Procurement and Contract Services (PaCS)
Oregon State University, 644 SW 13th St, Corvallis, Oregon 97333-4238
T 541-737-4261 | F 541-737-2170 | http://pacs.oregonstate.edu/

Date: September 24, 2013

To Whom It May Concern:

Oregon State University (OSU) has been selected as the Implementing Organization for the Coastal and Global Scale Nodes (CGSN) part of the Ocean Observatories Initiative (OOI). OOI is a National Science Foundation funded project to build and maintain ocean observatories for sustained presence at multiple sites. CGSN is one part of the OOI system of systems.

OSU works with partners Woods Hole Oceanographic Institution (WHOI), Scripps Institution of Oceanography, and the University of Washington to form the implementing team. We are soliciting proposals for procurement of a Portable Heavy Lift Marine Winch (Winch). The award will include design of the Winch, most likely from an existing design, and will result in a Firm Fixed Cost.

The NSF funding is specifically defined as part of Major Research Equipment and Facility Construction (MREFC) and Research and Related Activities (R&RA).

The attached Request for Proposal (RFP) solicitation package defines the scope of work, the schedule for the work as well as the schedule and scope of the proposal. Important dates are listed in the solicitation package as well as contact information. Pay close attention to the dates as questions or proposals submitted after the indicated dates cannot be considered.

On behalf of the entire CGSN team, I thank you in advance for your time and consideration. The review team looks forward to reading your response.

Sincerely,

James Figgins
Purchasing Analyst III/Contracting Officer
Oregon State University

OREGON STATE UNIVERSITY
REQUEST FOR PROPOSAL
#JF165919P PORTABLE HEAVY DUTY MARINE WINCH

Date: September 24, 2013 Purchase Order Number: TBD

ISSUED BY:
State of Oregon acting by and through
the State Board of Higher Education
on behalf of Oregon State University

CONTRACTOR:
TBD

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The Contractor agrees to furnish and deliver all items or perform all the services set forth or otherwise identified above for consideration stated herein. The State of Oregon acting by and through the State Board of Higher Education on behalf of Oregon State University (OSU) agrees to pay the Contractor for the items and services provided by the Contractor as set forth or otherwise identified herein. The rights and obligation of the parties to this solicitation shall be subject to and governed by the following documents: (a) this solicitation, and (b) such provisions, representations, certifications and specifications as are attached or incorporated by reference herein.

Section A. RFP General Information

Oregon State University (OSU) with funding from the National Science Foundation (NSF) is soliciting proposals from qualified organizations interested in providing a Portable Heavy Lift Marine Winch (Winch) to support the research and scientific objectives of the Ocean Observatories Initiative (OOI). The OOI will construct a networked infrastructure of oceanic sensor systems to measure physical, chemical, geological, and biological variables in the ocean and seafloor. The measurement of conductivity, temperature, depth, dissolved oxygen, fluorescence, optical backscatter, axis point velocity and photo-synthetically active radiation is vital to our understanding of many of the crucial scientific questions to which the OOI may provide answers. This equipment will aide in the placement and retrieval of various research equipment.

The purpose of this Request for Proposal (RFP) is to select an Offeror who will provide the Winch needed as described in Section C and in accordance with the specifications stated in Attachment #1 titled "Technical Specification ver 2-06".

OSU intends to award a Purchase Order (PO), following issuance of the Intent to Award period of three days, to the Offeror who, in the judgment of OSU as described in Sections L and M of this document, will provide the best value.

The RFP addresses all of the specifics associated with this award. Special attention should be paid to Section L, Instructions for Proposal, and Section M, Evaluation Factors for Award.

This RFP does not obligate OSU to award a Purchase Order nor does it commit OSU to pay for any costs incurred by Offerors in the preparation and/or submission of proposals.

A.1. Issuing Office/Proposal Due Date

OSU is the only point of contact for this procurement. All communications between Offerors and OSU regarding this RFP shall be through OSU's designated Points of Contact (POC), please include both in your correspondence:

ATTN: James Figgins	Alternate: Shannon Fanuourakis
Purchasing Analyst III/Contracting Officer	Purchasing Analyst III
644 SW 13th Street, Corvallis, OR 97333	644 SW 13th Street, Corvallis, OR 97333
PH: (541) 737-6995	PH: (541) 737-3572
Fax: (541) 737-2170	Fax: (541) 737-2170
james.figgins@oregonstate.edu	Shannon.Fanuourakis@oregonstate.edu

Any questions related to this RFP should be emailed to the POC identified above by **4:00 PM PT, October 4, 2013** and include "Portable Heavy Lift Winch Questions" in the subject line. Questions will not be accepted after this date. The POC will respond by issuing an Addendum to this RFP to answer your questions. Only documents issued as written Addenda by the POC serve to change the Request for Proposal in any way. No other direction received by the Proposer, written or verbal, serves to change the Request for Proposal. The POC will notify potential Proposers through publication of the Addenda on the Oregon University System (OUS) procurement website at https://secure.ous.edu/bid/. If you have received a Request for Proposal you should consult the OUS procurement website, prior to Proposal submittal, to assure that you have not missed any Addenda. Proposers are not required to return Addenda with their Proposal. However, Proposers are responsible for obtaining and incorporating any changes made by the Addendum into their Proposal. Failure to do so may, in effect, make the Proposal non-Responsive, which may cause the Proposal to be rejected.

Offerors shall provide a proposal no later than 3:00 PM PT, October 21, 2013 in accordance with the General Proposal Instructions identified in Section L. Proposals must be submitted in a sealed envelope/package and be delivered to the POC listed above no later than the Proposal Due Date and Time. Proposer must specify on the outside of the envelope the Request for Proposal number, the Request for Proposal title and the Proposal Due Date and Time. E-MAIL OR FACSIMILE PROPOSALS WILL NOT BE ACCEPTED.

A.2. Proposal Conformance Checklist

The Offeror should complete the Proposal Conformance Checklist referenced in Section J, included as Attachment #2 to this RFP and submit it together with the proposal.

(End of Section A)

Section B. Supplies and Services

The Contractor shall deliver a Winch, inclusive of all materials, operating and supporting documentation, training, and perform the described services under this contract.

B.1. Price/Cost Table (Contract Line Items – Offerors to complete and submit as part of proposal)

Winch (1ea)	**Labor**	**Materials**	**Total Cost**
Development/ Engineering			
Production/ Manufacturing			
Factory Acceptance Test (FAT)			
Site Acceptance Test (SAT)			
Total Costs			

B.2. Contract Type Summary for Payment Office (Cost Type)
The contract type is in accordance with Federal Acquisition Regulation (FAR) 16.202, Firm Fixed Price.

B.3. Contract Funding
OSU is not obligated to reimburse the Contractor for costs incurred in excess of the total amount allotted in this contract. Contractor shall not incur costs in excess of the amount allotted in the contract unless the contract is modified through a written amendment increasing the amount and executed by authorized representatives of both parties.

For purposes of payment of cost and pursuant to FAR Clause 52. 232-22 "Limitation of Funds" which covers the manufacturing and delivery of the Winch. This amount shall be adjusted bywritten amendment from OSU in accordance with the Limitation of Funds Clause if OSU exercises the right to fund the Contractor for additional functionality or additional units.

Upon issuance of the PO, the Contractor certifies that it has an accounting system established that is adequate for tracking costs applicable to the contract and is capable of segregation of funds; that Contractor will comply with the applicable or governing rules for expenditures of federal funds; and, that the Contractor shall comply with FAR Subpart 31.2 for the allowability of costs.

Bid, Performance and Payment Bonds are not required for this RFP or contract.

(End of Section B)

Section C. Statement of Work

C.1. General

C.1.1. Ocean Observatories Initiative (OOI) Overview

Although the ocean is central to the habitability of our planet, it is largely unexplored. Biological, chemical, physical, and geological processes interact in complex ways in the ocean, at the seafloor, and at the air-sea interface. Our ability to learn more about these processes is severely limited by technical infrastructure and developing a more fundamental scientific understanding of these relationships requires new and transformational approaches to ocean observation and experimentation.

The Ocean Observatories Initiative (OOI) will lay the foundation for future ocean science observations. OOI will enable powerful new scientific approaches by transforming the ocean community's focus from expedition-based data gathering to persistent, controllable observations from a suite of interconnected sensors. The OOI's networked sensor grid will collect ocean and seafloor data at high sampling rates over years to decades. Researchers will make simultaneous, interdisciplinary measurements to investigate a spectrum of phenomena including episodic, short-lived events (tectonic, volcanic, oceanographic, biological, and meteorological), and more subtle, longer-term changes and emergent phenomena in ocean systems (circulation patterns, climate change, ocean acidity, and ecosystem trends).

The Winch will be used in the multiple placements and retrieval of this interconnected equipment.

A more detailed discussion of the Oceans Observatories Initiative can be found in the OOI Final Network Design available on the OOI website at http://www.oceanobservatories.org/.

C.2. Statement of Work (SOW)

C.2.1. Document Scope and Purpose

This Statement of Work (SOW) defines the required activities (e.g., meetings, updates to schedule, modifications, CDRLs) that the Contractor must perform to support delivery of the Winch described in this SOW and applicable Attachments referenced in Section J of this RFP. The Contractor shall furnish all personnel, materials, services, and facilities necessary to perform all requirements set forth in this SOW.

The SOW is to provide one oceangoing, portable heavy lift winch to be used as a spooler to lower and recover oceanographic moorings. The winch must be capable of delivering a line pull of 25,000 Lbf using synthetic lines ranging from 3/8 to 3/4" diameter. The winch will support the field operations of the NSF-funded Ocean Observatories Initiative (OOI) and will be used aboard a range of UNOLS vessels for a minimum of 25 years in the deployment and recovery of moorings. The winch operations will typically use an A-frame or a marine crane to support the over-boarding sheave. The primary tension members spooled by the winch will be of a synthetic, soft line type. While the initial use will primarily serve OOI moorings in the NE Pacific, the winch will be maintained as part of the UNOLS Winch Pool and could eventually serve operations throughout the oceanographic community. The first use of the winch is currently scheduled for April 2014, off Newport, OR.

Proposal shall include Respondent's timeline in Gantt chart format for production of this winch. At minimum, timeline shall explicitly indicate durations and relative timing of the following milestone tasks after receipt of order:

- Kickoff meeting (may be in teleconference format)
- Respondent engineering effort
- Respondent design reviews with OSU and OOI (production readiness).
- Material procurement
- Fabrication
- Factory Acceptance Test (FAT)
- Shipping to OSU
- Successful Site Acceptance Test (SAT) after installation and sea-trial on the R/V Oceanus

C.2.2. Development

OSU's expectation is that the manufacturer will begin work from an existing off-the-shelf design and modify to meet the specifications stated in this RFP. The engineering required to support the modifications would be incorporated in this costing, as well as the cost to demonstrate that the winch meets the stated specifications. A Design Verification Report and review will be required and accepted by OSU prior to the beginning of manufacturing. It should include drawings and demonstrate how the winch meets the specifications (review the compliance matrix). Updates to the production, test, and delivery plan will also be reviewed.

C.2.3. Quality Objectives

In performing Contractor's specific duties, in support of this Contract, Contractor will be required to plan for and demonstrate continuing progress in the following areas:
a. Ensuring that the Operations and Maintenance requirements meet the long-term service life and routine maintenance protocols of other marine winches used in oceanographic research.
b. Responding to the UNOLS operators by providing a mechanism for questions, answers and communicating installation and servicing.
c. Using effective performance measures or performance metrics.
d. Continuing to improve the representation of women and underrepresented minorities in the workforce.
e. Enhancing the capabilities of its technical, financial and project management systems to support operations & maintenance.

(End of Section C)

Section D. Packaging and Markings

D.1.
Except as specifically described in this contract, all materials and data shall be prepared for shipment in accordance with best commercial practice. The Winch must be shipped by normal domestic carriers using a standard flat rack mount. The winch should be shippable without a contractor provided container.

Packaging and Packing: Data (e.g. reports, invoices, certifications) shall be prepared for delivery in such a manner as to insure that the required information is protected against deterioration, physical damage, or loss during shipment from the Contractor to OSU. Documents shall be prepared for shipment in such a manner to ensure that the materials will not be damaged during shipment.

