

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT	1. CONTRACT ID CODE	PAGE OF PAGES
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2. AMENDMENT/MODIFICATION NO.	3. EFFECTIVE DATE	4. REQUISITION/PURCHASE REQ. NO.	5. PROJECT NO. (If applicable)
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6. ISSUED BY CODE		7. ADMINISTERED BY (If other than Item 6) CODE	
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8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code)	(X)	9A. AMENDMENT OF SOLICITATION NO.
		9B. DATED (SEE ITEM 11)
		10A. MODIFICATION OF CONTRACT/ORDER NO.
		10B. DATED (SEE ITEM 11)
CODE		FACILITY CODE

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers is extended, is not extended. Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods:

(a) By completing items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment your desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

13. THIS ITEM ONLY APPLIES TO MODIFICATION OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

CHECK ONE	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.
	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
	D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor is not, is required to sign this document and return _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)	16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)
15B. CONTRACTOR/OFFEROR (Signature of person authorized to sign)	16B. UNITED STATES OF AMERICA (Signature of Contracting Officer)
15C. DATE SIGNED	16C. DATE SIGNED

CONTINUATION SHEET	REFERENCE NO. OF DOCUMENT BEING CONTINUED N65540-04-R-0021	PAGE 2 of 9
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1. This amendment is issued to respond to questions submitted by prospective offerors and to make changes to the solicitation.

Question 1: Solicitation, Offer and Award, Page 19 of 49. The “Inspection and packaging” paragraph refers to section “5” of the performance specification. This section addresses Installation Support Services. Section “7” of the performance specification refers to “Packaging and Cleaning.” We assume that section “7” is intended to be referenced in the Inspection and packaging.” Please verify.

Answer 1: The solicitation has been amended below to change the reference to “section 7.”

Question 2: Solicitation, Offer and Award, Page 19 of 49. The “Marking” subparagraph within “Marking and Packing List” states “(see 6.2). Please identify the appropriate document containing this the reference.

Answer 2: The solicitation has been amended below to change the reference to “see 7.2.”

Question 3: Solicitation, Offer and Award, Page 25 and 26 of 49. Please consider adding appropriate Federal Acquisition (FAR) and Defense FAR Supplement (DFAR) Progress Payment clauses for the Optional hardware items. The deliveries and anticipated dollar amounts seem to justify the addition of these clauses.

Answer 3: In lieu of progress payments the solicitation has been amended below to include FAR Clause 52.232-28, “Invitation to Propose Performance Based Payments (MAR 2000).”

Question 4: Performance Specification – Liquid Oxygen Production and Storage System, Page 4, Paragraph 3.1.1, Requirements: We understand that the pump and vaporizer controls are separate from the automatic controls on the production system (including tank level) and no link exists between the two sets of controls. The Pump and vaporizer shall have pressure switch and thermostatic control, otherwise manual operation similar to MIL-S-23639B storage and charging units. Please confirm this understanding.

Answer 4: Yes, this understanding is correct.

Question 5: Performance Specification – Liquid Oxygen Production and Storage System, Page 5, Paragraph 3.3.1.6, Cryogenic liquid loss – Apparently, an error exists in the allowable evaporation rate specified (0.05% per day). A multilaminar (superinsulated) tank in this size range with an allowable rate ten (10) times larger (i.e. 0.5%) may be possible but even then is a technical risk. Commercially available superinsulated tanks in the 250-gallon size range have evaporation rates of 0.62% to 1.1% per day. Please confirm or correct the specified evaporation rate.

Answer 5: The solicitation has been amended below to change the evaporation rate to 0.5-0.75% per 24 hours evaporation rate.

Question 6: Performance Specification – Liquid Oxygen Production and Storage System, Page 6, Paragraph 3.4.1, Electrical Power: Is the power required by the pump and vaporizer included in the average power? If so, what is the frequency of operation to be used in calculating average power?

Answer 6: Yes, the pump and vaporizer power is included and is to be used weekly for 30 minutes on average.

Question 7: Performance Specification – Liquid Oxygen Production and Storage System, Page 6, Paragraph 3.5.1 Dimensions and Weight:

- a. Are the size constraints based on the size of the location?
- b. Can the installation location be viewed by prospective offerors prior to proposal submission?

Answer 7:

- a. Yes, location size is the main factor.
- b. The location may not be viewed at this time due to ship non-availability.

Question 8: Performance Specification – Liquid Oxygen Production and Storage System, Page 7, Paragraph 3.6.1 Pitch, roll, and list: This paragraph implies that dynamic testing is required for the equipment to be rotated through the stated degrees for the stated periods.

