 20 pages.

We are having difficulties viewing files we attach on the template; are there any further instructions or a help desk for assistance.

Answer:

Attachments to the template should be in a pdf or word format. Please use the paper clip symbol located at the lower left hand corner of the template to attach documents. Please note that pictures, figures, and diagrams etc.,

should not be embedded within the text boxes contained in the template, but should be provided as a separate attachment.

38. Question:

Does the text in the images and tables in the attachments have to comply with the 12 pt. Times New Roman font requirement?

Answer:

The format requirements for any attachments to the *Technical and Cost Proposal Template* are as follows:

- Paper Size – 8.5 x 11 inch paper
- Margins – 1 inch
- Spacing – single or double spaced
- Font – Times New Roman, 12 point

Limited text associated with titling or identifying items in an image do not have to comply with the font requirement. Text for tables should follow the format requirements. However if the text contained within a table is from a secondary source which was not produced by the offeror and contains formatting which differs from the requirements above which cannot be modified, then so long as the information is in a format which is easily readable it may be submitted in a format that differs from the one stated above.