(End of Section D)

Section E. Inspection and Acceptance

E.1. Place of Inspection and Acceptance

Development completion will require a Design Verification Report showing how and the extent to which the end item meets the requirements as stated in section C.2.2.

Contractor will particpate in the Factory Acceptance Test (FAT) and the Site Acceptance Test (SAT) along with participants from OSU, OOI, and UNOLS-RVOC.

Winch will be delivered, on or before **March 28, 2014**, to the address listed below for the SAT.

Hatfield Marine Science Center
2030 SE Marine Science Drive
Newport, Oregon 97365

E.2. Clauses Incorporated by Reference

FAR Source	Title and Date
52.246-2	Inspection of Supplies – Fixed Cost (Apr 1984)
52.246-16	Responsibility for Supplies (Apr 1984)

(End of Section E)

Section F. Deliveries or Performance

F.1. Requirements

Unless otherwise specified in any order, the supplies to be furnished by the Contractor shall be delivered F.O.B. destination unless otherwise authorized by the Contracting Officer. The method of shipment will be specified in writing by the cognizant contract administration office when the supplies are ready for shipment.

F.2. Clauses Incorporated by Reference

FAR Source	Title and Date
52.242-15	Stop-Work Order (Aug 1989)
52.247-58	Loading, Block and Bracing of Freight Car Shipments (Apr 1984)

F.3. Period of Performance

The period of performance of this contract shall commence on the date of the award and expires upon delivery and acceptance by OSU of the Winch.

(End of Section F)

Section G. Contract Administration

G.1. Ordering:

All equipment to be furnished under this contract shall be ordered by issuance of Purchase Order (PO) by OSU. All POs are subject to the terms and conditions of this contract. In the event of conflict between the PO and this RFP, the language of the RFP shall control. Orders may be issued by mail, fax or by e-mail.

G.2. Invoice and Payment Information

All PO invoices issued and payments made shall be made in accordance with the directions provided in each PO, including percentage of payment authorized at time of PO issuance and balance of payment due at time of PO item acceptance.

There shall be no invoice items labeled as "miscellaneous", "other" or any other vague terminology. Every amount charged must be accounted for with a detailed description. Unexplained extraneous invoice charges will not be paid.

OSU payment terms are Net 30 from receipt of goods or a properly completed invoice, whichever is later. OSU will not process invoices for payment, and the period of computation for discounts or late fees will not commence, until OSU receives a properly completed invoice or receives and accepts the invoiced items, whichever is later.

If an adjustment in payment is necessary due to damage or dispute, the period for discounts or late fees shall commence on the date final approval for payment is authorized. If OSU fails to make a timely payment, Contractor may invoice for a maximum of 2/3 of 1% per month on the amount overdue pursuant to ORS 293.462.

1) The Contractor shall submit monthly original invoices (in duplicate) to:
   Attn: Pei Kupperman
   CEOAS
   Oregon State University
   Ocean Admin Bldg 104
   Corvallis, OR 97331-5503
   541-737-2725 (voice); 541-737-2064 (fax); pkupperm@coas.oregonstate.edu

2) Invoice must include:
   a) Name and address of Contractor
   b) Contractor's DUNS #
   c) Invoice date and number
   d) Contract/Purchase Order number
   e) Description, quantity, unit of measure and unit price
   f) Terms of any discount for prompt payment
   g) Name and contact information of person to notify in event of defective invoice
   h) Costs delineated by CLIN and sub-CLIN

G.3. Method of Payment

Payments made under this contract may be made either by check, electronic funds transfer (EFT), Automated Clearing House (ACH).

G.4. OSU Representatives

Contracting Officer
James Figgins
Procurement and Contract Services
Oregon State University
644 SW 13th Street
Corvallis, OR 97333

Contracting Officer's Technical Representative (COTR)
Ed Dever
Professor, OOI Chief Systems Engineer.
Oregon State University – College of Earth Oceanic and Atmospheric Sciences
Corvallis, OR 97331-5503

Contract Project Manager
Robert Collier, OOI Project Manager
Professor
Oregon State University – College of Earth Oceanic and Atmospheric Sciences
Corvallis, OR 97331-5503

(End of Section G)

Section H. Special Contract Requirements

H.1. Indemnification

Contractor shall indemnify, defend, and hold harmless OSU, NSF, Ocean Leadership and their respective members, directors, trustees, officers, and employees, against any and all claims, suits, legal actions, expenses, loss, and damage of any kind to person or property, arising out of or resulting from the use of the goods delivered under this contract, including but not limited to litigation costs and attorneys' fees.

H.2. Arbitration

Each of the parties hereto agrees that any litigation with respect to this contract shall be only to initiate arbitration. Arbitration shall be governed in accordance with the Commercial Rules of the American Arbitration Association and the Federal Arbitration Act. Not withstanding any provision of the Rules of the American Arbitration Association and the Federal Arbitration Act, the parties agree that the arbitrators cannot award exemplary or punitive damages. The arbitration award shall be enforceable by the courts having competent jurisdiction.

H.3. Limitation of Damages

Under no circumstances shall OSU, NSF, or the Consortium for Ocean Leadership ("Ocean Leadership") be liable to the Contractor for any consequential damages, lost profits, delay damages, or other forms of damages beyond payment of units/services ordered.

H.4. Liability

None of the following, OSU, NSF, or Ocean Leadership, can assume any liability for accidents, illnesses, injuries, or claims arising out of, or related to, any activities supported by this contract or for unauthorized use of patented or copyrighted materials. The Contractor is advised to take such steps as may be deemed necessary to insure or protect itself, its employees, and its property.

H.5. Liability Insurance

The Contractor shall be responsible for securing all necessary and applicable insurance coverage.

For the period of performance of the Contract and any extension thereof, Contractor shall purchase from and maintain in a company or companies lawfully authorized to do business in the jurisdictions in which Contractor is performing any part of the work such insurance as will protect OSU and Consortium for Ocean Leadership, Inc. as additional insured from claims set forth below which may arise out of or result from the performance of the work under the Contract and for which Contractor may be legally liable, whether such performance be by Contractor or by a lower tier subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

1. Claims under workers' compensation, disability benefit and other similar employee benefit acts that are applicable to the Work to be performed;
2. Claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;
3. Claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;
4. Claims for damages insured by usual personal injury liability coverage;
5. Claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom;
6. Claims for damages because of bodily injury, death of a person, or property damage arising out of ownership, maintenance or use of a motor vehicle or watercraft;

7. Claims for bodily injury or property damage arising out of completed operations; and
8. Claims involving contractual liability applicable to the Contractor's indemnification obligations to OSU.

Certificates of insurance acceptable to OSU shall be filed with OSU upon request. These certificates and the insurance policies required by this Section shall contain a provision that coverages afforded under the policies will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to OSU.

Contractor shall require all lower tier subcontractors to name Consortium for Ocean Leadership, Inc. as an additional insured on liability insurance policies in an amount acceptable to Consortium for Ocean Leadership, Inc.

H.6. Property Insurance

In accordance with 2 CFR 215.31, Contractor shall, at a minimum, provide the equivalent insurance coverage for real property and equipment acquired with NSF funds as provided to property owned by the Contractor. Contractor shall name Consortium for Ocean Leadership, Inc. as an additional in insured on property insurance (as its interest shall appear) policies and shall cause all subcontractors to name Consortium for Ocean Leadership, Inc. as an additional in insured on property insurance (as its interest shall appear) policies.

H.7. Suits/Claims Against Contractor

The Contractor shall give OSU's CO immediate notice in writing of any action or suit filed and prompt notice of any claim made against the Contractor which in the opinion of the Contractor may result in litigation.

H.8. Notice and Assistance Regarding Patent and Copyright Infringement

1. The Contractor shall report to OSU's CO, promptly and in reasonable written detail, each notice or claim of patent or copyright infringement based on the performance of this contract of which the Contractor has knowledge.
2. In the event of any claim or suit against OSU on account of any alleged patent or copyright infringement arising out of the performance of this contract or out of the use of any supplies furnished or work or services performed under this contract, the Contractor shall furnish to OSU, when requested by the CO, all evidence and information in the Contractor's possession pertaining to such claim or suit.
3. The Contractor shall include the substance of this clause, including this paragraph (c), in all subcontracts that are expected to exceed $150,000.
4. The Contractor shall indemnify OSU, NSF, or Ocean Leadership and its officers, employees and agents against liability, including costs, for actual or alleged direct or contributory infringement of, or inducement to infringe, any United States or foreign patent, trademark or copyright, arising out of the performance of this contract, provided the Contractor is reasonably notified of such claims and proceedings.

H.9. Provisions Regarding use of Data and Information

H.9.1. Limitations on Use

All of the a Winch operational data acquired by OSU shall be available for unrestricted dissemination and use in connection with the operation and use of the Winch by OSU, Ocean Leadership, or NSF, and the licensees or assigns of the foregoing. To the extent Contractor anticipates that it will be necessary to disclose proprietary Winch or system information proprietary data pursuant to nondisclosure restrictions, the nature of such data must be specifically identified in the Contract along with the reason for the

imposition of non-disclosure restrictions, and the proposed terms and conditions of any proposed non-disclosure restrictions. The parties shall not use, disclose or reproduce proprietary data that bears a restrictive legend, other than as required in the performance of this contract. This obligation shall not apply to information which (a) was in the receiving party's possession prior to receipt of the disclosed information; (b) is or becomes a matter of public knowledge through no fault of the receiving party; (c) is received from a third party without a duty of confidentiality; (d) is independently developed by the receiving party; (e) is disclosed under operation of law, provided that the disclosing party is provided reasonable notice and opportunity to contest the need for such disclosure, or to seek a protective order therefore.

The Contractor shall provide the OSU COTR with a copy of any proposed publication resulting from work performed pursuant to this contract at least thirty (30) days prior to submission for publication. OSU shall have twenty (20) business days to review and nothing herein shall preclude the use of any data independently acquired by the Contractor without such limitations or prohibit an agreement at no cost to OSU between the Contractor and the data owner which provides for greater rights to the Contractor.

H.9.2. Rights in Data Necessary for the Procurement, Operation, and Management of the OOI

1. The Contractor grants to OSU, Ocean Leadership and the NSF in perpetuity the right to use all data delivered under the Contract, without charge or additional expense (except for whatever reasonable costs are incurred by Contractor to reproduce the data) as necessary for the design, fabrication, integration, installation, operation, and management of the OOI. This includes the right to make such data available to any party interested in competing for any subsequent award to operate and manage the OOI and any Contractors the NSF selects as a result of these competitions. If Contractor includes any third-party data used under license (including, without limitation, any third-party software and documentation related thereto) in the deliverables, it shall identify such data in the Contract together with a warranty that it has the right to grant and does grant to OSU, NSF and Ocean Leadership the irrevocable, non-exclusive, perpetual, worldwide, fully paid license, with rights to utilize such data, including, without limitation, software, tools, or other technology and all associated intellectual property rights that may be embedded in or associated with the deliverables without restriction, in the operation and use of the CSPP, together with the right to assign and/or sublicense such rights without restriction including, without limitation, to OSU, NSF and Ocean Leadership, and/or any other successor Contractor operating and managing the OOI.

2. The types and kinds of data deemed necessary for the design, fabrication, integration, installation, operation, and management of the OOI includes, but is not limited to:
   a. Maintenance guides and histories
   b. Operating manuals and similar plans
   c. User manuals and similar documents
   d. Facility and instrument drawings (including design, shop and as-built drawings),designs, and specifications
   e. Schematics
   f. Warranty data
   g. Schedules
   h. Software
   i. Inventories
   j. Document indexes
   k. Contracts, Lower Tier Awards, and vendor agreements (these items will be assessed by OSU and the Contractor for the presence of any proprietary data prior to their release to a third party)
   l. Operations reports

Rights acquired by OSU, Ocean Leadership and the NSF under this Section H-9.2 do not include rights to any data first produced solely for scientific research purchases. Licenses to use data not first produced under this Contract, including, without limitation, any third-party software, shall be identified in the Contract, and Contractor shall grant to OSU, NSF and Ocean Leadership an irrevocable, non-exclusive, perpetual, worldwide, fully paid-up license to utilize all such data, including any and all software, tools or other technology that may be embedded in the Winch or otherwise provided to OSU, NSF or Ocean Leadership in connection with the Winch, without restriction in the operation and use of the Winch OSU may assign or sublicense any or all of its rights to operate the CSPP, including, without limitation, to any successor Contractor operating and managing the OOI. For the avoidance of doubt, neither Contractor nor its licensors shall have any rights in or to data generated by or through the use of the Winch by OSU, Ocean Leadership, NSF, OSUs, or the licensees or assigns.