- a. Is static testing at the designated angles acceptable for longer periods?
- b. If so, what longer period is acceptable?
- c. If static testing is not possible, please provide information concerning possible testing facilities capable of performing these tests on 11-ton units.

Answer 8:

- a. No, dynamic testing needs to be performed.
- b. Not applicable
- c. We are not aware of any government facilities with this equipment. However, some previous Liquid Oxygen/Nitrogen plant producers have built their own platforms for dynamic testing of their products.

Question 9: Performance Specification – Liquid Oxygen Production and Storage System, Page 8, Paragraph 3.7.3, Aluminum: We contemplate using an aluminum plate-fin heat exchanger in the cold box. Is it required to hard anodize the heat exchanger in the cold box if it is fabricated from aluminum alloy?

Answer 9: Yes, the heat exchanger is to be hard anodized in the cold box if it is fabricated from aluminum alloy.

Question 10: Performance Specification – Liquid Oxygen Production and Storage System, Page 9 Paragraph 3.9, Pressure/Vacuum Swing Adsorption unit: This paragraph requires 94% gaseous purity after the P/VSA unit. Does the Government intend for a sample port to be inserted between the gaseous and liquid side of the generation and storage system?

Answer 10: VSA shall be piped to analyzer, and a liquid sample shall be taken at the tank.

Question 11: Performance Specification – Liquid Oxygen Production and Storage System, Page 14 Paragraph 3.25, Sampler connection:

- a. Please provide copies of the following drawings listed in this paragraph: liquid sampling assembly (dwg 270271), shipping cylinder (dwg. 270270, case (dwg. 2702715), hose (dwg. 2702476), and adapter (dwg. 2702439).
- b. If copies are not available, please advise where they may be obtained.

Answer 11:

- a. Drawings will be provided at time of contract award, and are not needed presently. Accordingly, the solicitation is amended below to reflect this change.
- b. Not Applicable

Question 12: Performance Specification – Liquid Oxygen Production and Storage System, Page 18, Paragraph 4.6.1, Absorbent Material Testing – In the second sentence the words “breadboard test set-up” are used.

- a. Please verify that this phrase includes a mock-up or scale model of the design for testing.
- b. Does the absorbent material need to be operating during the test?
- c. How shall the absorbent material be tested after the shock test is performed in accordance with MIL-STD-901D?
- d. Will an air pressure test after this shock test suffice if no pulverized material is seen at the discharge?

Answer 12:

- a. This phrase includes a mock-up or scale model of the design for testing.
- b. Yes, the absorbent material needs to be operating during the test.
- c. The intent of this test is to verify whether or not the adsorbent material will perform in a shipboard environment. There is an intentional amount of freedom in this paragraph to allow the contractor to perform a test that is more suitable to their equipment and facilities. The procedures will be reviewed after a test plan is submitted.
- d. Air pressure test is not required unless it is a part of the adsorbent material testing; see c) above.

Question 13: Performance Specification – Liquid Oxygen Production and Storage System, Page 19, Paragraph 4.6.5, Hydrostatic testing: The first sentence states, in part: “the production and storage system shall be hydrostatically tested ... for a minimum of 30 minutes.” The industry standard for this of testing is 10 minutes. Is this industry standard time period acceptable?

Answer 13: No, 30-minute testing is required.

Question 14: Performance Specification – Liquid Oxygen Production and Storage System, Pages 19/20, Paragraph 4.6.6, Endurance Trials: We are unable to locate this paragraph elsewhere in the solicitation. Please clarify.

Answer 14: All the intended information on Endurance Trials is provided in Paragraph 4.6.6.

Question 15: Performance Specification – Liquid Oxygen Production and Storage System, Pages 19/20, Paragraph 4.6.6.1, Pitch, Roll, and List: Sentence 4 of paragraph 4.6.6 states, in part: “... the producer shall be operated for a minimum of 4 hours under each of the conditions listed in paragraphs 4.6.6.1 through 4.6.6.6.” Please clarify that the pitch, roll, and list test contained in paragraph 3.6.1 needs to be conducted for four hours.

Answer 15: Each of the following: pitch, roll, list shall be conducted for a minimum of four hours.

Question 16: Performance Specification – Liquid Oxygen Production and Storage System, Pages 20, Paragraph 4.6.6.2, Intake Air Contaminants: Sentence 4 of paragraph 4.6.6 states, in part: “... the producer shall be operated for a minimum of four hours under each of the conditions listed in paragraphs 4.6.6.1 through 4.6.6.6.”