H.9.3. Patent Rights

Unless otherwise provided in the contract, if this award is for experimental, developmental, or research work, the following clause (implementing the Bayh-Dole Act, [35 U.S.C. § 200 et seq.]) shall apply. The awardee shall include this clause in all subawards for experimental, developmental, or research activities.

a. Definitions:

1. INVENTION means any invention or discovery which is or may be patentable or otherwise protectable under Title 35 of the USC, to any novel variety of plant which is or may be protected under the Plant Variety Protection Act (7 U.S.C. § 2321 et seq.).

2. SUBJECT INVENTION means any invention of the awardee conceived or first actually reduced to practice in the performance of work under this award, provided that in the case of a variety of plant, the date of determination (as defined in section 41(d)) must also occur during the period of performance.

3. PRACTICAL APPLICATION means to manufacture in the case of a composition or product, to practice in the case of a process or method, or to operate in the case of a machine or system; and, in each case, under such conditions as to establish that the invention is being utilized and that its benefits are to the extent permitted by law or Government regulations available to the public on reasonable terms.
4. MADE when used in relation to any invention means the conception or first actual reduction to practice of such invention.

5. NON-PROFIT ORGANIZATION means a domestic university or other institution of higher education or an organization of the type described in Section 501(c)(3) of the Internal Revenue Code of 1954 (26 U.S.C. § 501(c)) and exempt from taxation under Section 501(a) of the Internal Revenue Code (26 U.S.C. § 501(a)) or any domestic non-profit scientific or educational organization qualified under a State non-profit organization statute.

b. Allocation of Principal Rights:

The awardee may retain the entire right, title, and interest throughout the world to each subject invention subject to the provisions of this Patent Rights clause and 35 U.S.C. Part 203. With respect to any subject invention in which the awardee retains title, the Federal Government shall have a non-exclusive, nontransferable, irrevocable, paid-up license to practice or have practiced for or on behalf of the U.S. the subject invention throughout the world. If the award indicates it is subject to an identified international agreement or treaty, the National Science Foundation (NSF) also has the right to direct the awardee to

convey to any foreign participant such patent rights to subject inventions as are required to comply with that agreement or treaty.

c. Invention Disclosure, Election of Title and Filing of Patent Applications by Awardee:

1. The awardee will disclose each subject invention to NSF within two months after the inventor discloses it in writing to awardee personnel responsible for the administration of patent matters. The disclosure to NSF shall be in the form of a written report and shall identify the award under which the invention was made and the inventor(s). It shall be sufficiently complete in technical detail to convey a clear understanding of the nature, purpose, operation, and, to the extent known, the physical, chemical, biological or electrical characteristics of the invention. The disclosure shall also identify any publication, on sale or public use of the invention and whether a manuscript describing the invention has been submitted for publication and, if so, whether it has been accepted for publication at the time of disclosure. In addition, after disclosure to NSF, the awardee will promptly notify NSF of the acceptance of any manuscript describing the invention for publication or of any on sale or public use planned by the awardee.

2. The awardee will elect in writing whether or not to retain title to any such invention by notifying NSF within two years of disclosure to NSF. However, in any case where publication, on sale, or public use has initiated the one-year statutory period wherein valid patent protection can still be obtained in the U.S., the period for election of title may be shortened by NSF to a date that is no more than 60 days prior to the end of the statutory period.

3. The awardee will file its initial patent application on an invention to which it elects to retain title within one year after election of title or, if earlier, prior to the end of any statutory period wherein valid patent protection can be obtained in the U.S. after a publication, on sale, or public use. The awardee will file patent applications in additional countries or international patent offices within either ten months of the corresponding initial patent application, or six months from the date when permission is awarded by the Commissioner of Patents and Trademarks to file foreign patent applications when such filing has been prohibited by a Secrecy Order.

4. Requests for extension of the time for disclosure to NSF, election, and filing under subparagraphs 1., 2., and 3. may, at the discretion of NSF, be awarded.

d. Conditions When the Government May Obtain Title:

The awardee will convey to NSF, upon written request, title to any subject invention:

1. if the awardee fails to disclose or elect the subject invention within the times specified in paragraph c. above, or elects not to retain title; provided that NSF may only request title within 60 days after learning of the failure of the awardee to disclose or elect within the specified times;

2. in those countries in which the awardee fails to file patent applications within the times specified in paragraph c. above, but prior to its receipt of the written request of NSF, the awardee shall continue to retain title in that country; or

3. in any country in which the awardee decides not to continue the prosecution of any application for, to pay the maintenance fees on, or defend in a reexamination or opposition proceeding on, a patent on a subject invention.

e. Minimum Rights to Awardee:

1. The awardee will retain a non-exclusive royalty-free license throughout the world in each subject invention to which the Government obtains title, except if the awardee fails to disclose the subject invention within the times specified in paragraph c. above. The awardee's license extends to its domestic subsidiaries and affiliates, if any, within the corporate structure of which the awardee is a party and includes the right to award sublicenses of the same scope to the extent the awardee was legally obligated to do so at the time the award was made. The license is transferable only with the approval of NSF except when transferred to the successor of that part of the awardee's business to which the invention pertains.

2. The awardee's domestic license may be revoked or modified by NSF to the extent necessary to achieve expeditious practical application of the subject invention pursuant to an application for an exclusive license submitted in accordance with applicable provisions at 37 CFR Part 404. This license will not be revoked in that field of use or the geographical areas in which the awardee has achieved practical application and continues to make the benefits of the invention reasonably accessible to the public. The license in any foreign country may be revoked or modified at discretion of NSF to the extent the awardee, its licensees, or its domestic subsidiaries or affiliates have failed to achieve practical application in that foreign country.

3. Before revocation or modification of the license, NSF will furnish the awardee a written notice of its intention to revoke or modify the license, and the awardee will be allowed thirty days (or such other time as may be authorized by NSF for good cause shown by the awardee) after the notice to show cause why the license should not be revoked or modified. The awardee has the right to appeal, in accordance with applicable regulations in 37 CFR Part 404 concerning the licensing of Government-owned inventions, any decision concerning the revocation or modification of its license.

f. Awardee Action to Protect Government's Interest:

1. The awardee agrees to execute or to have executed and promptly deliver to NSF all instruments necessary to: (i) establish or confirm the rights the Government has throughout the world in those subject inventions for which the awardee retains title; and (ii) convey title to NSF when requested under paragraph d. above, and to enable the Government to obtain patent protection throughout the world in that subject invention.

2. The awardee agrees to require, by written agreement, its employees, other than clerical and non-technical employees, to disclose promptly in writing to personnel identified as responsible for the administration of patent matters and in a format suggested by the awardee each subject invention made under this award in order that the awardee can comply with the disclosure provisions of paragraph c. above, and to execute all papers necessary to file patent applications on subject inventions and to establish the Government's rights in the subject inventions. The disclosure format should require, as a minimum, the information requested by paragraph c.1. above. The awardee shall instruct such employees through the employee agreements or other suitable educational programs on the importance of reporting inventions in sufficient time to permit the filing of patent applications prior to U.S. or foreign statutory bars.

3. The awardee will notify NSF of any decision not to continue prosecution of a patent application, pay maintenance fees, or defend in a reexamination or opposition proceeding on a patent, in any country, not less than 30 days before the expiration of the response period required by the relevant patent office.

4. The awardee agrees to include, within the specification of any U.S. patent application and any patent issuing thereon covering a subject invention, the following statement: "This invention was made with Government support under (identify the award) awarded by the National Science Foundation. The Government has certain rights in this invention."

5. The awardee or its representative will complete, execute and forward to NSF a confirmation of a License to the U.S. Government and the page of a United States patent application that contains the Federal support clause within two months of filing any domestic or foreign patent application.

g. Subcontracts:

1. The awardee will include this Patent Rights clause, suitably modified to identify the parties, in all subcontracts, regardless of tier, for experimental, developmental or research work. The subcontractor will retain all rights provided for the awardee in this Patent Rights clause, and the awardee will not, as part of the consideration for awarding the subcontract, obtain rights in the subcontractors' subject inventions.

2. In the case of subcontracts, at any tier, when the prime award by NSF was a contract (but not a cooperative agreement), NSF, subcontractor, and contractor agree that the mutual obligations of the parties created by this Patent Rights clause constitute a contract between the subcontractor and the Foundation with respect to those matters covered by this Patent Rights clause.

h. Reporting on Utilization of Subject Inventions:

The awardee agrees to submit on request periodic reports no more frequently than annually on the utilization of a subject invention or on efforts at obtaining such utilization that are being made by the awardee or its licensees or assignees. Such reports shall include information regarding the status of development, date of first commercial sale or use, gross royalties received by the awardee and such other data and information as NSF may reasonably specify. The awardee also agrees to provide additional reports in connection with any march-in proceeding undertaken by NSF in accordance with paragraph j. of this Patent Rights clause. As required by 35 U.S.C. § 202(c)(5), NSF agrees it will not disclose such information to persons outside the Government without the permission of the awardee.

i. Preference for United States Industry:

Notwithstanding any other provision of this Patent Rights clause, the awardee agrees that neither it nor any assignee will grant to any person the exclusive right to use or sell any subject invention in the U.S. unless such person agrees that any products embodying the subject invention or produced through the use of the subject invention will be manufactured substantially in the U.S. However, in individual cases, the requirement for such an agreement may be waived by NSF upon a showing by the awardee or its assignee that reasonable but unsuccessful efforts have been made to award licenses on similar terms to potential licensees that would be likely to manufacture substantially in the U.S. or that under the circumstances domestic manufacture is not commercially feasible.

j. March-in Rights:

The awardee agrees that with respect to any subject invention in which it has acquired title, NSF has the right in accordance with procedures at 37 CFR § 401.6 and NSF regulations at 45 CFR § 650.13 to require the awardee, an assignee or exclusive licensee of a subject invention to grant a non-exclusive, partially exclusive, or exclusive license in any field of use to a responsible applicant or applicants, upon

terms that are reasonable under the circumstances and if the awardee, assignee, or exclusive licensee refuses such a request, NSF has the right to grant such a license itself if NSF determines that:

1. such action is necessary because the awardee or assignee has not taken or is not expected to take within a reasonable time, effective steps to achieve practical application of the subject invention in such field of use;

2. such action is necessary to alleviate health or safety needs which are not reasonably satisfied by the awardee, assignee, or their licensees;

3. such action is necessary to meet requirements for public use specified by Federal regulations and such requirements are not reasonably satisfied by the awardee, assignee, or licensee; or

4. such action is necessary because the agreement required by paragraph i. of this Patent Rights clause has not been obtained or waived or because a licensee of the exclusive right to use or sell any subject invention in the U.S. is in breach of such agreement.

k. Special Provisions for Awards with Non-profit Organizations:

If the awardee is a nonprofit organization, it agrees that:

1. rights to a subject invention in the U.S. may not be assigned without the approval of NSF, except where such assignment is made to an organization which has as one of its primary functions the management of inventions, provided that such assignee will be subject to the same provisions as the awardee;

2. the awardee will share royalties collected on a subject invention with the inventor, including Federal employee co-inventors (when NSF deems it appropriate) when the subject invention is assigned in accordance with 35 U.S.C. § 202(e) and 37 CFR § 401.10;

3. the balance of any royalties or income earned by the awardee with respect to subject inventions, after payment of expenses (including payments to inventors) incidental to the administration of subject inventions, will be utilized for the support of scientific or engineering research or education; and

4. it will make efforts that are reasonable under the circumstances to attract licensees of subject inventions that are small business firms and that it will give preference to a small business firm if the awardee determines that the small business firm has a plan or proposal for marketing the invention which, if executed, is equally likely to bring the invention to practical application as any plans or proposals from applicants that are not small business firms; provided that the awardee is also satisfied that the small business firm has the capability and resources to carry out its plan or proposal. The decision whether to give a preference in any specific case will be at the discretion of the awardee. However, the awardee agrees that the Secretary of Commerce may review the awardee's licensing program and decisions regarding small business applicants, and the awardee will negotiate changes to its licensing policies, procedures or practices with the Secretary when the Secretary's review discloses that the awardee could take reasonable steps to implement more effectively the requirements of this paragraph k.4.

l. Communications:

All communications required by this Patents Rights clause must be submitted through the iEdison Invention Information Management System maintained by the National Institutes of Health unless prior permission for another form of submission is obtained from the Patent Assistant at patents@nsf.gov or at Office of the General Counsel, National Science Foundation, 4201 Wilson Boulevard, Arlington, VA 22230.