- a. Paragraph 4.6.6.2 specifies a sample after one hour. Please verify that this test will be conducted for one hour.
- b. Please verify that a gas mixture of the items listed in 3.6.2 is acceptable for injection rather than independent injection of each gas for an hour.

Answer 16:

- a. Yes, this test will be conducted for one hour.
- b. Yes, the mixture is acceptable.

Question 17: Performance Specification – Liquid Oxygen Production and Storage System, Pages 20, Paragraph 4.6.6.3, Intake Air Pressure/PLC Thermal Testing: The first sentence states, in part, that the plant shall operate “continuously in the temp range...” Please verify that the plant can be operated at any temperature in the range of 40-122 F for four hours as indicated by paragraph 4.6.6.

Answer 17: We require testing on the producer operation at each upper and lower limit of temperature range for four hours to demonstrate producer ability to operate in the entire temperature range. Detailed instructions for PLC thermal testing are available in the publications listed in paragraph 4.6.6.3.

Question 18: Performance Specification – Liquid Oxygen Production and Storage System, Pages 20, Paragraph 4.6.6.4, Intake Air Pressure: The second sentence requires the plant to operate “continuously in the pressure range specified...” Please verify that the test may be run at any pressure within the specified range of 14-15 PSIA for four hours as indicated by paragraph 4.6.6.

Answer 18: The system is intended to operate at sea level to verify its ability to produce oxygen at pressures near sea level pressure of 14.7 psig.

Question 19: Performance Specification – Liquid Oxygen Production and Storage System, Pages 20, Paragraph 4.6.6.6, Operating cycle/demonstration:

- a. The first sentence states, in part: “System shall be operated as specified in paragraph 3.35.” Paragraph 3.35 refers to Reliability and Maintainability. Paragraph 3.36 refers to Operating Cycle. Please clarify.
- b. Paragraph 3.36 requires the plant to operate continuously for 10 days, shut down on the 11th day for 6 hours to defrost, restart after 6 hours, and run 10 more days for a total of 21 days. This time period is considerably longer than the four hours indicated in 4.6.6. Please clarify.

Answer 19:

- a. The solicitation has been amended below to change the reference to “3.36.”
- b. The requirements of paragraph 3.36 are correct.

Question 20: Performance Specification – Liquid Oxygen Production and Storage System, Pages 20, Paragraph 4.6.7, Quality Conformance Operational Demonstration Test:

- a. Please clarify that this paragraph requires each production plant to be submitted to the Pitch, Roll, and List test, as well as the contaminants test.
- b. Are these tests to be conducted throughout the 240-hour test? (Note: our experience indicates that these test are normally limited to first article testing)

Answer 20:

- a. Each subsequent unit, if an option is exercised by the Government, shall be tested as per paragraph 4.6.7.
- b. Yes, the intent is to prove that each subsequent unit is able to withstand conditions tested in paragraph 4.6.7. Other tests not listed in paragraph 4.6.7 will not be needed for subsequent units.

Question 21: Performance Specification – Liquid Oxygen Production and Storage System, Pages 24, Paragraph 8, Notes: This paragraph indicates that the contents are “general or explanatory” and are “not mandatory”. Yet, paragraph 8.5, Technical Manuals and 8.6, Technical Repair Standards (TRS) refer to specific CDRL items, specifically A021, A022, and A023. Please clarify.

Answer 21: CDRL items A021 and A022 are referred to in paragraph 3.38.3. Section 8 contains helpful information on the government-accepted format of the manual. CDRL item A023 is required. Accordingly, the title of section 8 is amended below to include the words “...unless required by CDRL.”

Question 22: Will contractor’s format be acceptable for the data items?

Answer 22: Yes, unless otherwise stated, the contractor’s format will be acceptable.

Question 23: CDRL A001, Engineering Drawings, Block 16.

- a. The language explaining block 5 refers to Performance Specification – 3.38.1. This paragraph refers to “DD Form 1423-1, Sequence No. L004” rather than A001. Sequence No. L004 requires Logistics Management

Information (LMI) Data Products and is delivered under CLIN 0001AR. Additionally, a reference to A001 within the Performance Specification could not be located. Apparently, an administrative oversight of some sort exists. Please clarify.

- b. The language for block 5 requires the contractor “to supply in advance flow schematics, and top level drawing to include overall dimensions and weight, center of gravity overall space, and foundation footprint, and all end connections required to mate shipboard, this includes electrical, water and vents, drains and liquid supply lines. The language also states that the “Remaining Drawing set should illustrate the system down to and including the lowest details. Typically the drawings should include consist of, but not be limited to the following: Outline drawings with complete bill of materials, installation drawings, process flow diagrams, wiring diagrams, piping arrangement (internal and external) should also shown the approximate location of all piping, valves, fittings, and components, valves, pressure relief devices, and pressure, temperature, flow, and liquid level indicators, ...”.

The preliminary drawings are due no later than 20 days after contract award. For a contractor to meet these requirements in this time frame, the drawing package will need to be virtually complete prior to contract award. Also, considerable liaison would have been necessary between the contractor and the Navy to identify drawing specifics for many details such as external piping arrangements and end connections. We suspect that only preliminary drawings including general layout, and flow schematics with performance specification are due within 20 days after contract award and that the complete drawing package described in this CDRL will be submitted shortly prior to the exercise of Optional CLIN 0002. Please clarify.

- c. Proprietary protection of Level III drawings is very important to the long-term success of many companies. Please verify that Level III drawings will not be required under the contract resulting form this solicitation.

Answer 23:

- a. The paragraph 3.38.1 of the performance specification shall refer to “DD Form 1423-1, Sequence No.A001.”
- b. Preliminary drawings, which, upon approval, shall be followed by more detailed drawings 60 days after contract award and is amended to reflect this change as indicated below.
- c. Level III drawings to be furnished shall be in accordance with DFARS Clause 252.227.7103, “Rights in Technical Data—Noncommercial Items,” which does not require offerors, either as a condition of being responsive to a solicitation or as a condition for award, to sell or otherwise relinquish to the Government any rights in technical data related to items, components or processes developed at private expense.

2. The following changes are made to the solicitation:

- a. On page 19 (Section D: Packaging and Marking):

Inspection of packaging

DELETE "...in accordance with the requirements of section 5..."

SUBSTITUTE "...in accordance with the requirements of section 7..."

Marking and Packing List, subparagraph "Marking"

DELETE "...any special marking required (see 6.2)..."

SUBSTITUTE "...any special marking required (see 7.2)..."

- b. Section L, Instructions, Conditions and Notices to Bidders of the Solicitation is amended to incorporate by reference FAR Clause 52.232-28, "Invitation to Propose Performance Based Payments (MAR 2000)." As part of any performance based payment proposal, offerors must identify specifically described events (milestones) or some other measurable criterion of performance together with the payment amount.

- c. Delivery Schedule provided as Attachment 1 is changed as follows:

CLIN No. A001AA, Sequence No. A0001, Within Days 60 DAC

- e. CLIN A001 provided as Exhibit A is changed as follows:

Under Block 12 and 13

DELETE "The remaining drawing package shall be submitted within 30-45 days after contract award."

SUBSTITUTE "The final drawing package shall be submitted within 60 days after contract award."

- f. Performance Specification provided as Attachment 2 is changed to part as follows

On Page 5, paragraph 3.3.1.6:

DELETE "The rate of vaporization losses from the storage tank shall not exceed 0.05% per day in a compartment with an ambient temperature of 80 degrees Fahrenheit."

SUBSTITUTE "The rate of vaporization losses from the storage tank shall not exceed 0.5-0.75% per 24 hours in a compartment with an ambient temperature of 80 degrees Fahrenheit."

On page 14, paragraph 3.25 is changed to read as follows:

3.25 **Sampler Connection.** To ensure sampler connectivity, the sample interface connection must be a 1/2 inch OD cres union 37-degree flare with cap and retainer chain and a 1/16 hole drilled in the cap to protect from overpressure. Refer to MIL-S-27626 for further descriptions. Further details and drawings referenced in MIL-S-27626 will be provided upon contract award, if so requested by the contractor. The system shall include

a minimum of two liquid sample connections, one on the liquefier and the other on the storage tank. A gas sample connection shall be supplied to the bulk purity analyzer. The design of the sample connection shall include all parts and accessories for connecting to a cryogenic vessel or analyzer and obtaining a representative sample of the liquid or gas.

On page 16, paragraph 3.38.1

DELETE "...in accordance with DD Form 1423-1, Sequence No. L004."

SUBSTITUTE "...in accordance with DD Form 1423-1, Sequence No. A001."

On Page 20, paragraph 4.6.6.6

DELETE "...system shall be operated as specified in paragraph 3.35..."

SUBSTITUTE "...system shall be operated as specified in paragraph 3.36..."

On page 24, paragraph 8, under title, "NOTES" is changed to read as follows:

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory unless required by CRDL.)