Flow-down Requirements:
The Contractor shall ensure that the requirements of Section H-9 flow down to all subcontractors, if any, to this Contract.

H.10. Procurement Standards

1. The Contractor (including commercial organizations) is responsible for compliance with the Procurement Standards identified in 2 CFR §§215.40 through .48. The Contractor is responsible for ensuring that the appropriate NSF conditions from the award to OSU are made a part of any contract or other arrangement whose award amount exceeds the simplified acquisition threshold (currently $100,000).

2. The Contractor shall:
   a. Make all agreements, contracts, or other commitments, regardless of value, in its own name and shall not bind or purport to bind the Government, NSF, Ocean Leadership, OSU or
   b. Agree to administer/monitor all such agreements, contracts, or other commitments it enters into and supports with NSF funds in accordance with the applicable federal cost principles and the applicable federal administrative requirements;
   c. Remain responsible for maintaining the necessary documentation on all such agreements, contracts or other commitments and making it available to OSU upon request.

H.11. Contract Monitoring

In monitoring the Contractor's performance, OSU is primarily interested in progress toward successful completion of each deliverable along with the financial status of the contract. During the course of performance of the resulting contract, OSU (and authorized representatives including NSF and Ocean Leadership representatives) shall have the right, at all reasonable times, to make site visits to inspect or review the progress of work or the management control systems of the Contractor. The Contractor shall provide all reasonable facilities and assistance for the safety and convenience of the representatives in the performance of their duties, to include witnessing any Contractor tests conducted on the Winch being delivered to OSU under this contract. Such access shall include the right to inspect the Contractor's financial accounts or records that pertain to this contract.

H.12. Acknowledgement of NSF Support

Advance notification of any public relations activities related to this contract shall be provided by the Contractor to the OSU COTR, as applicable. NSF has reserved the right to review and/or co-issue any press releases issued by the Contractor and any Sub-Contractors. The Contractor and Sub-Contractors shall provide advance notification of any press or Congressional events or public relations activities related to this Contract to the OSU COTR.

H.13. Notice of Labor Disputes

If the Contractor has knowledge that any actual or potential labor dispute is delaying or threatens to delay the timely performance of this contract, the Contractor shall immediately give notice, including all relevant information, to the OSU CO. The Contractor agrees to insert the substance of this clause (H.13) in any subcontract to which a labor dispute may delay the timely performance of the contract.

H.14. Change-Over and Phase-Out

Contractor recognizes that OSU may direct the assignment of this Contract and/or its Sub-Contractors to other organizations. The Contractor agrees to use its best efforts to effect an orderly and efficient transition from Contractor and/or Sub-Contractors to any assignee in the event of any such assignment.

H.15. Right to Procure from Other Sources

OSU, under the terms of this contract, retains the right to procure the same or similar goods and services from other sources during the period of this contract.

H.16. Taxes/Duties

Contractor must avail itself of any tax exemptions for which any activities supported by Federal funds may qualify, including any applicable exemptions from state or local sales and use taxes on the purchase of goods and services made with NSF award funds and/or by non-profit organizations.

H.17. Permits and Responsibilities

The Contractor shall, without additional expense to OSU, be responsible for obtaining any necessary licenses and permits, and for complying with any Federal, State, and municipal laws, codes, and regulations applicable to the performance of the work. The Contractor shall also be responsible for all damages to persons or property that occurs as a result of the Contractor's fault or negligence. The Contractor shall also be responsible for all materials delivered and work performed until completion and OSU acceptance of the entire work.

If Contractor engages in any activities under this Contract requiring any agreement, permit, license, authorization or the like with a federal, state, local agency or entity, Contractor shall provide notice to OSU at least 120 calendar days prior to engaging in the activity. If Contractor engages in any activities under this Contract involve a joint program with foreign organizations or individuals, Contractor shall provide notice to OSU at least 150 calendar days prior to engaging in the activity.

H.18. F.O.B. Destination

1. The term "F.O.B. destination," as used in this clause, means:
   a. Free of expense to OSU, on board the carrier's conveyance, at a specified delivery point where the consignee's facility (plant, warehouse, store, lot, or other location to which shipment can be made) is located; and,
   b. Supplies shall be delivered to the destination consignee's wharf (if destination is a port city and Motor Freight Classification for "heavy or bulky freight." When supplies meeting the requirements of the referenced Item 568 are delivered, unloading (including movement to the tailgate) shall be performed by the consignee, with assistance from the truck driver, if requested. If the Contractor uses rail carrier or freight forwarded for less than carload shipments, the Contractor shall ensure that the carrier will furnish tailgate delivery, when required, if transfer to truck is required to complete delivery to consignee.

The Contractor shall:

- Pack and mark the shipment to comply with contract specifications; or
- In the absence of specifications, prepare the shipment in conformance with carrier requirements;
- Prepare and distribute commercial bills of lading;
- Deliver the shipment in good order and condition to the point of delivery specified in the contract;
- Be responsible for any loss of and/or damage to the goods occurring before receipt of the shipment by the consignee at the delivery point specified in the contract;
- Furnish a delivery schedule and designate the mode of delivering carrier; and

- Pay and bear all charges to the specified point of delivery.

H.19. Warranties and Acceptance under Performance Specifications or Design Criteria

(a) *Definitions.*
"Acceptance" means the act of an authorized representative of OSU by which OSU assumes for itself, or as an agent of another, ownership of existing and identified supplies, or approves specific services rendered, as partial or complete performance of the contract.

"Defect" means any condition or characteristic in any supplies or services furnished by the Contractor under the contract that is not in compliance with the requirements of the contract.

"Supplies" means the end items furnished by the Contractor and related services required under this contract. Except when this contract includes the clause entitled Warranty of Data, supplies also mean "data."

(b) Contractor's obligations.

1. The Contractor's warranties under this clause shall apply only to those defects discovered by either OSU or the Contractor within one (1) year following SAT.

   Unless specified, Contractor shall deliver goods that are new, unused and produced from current production inventory. Contractor warrants all goods delivered to be free from defects in labor, material, and manufacture and to be incompliance with specifications in the Solicitation Document. All implied or expressed warranty provisions of the Uniform Commercial Code, at ORS Chapter 72, are incorporated into this Contract. All warranties run to OSU.

2. If the Contractor becomes aware at any time before acceptance by OSU (whether before or after tender to OSU) that a defect exists in any supplies or services, the Contractor shall:
   a. Promptly correct the defect; or
   b. Promptly notify the COTR, in writing, of the defect, using the same procedures prescribed in paragraph (b) (3) of this clause.

3. If OSU's COTR determines that a defect exists in any of the supplies or services accepted by OSU under this contract, the COTR shall promptly notify the Contractor of the defect, in writing, within 30 days after discovery of the defect. Upon timely notification of the existence of a defect, or if the Contractor independently discovers a defect in accepted supplies or services, the Contractor shall submit to the COTR, in writing, within 30 days a recommendation for corrective actions, together with supporting information in sufficient detail for the COTR to determine what corrective action, if any, shall be undertaken.

4. The Contractor shall promptly comply with any timely written direction from the COTR to correct or partially correct a defect, at no increase in the contract price.

5. The Contractor shall also prepare and furnish to the COTR data and reports applicable to any correction required under this clause (including revision and updating of all other affected data called for under this contract) at no increase in the contract price.

6. In the event of timely notice of a decision not to correct or only to partially correct, the Contractor shall submit a technical and cost/price proposal within 30 days to amend the contract to permit acceptance of the affected supplies or services in accordance with the revised requirement, and an equitable reduction in the contract price shall promptly be negotiated by the parties and be

reflected in a supplemental agreement to this contract.

7. Any supplies or parts thereof corrected or furnished in replacement and any services re-performed shall also be subject to the conditions of this clause to the same extent as supplies or services initially accepted. The warranty, with respect to these supplies, parts, or services, shall be equal in duration to that set forth in paragraph (b)(1) of this clause, and shall run from the date of delivery of the corrected or replaced supplies.

8. If OSU returns supplies to the Contractor for correction or replacement under this clause, the Contractor shall be liable for transportation charges up to an amount equal to the cost of transportation by the usual commercial method of shipment from the place of delivery specified in this contract (irrespective of the f.o.b. point or the point of acceptance) to the Contractor's plant and return to the place of delivery specified in this contract. The Contractor shall also bear the responsibility for the supplies while in transit.

9. All implied warranties of merchantability and "fitness for a particular purpose" are excluded from any obligation under this contract.

(c) Remedies available to OSU.

1. The rights and remedies of OSU provided in this clause:
   a. Shall not be affected in any way by any terms or conditions of this contract concerning the conclusiveness of inspection and acceptance; and,
   b. Are in addition to, and do not limit, any rights afforded to OSU by any other clause of this contract.

2. Within 30 days after receipt of the Contractor's recommendations for corrective action and adequate supporting information, OSU's COTR, using sole discretion, shall give the Contractor written notice not to correct any defect, or to correct or partially correct any defect within a reasonable time at the manufacturer's facility.

3. In no event shall OSU be responsible for any extension or delays in the scheduled deliveries or periods of performance under this contract as a result of the Contractor's obligations to correct defects, nor shall there be any adjustment of the delivery schedule or period of performance as a result of the correction of defects unless provided by a supplemental agreement with adequate consideration.

4. This clause shall not be construed as obligating OSU to increase the contract price.

5. (i) OSU's Contracting Officer shall give the Contractor a written notice specifying any failure or refusal of the Contractor to:
   (A) Present a detailed recommendation for corrective action as required by paragraph (b)(3) of this clause;
   (B) Correct defects as directed under paragraph (b)(4) of this clause; or,
   (C) Prepare and furnish data and reports as required by paragraph (b) (5) of this clause.
   (ii) The notice shall specify a period of time following receipt of the notice by the Contractor in which the Contractor must remedy the failure or refusal specified in the notice.

6. If the Contractor does not comply timely with OSU's Contracting Officer's written notice in paragraph (c)(5)(i) of this clause, the Contracting Officer may by contract or otherwise:
   (i) Obtain detailed recommendations for corrective action and either:
   (A) Correct the supplies or services at Contractor's expense; or

(B) Replace the supplies or services at Contractor's expense, and if the Contractor fails to furnish timely disposition instructions, OSU's Contracting Officer may dispose of the nonconforming supplies for the Contractor's account in a reasonable manner, in which case OSU is entitled to reimbursement from the Contractor, or from the proceeds, for the reasonable expenses of care and disposition, as well as for excess costs incurred or to be incurred;

(ii) Obtain applicable data and reports; and (iii) Charge the Contractor for the costs incurred by OSU.

H.20. Notice of Damages

The work under this Contract is being conducted pursuant to the established OOI Environmental Health and Safety Plan 1006-00000 which incorporates by reference institutional Environmental Health and Safety Plans and the Research Vessel Safety Standards (9th Edition, March 2009), which dictate safety practices when operating on University-National Oceanographic Laboratory System (UNOLS) vessels. In the event of a mishap during the construction of the under this Contract that results in significant injury to personnel or significant damage to equipment at any tier, the Contractor shall provide prompt (optimally within 24 hours of event, not to exceed 48 hours after the event) notification of the mishap and corrective action to the OSU. Significant injury to personnel or significant damage to equipment shall be deemed to have occurred if such mishap results in the death of any person, injury to any person requiring professional medical treatment beyond first aid, or damage to any property in excess of $25,000.

H.21. Consultant Services

Costs of consultants, including those who are members of a particular profession or possess a special skill and who are not officers or employees of the performing organization, are allowable when reasonable in relation to the services rendered. While NSF appropriations no longer identify a limitation on payments to consultants under NSF awards, payments should be comparable to the normal or customary fees charged and received by the consultant for comparable services, especially on non-government contracts, grants, and cooperative agreements.

H.22. Travel

a. Allowability of Travel Expenses

1. Expenses for transportation, lodging, subsistence and related items incurred by project personnel and by outside consultants employed on the project (see AAG Chapter V.B.4) who are in travel status on business related to an NSF-supported project are allowable as prescribed in the governing OMB cost principles. The requirements for prior approval detailed in the governing OMB cost principles are waived.
2. Except as provided in the governing OMB cost principles, the difference between economy airfare and a higher-class airfare is unallowable. A train, bus or other surface carrier may be used in lieu of, or as a supplement to, air travel at the lowest first-class rate by the NSF Cooperative Agreement FATC transportation facility used. If such travel, however, could have been performed by air, the allowance will not normally exceed that for jet economy airfare.

b. Travel Support for Dependents of Key Project Personnel

Travel support for dependents of key project personnel is allowable only under the following conditions:

1. the individual is a key person who is essential to the project on a full-time basis;
2. the individual's residence away from home and in a foreign country is for a continuous period of six months or more and is essential to the effective performance of the project; and
3. the dependents' travel allowance is consistent with the policies of the organization administering the award.

c. Use of U.S.-Flag Air Carriers

1. In accordance with the Fly America Act (49 USC 40118), any air transportation to, from, between, or within a country other than the U.S. of persons or property, the expense of which will be assisted by NSF funding, must be performed by or under a code-sharing arrangement with a U.S.-flag air carrier if service provided by such a carrier is available (see Comptroller General Decision B-240956, dated September 25, 1991). Tickets (or documentation for electronic tickets) must identify the U.S. flag air carrier's designator code and flight number.
2. For the purposes of this requirement, U.S.-flag air carrier service is considered available even though:
   (a) comparable or a different kind of service can be provided at less cost by a foreign-flag air carrier;
   (b) foreign-flag air carrier service is preferred by, or is more convenient for, NSF or traveler; or
   (c) service by a foreign-flag air carrier can be paid for in excess foreign currency.
3. The following rules apply unless their application would result in the first or last leg of travel from or to the U.S. being performed by a foreign-flag air carrier:
   (a) a U.S.-flag air carrier shall be used to destination or, in the absence of direct or through service, to the farthest interchange point on a usually traveled route.
   (b) if a U.S.-flag air carrier does not serve an origin or interchange point, a foreign-flag air carrier shall be used only to the nearest interchange point on a usually traveled route to connect with a U.S. flag air carrier.

d. Use of Foreign-Flag Air Carriers

There are certain circumstances under which use of a foreign-flag air carrier is permissible. These circumstances are outlined below:

1. Airline "Open Skies" Agreements:
   A foreign flag air carrier may be used if the transportation is provided under an air transportation agreement between the United States and a foreign government, which the Department of Transportation has determined meets the requirements of the Fly America Act. For information on "open skies" agreements in which the United States has entered, please refer to the General Services Administration's (GSA) website at http://www.gsa.gov/portal/content/103191. Note on U.S./European Union Open Skies Agreement In 2007, the U.S. entered into an "Open Skies" Agreement with the European Union ("EU"). This agreement was modified in June 2010. The current Agreement gives European Community airlines (airlines of Member States) the right to transport passengers and cargo on flights funded by the U.S. government, when the transportation is between: (1) any two points outside the United States; or (2) a point in the United States and any point outside the United States that the EU airline is authorized to serve under the "Open Skies" Agreement. As of 2011, two significant changes have been made to the U.S./EU Open Skies Agreement. First, EU airlines are now granted the right to transport civilian agency-funded passengers who are NOT eligible to travel on GSA Airline City Pair Contract fares (e.g., grantees) between a point in the United States and a point outside the United States even if there is a GSA Airline. City Pair Contract fare in effect between the origin and destination points. An individual, however, who is traveling on a route for which there is a City Pair Contract fare in effect, and who is eligible for such a fare (e.g., Federal employee), will be required to fly on a U.S. carrier, absent another applicable exception. Second, under the amended Agreement, EU airlines are now authorized to transport passengers between points in the United States and points outside the EU if the EU airline is authorized to serve the route under the Agreement. This includes flights that originate, arrive, or stop in the EU. Prior to this change, EU airlines were limited to flying passengers between points in the U.S. and points in the EU.

2. Involuntary Rerouting: Travel on a foreign-flag carrier is permitted if a U.S.-flag air carrier involuntarily reroutes the traveler via a foreign-flag air carrier, notwithstanding the availability of alternative U.S.-flag air carrier service.
3. Travel To and From the U.S. on non-European Community Airlines
   Use of a non-European Community foreign-flag air carrier is permissible if the airport abroad is:
   (a) the traveler's origin or destination airport, and use of U.S.-flag air carrier service would extend the time in a travel status by at least 24 hours more than travel by a foreign-flag air carrier; or
   (b) an interchange point, and use of U.S.-flag air carrier service would increase the number of aircraft changes the traveler must make outside of the U.S. by two or more, would require the traveler to wait four hours or more to make connections at that point, or would extend the time in a travel status by at least six hours more than travel by a foreign-flag air carrier.
4. Travel Between Points Outside the U.S. on non-European Community Airlines
   Use of a non- European Community foreign-flag air carrier is permissible if:
   (a) travel by a foreign-flag air carrier would eliminate two or more aircraft changes en route;
   (b) travel by a U.S.-flag air carrier would require a connecting time of four hours or more at an overseas interchange point; or
   (c) the travel is not part of the trip to or from the U.S., and use of a U.S.-flag air carrier would extend the time in a travel status by at least six hours more than travel by a foreign-flag air carrier.
5. Short Distance Travel. For all short distance travel, regardless of origin and destination, use of a foreign-flag air carrier is permissible if the elapsed travel time on a scheduled flight from origin to destination airport by a foreign-flag air carrier is three hours or less and service by a U.S.-flag air carrier would double the travel time.

H.23. Partnerships with Foreign Collaborators

a. The awardee shall provide written notification to the cognizant NSF Program Officer prior to entering into formal arrangements with foreign collaborators. In the notification, the awardee should specify: the projects and individuals involved; the purpose of the cooperative program; the proposed duration; location; and, the magnitude of the proposed activity.

b. This provision is not intended to require notifications to the NSF of the routine use of awardee services and facilities by foreign investigators or foreign students, or the routine use of foreign facilities by project staff in accordance with the awardee's standard policies and procedures.

(End of Section H)

Section I. Contract Clauses

I.1. General Information

The Winch under this Contract will be funded with Major Research Equipment funds. These funds shall be used solely for those activities designated under the specific funding source and may NOT be reprogrammed or reallocated for the performance and payments of other activities under this Contract.

I.2. NSF Cooperative Agreement Flow-Down Terms and Conditions

This effort is funded under a cooperative agreement between OSU, Ocean Leadership and NSF. OSU is responsible for complying with the conditions below and ensuring that the Contractor also complies with them.

The following NSF Terms and Conditions shall apply to this Subcontract:

Articles: 5, 9, 12, 26, 28, 29, 31, 32, 33, 35, 39, 41, 42, 43, 48 51, and 52, in the *NSF Cooperative Agreement Financial & Administrative Terms & Conditions, (CA-FATC)*, January 14, 2013, as amended over time, shall apply. The full text of the current CA-FATC can be found online at: http://www.nsf.gov /publications.

The CA FATC articles listed in full text below are incorporated herein and are made a part of this Subcontract, except that the clauses shall be appropriately interpreted to reflect the identities of the instant parties, i.e. substitute:

a. "UNIVERSITY" for "Grants Officer" or "Grants and Agreements Officer" or "Contracting Officer" or "Program Officer" or "ACO";
b. "UNIVERSITY Principal Investigator" for "Principal Investigator" or "Project Director"
c. "UNIVERSITY" or "Oregon State University" or "Implementing Organization (IO)" or "Procuring Organization" for "Government" or "NSF"
d. "SUBCONTRACTOR", for "Awardee", "Grantee", or "Recipient"
e. "Subcontract" for "Award" or "Grantee"

"UNIVERSITY Principal Investigator" for "NSF Deputy Director"

I.2.1 CA-FATC, Article 5, Consultant Services

Costs of consultants, including those who are members of a particular profession or possess a special skill and who are not officers or employees of the performing organization, are allowable when reasonable in relation to the services rendered. While NSF appropriations no longer identify a limitation on payments to consultants under NSF awards, payments should be comparable to the normal or customary fees charged and received by the consultant for comparable services, especially on non-government contracts, grants, and cooperative agreements.

I.2.2 CA-FATC, Article 9, Procurement Standards

Whether or not approval of a procurement is required under Article 8a, where appropriate, the SUBCONTRACTOR (including commercial organizations) is responsible for compliance with the procurement standards identified in 2 CFR §§ 215.40 through .48. The SUBCONTRACTOR also is responsible for ensuring that the appropriate NSF conditions from this award (including Article 31, Audit and Records) are made a part of any contract or other arrangement whose award amount exceeds the simplified acquisition threshold (currently $100,000).

I.2.3 CA-FATC, Article 12, Allowable Costs

a. The allowability of costs and cost allocation methods for work performed under this award, up to the amount specified in the award, shall be determined in accordance with the applicable Federal cost principles in effect on the effective date of the award and the terms and conditions of the award.
b. The Federal cost principles applicable to specific types of SUBCONTRACTORs are contained in:

1. 2 CFR Part 220, Cost Principles for Educational Institutions (OMB Circular A-21);
2. 2 CFR Part 225, Cost Principles for State, Local, and Indian Tribal Governments (OMB Circular A-87);
3. 2 CFR Part 230, Cost Principles for Nonprofit Organizations (OMB Circular A-122);
4. Federal Acquisition Regulation 31.2 (48 CFR § 31.2) for commercial firms and those non-profit organizations specifically exempted from the provisions of 2 CFR Part 230 (OMB Circular A-122); and
5. 45 CFR Part 74, Appendix E, "Principles for Determining Costs Applicable to Research and Development Under Grants and Contracts with Hospitals," for hospitals.

c. Certain prior approval requirements contained in these Federal cost principles have been modified by Article 3.

I.2.4 CA-FATC, Article 26, Copyrightable Material

a. Definition

Subject writing means any material that:

1. Is or may be copyrightable under Title 17 of the U.S.C.; and
2. Is produced by the SUBCONTRACTOR or its employees in the performance of work under this award. Subject writings include such items as reports, books, journal articles, software, databases, sound recordings, videotapes, and videodiscs.

b. Copyright Ownership, Government License

Except as otherwise specified in the award or by this paragraph, the SUBCONTRACTOR may own or permit others to own copyright in all subject writings. The SUBCONTRACTOR agrees that if it or anyone else does own copyright in a subject writing, the Federal government will have a nonexclusive, nontransferable, irrevocable, royalty-free license to exercise or have exercised for or on behalf of the U.S. throughout the world all the exclusive rights provided by copyright. Such license, however, will not include the right to sell copies or phono-records of the copyrighted works to the public.

c. Awards Affected by International Agreements

If the award indicates it is subject to an identified international agreement or treaty, UNIVERSITY, Agency and NSF can direct the SUBCONTRACTOR to convey to any foreign participant or otherwise dispose of such rights to subject writings as are required to comply with that agreement or treaty.

d. SUBCONTRACTOR Action to Protect Government Interests

The SUBCONTRACTOR agrees to acquire, through written agreement or an employment relationship, the ability to comply with the requirements of the preceding paragraphs and, in particular, to acquire the ability to convey rights in a subject writing to a foreign participant if directed by UNIVERSITY, Agency and NSF under the previous paragraph. The SUBCONTRACTOR further agrees that any transfer of copyright or any other rights to a subject writing, by it or anyone whom it has allowed to own such rights, will be made subject to the requirements of this article.

I.2.5 CA-FATC, Article 28, Publications

a. Acknowledgment of Support

The SUBCONTRACTOR is responsible for assuring that an acknowledgment of NSF support:

1. is made in any publication (including World Wide Web sites) of any material based on or developed under this project, in the following terms: "This material is based upon work supported by the NSF under Grant No. (NSF grant number)."
2. is orally acknowledged during all news media interviews, including popular media such as radio, television and news magazines.

b. News Releases
The SUBCONTRACTOR is strongly encouraged to consult with and notify the UNIVERSITY prior to issuing news releases concerning NSF-supported activities.

c. Disclaimer
The SUBCONTRACTOR is responsible for assuring that every publication of material (including World Wide Web pages) based on or developed under this award, except scientific articles or papers appearing in scientific, technical or professional journals, contains the following disclaimer: "Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the NSF."

d. Copies for NSF
The SUBCONTRACTOR is responsible for assuring that the UNIVERSITY is provided access to, either electronically or in paper form, a copy of every publication of material based on or developed under this award, clearly labeled with the award number and other appropriate identifying information, promptly after publication.

e. Metric System
All reports and publications resulting from this subcontract are encouraged to use the metric system of weights and measures.

I.2.6 CA-FATC, Article 29, Patent Rights

Unless otherwise provided in the subcontract, if this subcontract is for experimental, developmental, or research work, the following clause (implementing the Bayh-Dole Act, [35 U.S.C. § 200 et seq.]) shall apply. The SUBCONTRACTOR shall include this clause in all subawards for experimental, developmental, or research activities.

a. Definitions

1. INVENTION means any invention or discovery which is or may be patentable or otherwise protectable under Title 35 of the USC, to any novel variety of plant which is or may be protected under the Plant Variety Protection Act (7 U.S.C. § 2321 et seq.).

2. SUBJECT INVENTION means any invention of the SUBCONTRACTOR conceived or first actually reduced to practice in the performance of work under this award, provided that in the case of a variety of plant, the date of determination (as defined in section 41(d)) must also occur during the period of performance.

3. PRACTICAL APPLICATION means to manufacture in the case of a composition or product, to practice in the case of a process or method, or to operate in the case of a machine or system; and, in each case, under such conditions as to establish that the invention is being utilized and that its benefits are to the extent permitted by law or Government regulations available to the public on reasonable terms.

4. MADE when used in relation to any invention means the conception or first actual reduction to practice of such invention.

5. NON-PROFIT ORGANIZATION means a domestic university or other institution of higher education or an organization of the type described in Section 501(c)(3) of the Internal Revenue Code of 1954 (26 U.S.C. § 501(c)) and exempt from taxation under Section 501(a) of the Internal

Revenue Code (26 U.S.C. § 501(a)) or any domestic non-profit scientific or educational organization qualified under a State non-profit organization statute.

b. Allocation of Principal Rights

The SUBCONTRACTOR may retain the entire right, title, and interest throughout the world to each subject invention subject to the provisions of this Patent Rights clause and 35 U.S.C.Part 203. With respect to any subject invention in which the SUBCONTRACTOR retains title, the UNIVERSITY, Agency and Federal Government shall have a non-exclusive, nontransferable, irrevocable, paid-up license to practice or have practiced for or on behalf of the U.S. the subject invention throughout the world. If the subcontract indicates it is subject to an identified international agreement or treaty, the National Science Foundation (NSF) also has the right to direct the SUBCONTRACTOR to convey to any foreign participant such patent rights to subject inventions as are required to comply with that agreement or treaty.

c. Invention Disclosure, Election of Title and Filing of Patent Applications by SUBCONTRACTOR

1. The SUBCONTRACTOR will disclose each subject invention to UNIVERSITY within two months after the inventor discloses it in writing to SUBCONTRACTOR personnel responsible for the administration of patent matters. The disclosure to UNIVERSITY shall be in the form of a written report and shall identify the SUBCONTRACT under which the invention was made and the inventor(s). It shall be sufficiently complete in technical detail to convey a clear understanding of the nature, purpose, operation, and, to the extent known, the physical, chemical, biological or electrical characteristics of the invention. The disclosure shall also identify any publication, on sale or public use of the invention and whether a manuscript describing the invention has been submitted for publication and, if so, whether it has been accepted for publication at the time of disclosure. In addition, after disclosure to UNIVERSITY, the SUBCONTRACTOR will promptly notify UNIVERSITY of the acceptance of any manuscript describing the invention for publication or of any on sale or public use planned by the SUBCONTRACTOR.

2. The SUBCONTRACTOR will elect in writing whether or not to retain title to any such invention by notifying UNIVERSITY within two years of disclosure to UNIVERSITY. However, in any case where publication, on sale, or public use has initiated the one-year statutory period wherein valid patent protection can still be obtained in the U.S., the period for election of title may be shortened by UNIVERSITY, Agency and NSF to a date that is no more than 60 days prior to the end of the statutory period.

3. The SUBCONTRACTOR will file its initial patent application on an invention to which it elects to retain title within one year after election of title or, if earlier, prior to the end of any statutory period wherein valid patent protection can be obtained in the U.S. after a publication, on sale, or public use. The SUBCONTRACTOR will file patent applications in additional countries or international patent offices within either ten months of the corresponding initial patent application, or six months from the date when permission is awarded by the Commissioner of Patents and Trademarks to file foreign patent applications when such filing has been prohibited by a Secrecy Order.

4. Requests for extension of the time for disclosure to UNIVERISTY, Agency and NSF, election, and filing under subparagraphs 1., 2., and 3 may, at the discretion of UNIVERISTY, Agency and NSF be awarded.

d. Conditions When the Government May Obtain Title

The SUBCONTRACTOR will convey to UNIVERSITY, Agency and NSF, upon written request, title to any subject invention:

1. if the SUBCONTRACTOR fails to disclose or elect the subject invention within the times specified in paragraph c. above, or elects not to retain title; provided that UNIVERSITY, Agency and NSF may only request title within 60 days after learning of the failure of the SUBCONTRACTOR to disclose or elect within the specified times;

2. in those countries in which the SUBCONTRACTOR fails to file patent applications within the

times specified in paragraph c. above, but prior to its receipt of the written request of UNIVERSITY, Agency and NSF, the SUBCONTRACTOR shall continue to retain title in that country; or

3. in any country in which the SUBCONTRACTOR decides not to continue the prosecution of any application for, to pay the maintenance fees on, or defend in a reexamination or opposition proceeding on, a patent on a subject invention.

e. Minimum Rights to SUBCONTRACTOR

1. The SUBCONTRACTOR will retain a non-exclusive royalty-free license throughout the world in each subject invention to which the Government obtains title, except if the SUBCONTRACTOR fails to disclose the subject invention within the times specified in paragraph c. above. The SUBCONTRACTOR's license extends to its domestic subsidiaries and affiliates, if any, within the corporate structure of which the SUBCONTRACTOR is a party and includes the right to award sublicenses of the same scope to the extent the SUBCONTRACTOR was legally obligated to do so at the time the award was made. The license is transferable only with the approval of UNIVERSITY, Agency and NSF except when transferred to the successor of that part of the SUBCONTRACTOR's business to which the invention pertains.

2. The SUBCONTRACTOR's domestic license may be revoked or modified by UNIVERSITY, Agency and NSF to the extent necessary to achieve expeditious practical application of the subject invention pursuant to an application for an exclusive license submitted in accordance with applicable provisions at 37 CFR Part 404. This license will not be revoked in that field of use or the geographical areas in which the SUBCONTRACTOR has achieved practical application and continues to make the benefits of the invention reasonably accessible to the public. The license in any foreign country may be revoked or modified at the discretion of University, Agency, and NSF to the extent the Subcontractor, its licensees, or its domestic subsidiaries or affiliates have failed to achieve practical application in the foreign country.

3. Before revocation or modification of the license, UNIVERSITY, Agency and NSF will furnish the SUBCONTRACTOR a written notice of its intention to revoke or modify the license, and the SUBCONTRACTOR will be allowed thirty days (or such other time as may be authorized by UNIVERSITY, Agency and NSF for good cause shown by the SUBCONTRACTOR) after the notice to show cause why the license should not be revoked or modified. The SUBCONTRACTOR has the right to appeal, in accordance with applicable regulations in 37 CFR Part 404 concerning the licensing of Government-owned inventions, any decision concerning the revocation or modification of its license.

f. SUBCONTRACTOR Action to Protect Government's Interest

1. The SUBCONTRACTOR agrees to execute or to have executed and promptly deliver to NSF all instruments necessary to: (i) establish or confirm the rights the Government has throughout the world in those subject inventions for which the SUBCONTRACTOR retains title; and (ii) convey title to NSF when requested under paragraph d. above, and to enable the Government to obtain patent protection throughout the world in that subject invention.

2. The SUBCONTRACTOR agrees to require, by written agreement, its employees, other than clerical and non-technical employees, to disclose promptly in writing to personnel identified as responsible for the administration of patent matters and in a format suggested by the SUBCONTRACTOR each subject invention made under this award in order that the SUBCONTRACTOR can comply with the disclosure provisions of paragraph c.above, and to execute all papers necessary to file patent applications on subject inventions and to establish the UNIVERSITY, Agency and Government's rights in the subject inventions. The disclosure format should require, as a minimum, the information requested by paragraph c.1 above. The SUBCONTRACTOR shall instruct such employees through the employee agreements or other suitable educational programs on the importance of reporting inventions in sufficient time to permit the filing of patent applications prior to U.S. or foreign statutory bars.

3. The SUBCONTRACTOR will notify UNIVERSITY, Agency and NSF of any decision not to continue prosecution of a patent application, pay maintenance fees, or defend in a reexamination or opposition proceeding on a patent, in any country, not less than 30 days before the expiration of the response period required by the relevant patent office.

4. The SUBCONTRACTOR agrees to include, within the specification of any U.S. patent application and any patent issuing thereon covering a subject invention, the following statement: "This invention was made with Government support under (identify the award) awarded by the National Science Foundation. The Government has certain rights in this invention."

5. The SUBCONTRACTOR or its representative will complete, execute and forward to UNIVERSITY, Agency and NSF a confirmation of a License to the U.S. Government and the page of a United States patent application that contains the Federal support clause within two months of filing any domestic or foreign patent application.

g. Subcontracts

1. The SUBCONTRACTOR will include this Patent Rights clause, suitably modified to identify the parties, in all subcontracts, regardless of tier, for experimental, developmental or research work. The subcontractor will retain all rights provided for the SUBCONTRACTOR in this Patent Rights clause, and the SUBCONTRACTOR will not, as part of the consideration for awarding the subcontract, obtain rights in the subcontractors' subject inventions.

2. In the case of subcontracts, at any tier, when the prime award by NSF was a contract (but not a cooperative agreement), UNIVERSITY, Agency and NSF, subcontractor, and contractor agree that the mutual obligations of the parties created by this Patent Rights clause constitute a contract between the subcontractor and the Foundation with respect to those matters covered by this Patent Rights clause.

h. Reporting on Utilization of Subject Inventions

The SUBCONTRACTOR agrees to submit on request periodic reports no more frequently than annually on the utilization of a subject invention or on efforts at obtaining such utilization that are being made by the SUBCONTRACTOR or its licensees or assignees. Such reports shall include information regarding the status of development, date of first commercial sale or use, gross royalties received by the SUBCONTRACTOR and such other data and information as NSF may reasonably specify. The SUBCONTRACTOR also agrees to provide additional reports in connection with any march-in proceeding undertaken by NSF in accordance with paragraph j. of this Patent Rights clause. As required by 35 U.S.C. § 202(c)(5), UNIVERSITY, Agency and NSF agrees it will not disclose such information to persons outside the Government without the permission of the SUBCONTRACTOR.

i. Preference for United States Industry

Notwithstanding any other provision of this Patent Rights clause, the SUBCONTRACTOR agrees that neither it nor any assignee will grant to any person the exclusive right to use or sell any subject invention in the U.S. unless such person agrees that any products embodying the subject invention or produced through the use of the subject invention will be manufactured substantially in the U.S. However, in individual cases, the requirement for such an agreement may be waived by UNIVERSITY, Agency and NSF upon a showing by the SUBCONTRACTOR or its assignee that reasonable but unsuccessful efforts have been made to award licenses on similar terms to potential licensees that would be likely to manufacture substantially in the U.S. or that under the circumstances domestic manufacture is not commercially feasible.

j. March-in Rights

The SUBCONTRACTOR agrees that with respect to any subject invention in which it has acquired title, UNIVERSITY, Agency and NSF have the right in accordance with procedures at 37 CFR § 401.6 and NSF regulations at 45 CFR § 650.13 to require the SUBCONTRACTOR, an assignee or exclusive licensee of a subject invention to grant a non-exclusive, partially exclusive, or exclusive license in any field of use to a responsible applicant or applicants, upon terms that are reasonable under the circumstances and if the SUBCONTRACTOR, assignee, or exclusive licensee refuses such a request, UNIVERSITY, Agency and NSF has the right to grant such a license itself if UNIVERSITY, Agency and

NSF determines that:

1. such action is necessary because the SUBCONTRACTOR or assignee has not taken or is not expected to take within a reasonable time, effective steps to achieve practical application of the subject invention in such field of use;

2. such action is necessary to alleviate health or safety needs which are not reasonably satisfied by the SUBCONTRACTOR, assignee, or their licensees;

3. such action is necessary to meet requirements for public use specified by Federal regulations and such requirements are not reasonably satisfied by the SUBCONTRACTOR, assignee, or licensee; or

4. such action is necessary because the agreement required by paragraph i. of this Patent Rights clause has not been obtained or waived or because a licensee of the exclusive right to use or sell any subject invention in the U.S. is in breach of such agreement.

k. Special Provisions for Awards with Non-profit Organizations

If the SUBCONTRACTOR is a nonprofit organization, it agrees that:

1. rights to a subject invention in the U.S. may not be assigned without the approval of NSF, except where such assignment is made to an organization which has as one of its primary functions the management of inventions, provided that such assignee will be subject to the same provisions as the SUBCONTRACTOR;

2. the SUBCONTRACTOR will share royalties collected on a subject invention with the inventor,

including Federal employee co-inventors (when NSF deems it appropriate) when the subject invention is assigned in accordance with 35 U.S.C. § 202(e) and 37 CFR § 401.10;

3. the balance of any royalties or income earned by the SUBCONTRACTOR with respect to subject inventions, after payment of expenses (including payments to inventors) incidental to the administration of subject inventions, will be utilized for the support of scientific or engineering research or education; and

4. it will make efforts that are reasonable under the circumstances to attract licensees of subject inventions that are small business firms and that it will give preference to a small business firm if the SUBCONTRACTOR determines that the small business firm has a plan or proposal for marketing the invention which, if plans or proposals from applicants that are not small business firms; provided that the SUBCONTRACTOR is also satisfied that the small business firm has the capability and resources to carry out its plan or proposal. The decision whether to give a preference in any specific case will be at the discretion of the SUBCONTRACTOR. However, the SUBCONTRACTOR agrees that the Secretary of Commerce may review the SUBCONTRACTOR's licensing program and decisions regarding small business applicants, and the SUBCONTRACTOR will negotiate changes to its licensing policies, procedures or practices with the Secretary when the Secretary's review discloses that the

SUBCONTRACTOR could take reasonable steps to implement more effectively the requirements of this paragraph k.4.

I.2.7 CA-FATC, Article 31, Audits and Records

a. Financial records, supporting documents, statistical records, and other records pertinent to this subcontract shall be retained by the SUBCONTRACTOR for a period of three years from the final delivery of work per this subcontract.

1. Records that relate to audits, appeals, litigation or the settlement of claims arising out of the performance of the project shall be retained until such audits, appeals, litigation or claims have been disposed of.

2. Records relating to projects subject to special project income provisions shall be retained until three years from the end of the SUBCONTRACTOR's fiscal year in which the subcontract requirement for reporting income expires.

b. Unless court action or audit proceedings have been initiated, the SUBCONTRACTOR may substitute microfilm copies of original records.
c. The UNIVERSITY. Agency or Director of the National Science Foundation and the Comptroller General of the U.S., or any of their duly authorized representatives, shall have access to any pertinent books, documents, papers and records of the SUBCONTRACTOR organization and of the performing organization, if different, to make audits, examinations, excerpts and transcripts. Further, any negotiated contract in excess of the simplified acquisition threshold (currently $100,000) made by the SUBCONTRACTOR shall include a provision to the effect that the SUBCONTRACTOR, UNIVERSITY, Agency, the Director of the National Science Foundation, the Comptroller General of the U.S., or any of their duly authorized representatives, shall have access to pertinent records for similar purposes.
d. In order to avoid duplicate record keeping, UNIVERSITY may make special arrangements with the SUBCONTRACTOR to retain any records that are needed for joint use. UNIVERSITY may request transfer to its custody of records not needed by the SUBCONTRACTOR when UNIVERSITY determines that the records possess long-term retention value. When the records are transferred to, or maintained by UNIVERSITY, the three-year retention requirement is not applicable to the SUBCONTRACTOR. In the rare event that this provision is exercised, UNIVERSITY will negotiate a mutually agreeable arrangement with the SUBCONTRACTOR regarding reimbursement of costs.

I.2.8 CA-FATC, Article 32, Site Visits

UNIVERSITY, Agency and NSF, through authorized representatives, has the right, at all reasonable times, to make site visits to review project accomplishments and management control systems and to provide such technical assistance as may be required. If any site visit is made by UNIVERSITY, Agency and NSF on the premises of the SUBCONTRACTORSUBCONTRACTOR under an subcontract, the SUBCONTRACTORSUBCONTRACTOR shall provide and shall require its contractors to provide all reasonable facilities and assistance for the safety and convenience of the UNIVERSITY, Agency and Government representatives in the performance of their duties. All site visits and evaluations shall be performed in such a manner that will not unduly delay the work.

I.2.9 CA-FATC, Article 33, Suspension or Termination

a. No costs incurred during a suspension period or after the effective date of a termination will be allowable, except those costs which, in the opinion of UNIVERSITY, NSF and Agency, the SUBCONTRACTOR could not reasonably avoid or eliminate, or which were otherwise authorized by the suspension or termination notice, provided such costs would otherwise be allowable under the terms of the subcontract and the appropriate Federal cost principles.
b. Within 30 days of the termination date, the SUBCONTRACTOR will furnish a summary of progress under the subcontract and an itemized accounting of costs incurred prior to the termination date or pursuant to a, above. Final allowable costs under a termination settlement shall be in accordance with the terms of the subcontract, including this article, and the appropriate Federal cost principles, giving due consideration to the progress under the subcontract. In no event will the total of UNIVERISTY payments under a terminated subcontract exceed the subcontract amount, or the UNIVERISTY pro rata share of the total project costs when cost sharing was anticipated, whichever is less.

I.2.10 CA-FATC, Article 35, Nondiscrimination

a. The award is subject to the provisions of Title VI of the Civil Rights Act of 1964 [42 U.S.C. § 2000d], Title IX of the Education Amendments of 1972 [20 USC §§ 1681 et seq.], the

Rehabilitation Act of 1973 [29 U.S.C. § 794], the Age Discrimination Act of 1975 [42 U.S.C. §§ 6101 et seq], and all regulations and policies issued by NSF pursuant to these statutes. Specifically, in accordance with these statutes, regulations, and policies, no person on the basis of race, color, national origin, sex, disability, or age shall be excluded from participation in, be denied the benefits of, or otherwise be subjected to discrimination under the award.

b. By signing this Subcontract, the SUBCONTRACTOR Authorized Organizational Representative is providing the requisite Certification of Compliance with NSF Nondiscrimination Regulations and Policies. This Nondiscrimination Certification sets forth the nondiscrimination obligations with which all subcontractors must comply. These obligations also apply to subrecipients, SUBCONTRACTORs, and subcontractors under the subcontract. The SUBCONTRACTOR, therefore, shall obtain the NSF Nondiscrimination Certification from each organization that applies to be or serves as a subrecipient, subgrantee or subcontractor under the award (for other than the provision of commercially available supplies, materials, equipment or general support services) prior to entering into the subaward arrangement.

I.2.11 CA-FATC, Article 39, Clean Air and Water

(Applicable only if the award exceeds $100,000, or a facility to be used has been the subject of a conviction under the Clean Air Act [42 U.S.C. § 7413(c)(1)] or the Clean Water Act [33 U.S.C. § 1319(c)] and is listed by the Environmental Protection Agency (EPA), or the award is not otherwise exempt.)
The SUBCONTRACTOR agrees as follows:

a. To comply with all the requirements of Section 114 of the Clean Air Act [42 U.S.C. §7414] and Section 308 of the Clean Water Act [33 U.S.C. § 1318], respectively, relating to inspection, monitoring, entry, reports and information, as well as other requirements specified in Section 114 and Section 308 of the Clean Air Act and the Clean Water Act, respectively, and all regulations and guidelines issued thereunder before the award of the cooperative agreement.
b. That no portion of the work required by the award will be performed in a facility listed on the Environmental Protection Agency List of Violating Facilities on the date that the award was awarded unless and until EPA eliminates the name of such facility or facilities from such listing.
c. To use its best efforts to comply with clean air standards and clean water standards at the facility in which the award is being performed.
d. To insert the substance of the provisions of this article into any nonexempt subcontract.

I.2.12 CA-FATC, Article 41, Investigator Financial Disclosure Policy

If the SUBCONTRACTORSUBCONTRACTOR employs more than 50 persons, the SUBCONTRACTORSUBCONTRACTOR shall maintain an appropriate written and enforced policy on conflict of interest consistent with the provisions of AAG Chapter IV.A.

I.2.13 CA-FATC, Article 42, State Sales and Use Taxes

SUBCONTRACTORs are reminded that each set of cost principles cited elsewhere in the subcontract limits the allowability of taxes to those the organization is required to pay. SUBCONTRACTORs must avail themselves of any tax exemptions for which any activities supported by Federal funds may qualify, including any applicable exemptions from state or local sales and use taxes on the purchase of goods and services made with NSF award funds.

I.2.14 CA-FATC, Article 43, Debarment and Suspension

Recipients shall fully comply with the requirements stipulated in Subpart C of 2 CFR Part 180,

entitled "Responsibilities of Participants Regarding Transactions Doing Business With Other Persons." The recipient is responsible for ensuring that any lower tier covered transaction, as described in Subpart B of 2 CFR Part 180, entitled "Covered Transactions," includes a term or condition requiring compliance with Subpart C. The recipient also is responsible for further requiring the inclusion of a similar term or condition in any subsequent lower tier covered transaction. The recipient acknowledges that failing to disclose the information required under 2 CFR § 180.335 may result in the termination of the award, or pursuance of other available remedies, including suspension and debarment. Recipients may access the Excluded Parties List System at https://www.epls.gov.

I.2.15 CA-FATC, Article 48, Sharing of Findings, Data, and Other Research Products

a. NSF expects significant findings from research and education activities it supports to be promptly submitted for publication, with authorship that accurately reflects the contributions of those involved. It expects investigators to share with other researchers, at no more than incremental cost and within a reasonable time, the data, samples, physical collections and other supporting materials created or gathered in the course of the work. It also encourages awardees to share software and inventions or otherwise act to make the innovations they embody widely useful and usable.
b. Adjustments and, where essential, exceptions may be allowed to safeguard the rights of individuals and subjects, the validity of results, or the integrity of collections or to accommodate legitimate interests of investigators.

I.2.16 CA-FATC, Article 51, Sense of the Congress on the Use of Funds

Acts making appropriations to NSF provide "It is the sense of the Congress, that, to the greatest extent practical, all equipment and products purchased with funds made available in this Act should be American-made" and require the UNIVERSITY, Agency and NSF to notify SUBCONTRACTORs of that statement."

I.2.17 CA-FATC, Article 52, Increasing Seat Belt Use in the United States

In accordance with Executive Order 13043, *Increasing Seat Belt Use in the United States*, dated April 16, 1997, "grantees are encouraged to adopt and enforce on-the-job seat belt policies and programs for their employees when operating company-owned, rented, or personally owned vehicles."

I.3. Other Clauses

I.3.1. Order of Precedence

Oregon State University Standard Terms and Conditions for Services and Goods located at http://pacs.oregonstate.edu/terms-and-conditions shall become part of any contract and/or PO issued as a result of this RFP. In case of conflicts between terms and conditions, the following priority shall prevail:

1. Terms and Conditions of the RFP and any Addenda
2. OSU Standard Terms and Conditions for Services and Goods.

I.3.2. Price Reduction for Defective Cost or Pricing Data

If any price, including profit or fee, negotiated in connection with this Contract was increased by any significant amount because the Contractor or a subcontractor furnished cost or pricing data that were not complete, accurate, and current as certified in its Certificate of Current Cost or Pricing Data, the price shall be reduced accordingly and the Contract shall be modified to reflect the reduction.
The parties agree that none of the following shall constitute a valid defense to a price adjustment required by the foregoing paragraph:

a. that the Contractor was in such a superior bargaining position that the defective data did not affect

the price negotiated.

b. that OSU should have on its own discovered the defect in data.
c. that the Contract was based upon total pricing for the goods, and that therefore defects in individual cost categories would not have affected the total unit prices.

If any reduction in the Contract price under this clause reduces the price of items for which payment was made prior to the date of the modification reducing the price, the Contractor shall be liable to and shall refund to OSU the amount of such overpayment(s) within twenty days of Contract modification, with simple interest from the date(s) of overpayment(s) at 5% per annum. If the Contractor knowingly submitted data that were incomplete, inaccurate or not current, then Contractor shall pay to OSU an amount equal to twice the overpayment(s).

I.3.3. Responsibility for Supplies

a. Title to supplies furnished under this Contract shall pass to OSU upon formal acceptance, regardless of when or where OSU takes physical possession.
b. Risk of loss of or damage to supplies shall remain with the Contractor until, and shall pass to OSU upon, acceptance by OSU or delivery of the supplies to OSU at the destination specified in the DO, whichever is later, since transportation is f.o.b. destination.
c. Paragraph (b) of this clause shall not apply to supplies that so fail to conform to Contract requirements as to give a right of rejection. The risk of loss of or damage to such nonconforming supplies remains with the Contractor until cure or acceptance. After cure or acceptance, paragraph (b) of this clause shall apply.
d. Under paragraph (b) of this clause, the Contractor shall not be liable for loss of or damage to supplies caused by the negligence of officers, agents, or employees of OSU acting within the scope of their employment.

I.3.4. Termination

Termination for Convenience

a. OSU may at any time terminate performance of work under this Contract in whole or, from time to time, in part. OSU CO shall terminate by delivering to the Contractor a Notice of Termination specifying the extent of termination and the effective date.
b. After receipt of a Notice of Termination, and except as directed by the OSU CO, the Contractor shall immediately proceed with the following obligations, regardless of any delay in determining or adjusting any amounts due under this clause:
    1. Stop work as specified in the notice.
    2. Place no further subcontracts or orders (referred to as subcontracts in this clause) for materials, services, or facilities, except as necessary to complete the continued portion of the Contract.
    3. Terminate all subcontracts to the extent they relate to the work terminated.
    4. Assign to OSU, as directed by OSU CO, all right, title, and interest of the Contractor under the subcontracts terminated, in which case OSU shall have the right to settle or to pay any termination settlement proposal arising out of those terminations.
    5. With approval or ratification to the extent required by the CO, settle all outstanding liabilities and termination settlement proposals arising from the termination of subcontracts; the approval or ratification will be final for purposes of this clause.

Termination for Default

a. OSU may, subject to paragraphs (c) and (d) of this clause, by written notice of default to the Contractor, terminate this Contract in whole or in part if the Contractor fails to—
    i. Deliver the supplies or to perform the services within the time specified in this Contract or any extension;
    ii. Make progress, so as to endanger performance of this Contract (but see paragraph a.2 of

this clause); or

iii. Perform any of the other provisions of this Contract (but see paragraph a.2 of this clause).

b. Ocean Leadership's right to terminate this Contract under subdivisions a.1 (ii) and a.1(iii) of this clause, may be exercised if the Contractor does not cure such failure within 10 days (or more if authorized in writing by the OSU CO) after receipt of the written notice from the OSU CO specifying the failure.

c. If OSU terminates this Contract in whole or in part, it may acquire, under the terms and in the manner the OSU CO considers appropriate, supplies or services similar to those terminated, and the Contractor will be liable to OSU for any excess costs for those supplies or services. However, the Contractor shall continue the work not terminated.

d. Except for defaults of subcontractors at any tier, the Contractor shall not be liable for any excess costs if the failure to perform the Contract arises from causes beyond the control and without the fault or negligence of the Contractor. Examples of such causes include (1) acts of God or of the public enemy, (2) acts of OSU in either its sovereign or contractual capacity, (3) fires, (4) floods, (5) epidemics, (6) quarantine restrictions, (7) strikes, (8) freight embargoes, and (9) unusually severe weather. In each instance the failure to perform must be beyond the control and without the fault or negligence of the Contractor.

e. If the failure to perform is caused by the default of a Subcontractor at any tier, and if the cause of the default is beyond the control of both the Contractor and Subcontractor, and without the fault or negligence of either, the Contractor shall not be liable for any excess costs for failure to perform, unless the subcontracted supplies or services were obtainable from other sources in sufficient time for the Contractor to meet the required delivery schedule.

f. If this Contract is terminated for default, OSU may require the Contractor to transfer title and deliver to the Government, as directed by the CO, any (1) completed supplies, and (2) partially completed supplies and materials, parts, tools, dies, jigs, fixtures, plans, drawings, information, and Contract rights (collectively referred to as "manufacturing materials" in this clause) that the Contractor has specifically produced or acquired for the terminated portion of this Contract. Upon direction of the OSU CO, the Contractor shall also protect and preserve property in its possession in which OSU has an interest.

g. OSU shall pay Contract price for completed supplies delivered and accepted. The Contractor and CO of OSU shall agree on the amount of payment for manufacturing materials delivered and accepted and for the protection and preservation of the property. Failure to agree will be a dispute under the Disputes clause. OSU may withhold from these amounts any sum the CO determines to be necessary to protect OSU and/or OSU against loss because of outstanding liens or claims of former lien holders.

h. If, after termination, it is determined that the Contractor was not in default, or that the default was excusable, the rights and obligations of the parties shall be the same as if the termination had been issued for the convenience of Ocean Leadership.

i. The rights and remedies of OSU and/or OSU in this clause are in addition to any other rights and remedies provided by law or under this Contract.

I.3.5. Stop Work Order

a. The OSU CO may, at any time, by written order to the Contractor, require the Contractor to stop all, or any part, of the work called for by this Contract for a period of 90 days after the order is delivered to the Contractor, and for any further period to which the parties may agree. The order shall be specifically identified as a stop-work order issued under this clause. Upon receipt of the order, the Contractor shall immediately comply with its terms and take all reasonable steps to minimize the incurrence of costs allocable to the work covered by the order during the period of work stoppage. Within a period of 90 days after a stop-work is delivered to the Contractor, or within any extension of that period to which the parties shall have agreed, the OSU CO shall either—

1. Cancel the stop-work order; or
2. Terminate the work covered by the order as provided in the Default, or the Termination for Convenience, clause of this Contract.

b. If a stop-work order issued under this clause is canceled or the period of the order or any extension thereof expires, the Contractor shall resume work. The OSU CO shall make an equitable adjustment in the delivery schedule or Contract price, or both, and the Contract shall be modified, in writing, accordingly, if—
   1. The stop-work order results in an increase in the time required for, or in the Contractor's cost properly allocable to, the performance of any part of this Contract; and
   2. The Contractor asserts its right to the adjustment within 30 days after the end of the period of work stoppage; provided, that, if the OSU CO decides the facts justify the action, the OSU CO may receive and act upon the claim submitted at any time before final payment under this Contract.

c. If a stop-work order is not canceled and the work covered by the order is terminated for the convenience of OSU, the OSU CO shall allow reasonable costs resulting from the stop-work order in arriving at the termination settlement.

d. If a stop-work order is not canceled and the work covered by the order is terminated for default, the OSU CO shall allow, by equitable adjustment or otherwise, reasonable costs resulting from the stop-work order.

I.3.6. Risk of Loss

Unless the Contract specifically provides otherwise, risk of loss or damage to the supplies provided under this Contract shall remain with the Contractor until, and shall pass to OSU upon delivery of the supplies to OSU at the destination specified in the Contract.

I.3.7. Title

Unless specified elsewhere in this Contract, title to items furnished under this Contract shall pass to OSU upon acceptance, regardless of when or where OSU takes physical possession.

I.3.8. Other Compliances

The Contractor shall comply with all applicable Federal, State and local laws, executive orders, rules and regulations applicable to its performance under this Contract.

Compliance with laws unique to Government contracts: The Contractor agrees to comply with 31 U.S.C. 1352 relating to limitations on the use of appropriated funds to influence certain Federal contracts; 18 U.S.C. 431 relating to officials not to benefit; 40 U.S.C. 3701, **et seq.**, Contract Work Hours and Safety Standards Act; 41 U.S.C. 51-58, Anti-Kickback Act of 1986; 41 U.S.C. 265 and 10 U.S.C. 2409 relating to whistleblower protections; 49 U.S.C. 40118, Fly American; and 41 U.S.C. 423 relating to procurement integrity.

I.3.9. Central Contractor Registration (CCR)

a. Unless exempted by an addendum to this Contract, the Contractor is responsible during performance and through final payment of any Contract for the accuracy and completeness of the data within the CCR database, and for any liability resulting from Ocean Leadership's and/or OSU's reliance on inaccurate or incomplete data. To remain registered in the CCR database after the initial registration, the Contractor is required to review and update on an annual basis from the date of initial registration or subsequent updates its information in the CCR database to ensure it is current, accurate and complete. Updating information in the CCR does not alter the terms and conditions of this Contract and is not a substitute for a properly executed contractual document.

I.3.10. Convict Labor.

a. Except as provided in paragraph (b) of this clause, the Contractor shall not employ in the performance of this contract any person undergoing a sentence of imprisonment imposed by any court of a State, the District of Columbia, Puerto Rico, the Northern Mariana Islands, American Samoa, Guam, or the U.S. Virgin Islands.

b. The Contractor is not prohibited from employing persons—

1. On parole or probation to work at paid employment during the term of their sentence;
2. Who have been pardoned or who have served their terms; or
3. Confined for violation of the laws of any of the States, the District of Columbia, Puerto Rico, the Northern Mariana Islands, American Samoa, Guam, or the U.S. Virgin Islands who are authorized to work at paid employment in the community under the laws of such jurisdiction, if—

i. The worker is paid or is in an approved work training program on a voluntary basis;
ii. Representatives of local union central bodies or similar labor union organizations have been consulted;
iii. Such paid employment will not result in the displacement of employed workers, or be applied in skills, crafts, or trades in which there is a surplus of available gainful labor in the locality, or impair existing contracts for services;
iv. The rates of pay and other conditions of employment will not be less than those paid or provided for work of a similar nature in the locality in which the work is being performed; and
v. The Attorney General of the United States has certified that the work-release laws or regulations of the jurisdiction involved are in conformity with the requirements of Executive Order 11755, as amended by Executive Orders 12608 and 12943.

I.3.11. Duty-Free Entry.

a. Definition. "Customs territory of the United States" means the States, the District of Columbia, and Puerto Rico.

b. Except as otherwise approved by the OSU CO, the Contractor shall not include in the contract price any amount for duties on supplies specifically identified in the Schedule to be accorded duty-free entry.

c. Except as provided in paragraph (d) of this clause or elsewhere in this contract, the following procedures apply to supplies not identified in the Schedule to be accorded duty-free entry:

1. The Contractor shall notify the OSU Contracting Officer in writing of any purchase of foreign supplies (including, without limitation, raw materials, components, and intermediate assemblies) in excess of $15,000 that are to be imported into the customs territory of the United States for delivery to OSU under this contract, either as end products or for incorporation into end products. The Contractor shall furnish the notice to the OSU Contracting Officer at least 20 calendar days before the importation. The notice shall identify the—

i. Foreign supplies;
ii. Estimated amount of duty; and
iii. Country of origin.

2. The OSU Contracting Officer will determine whether any of these supplies should be accorded duty-free entry and will notify the Contractor within 10 calendar days after receipt of the Contractor's notification.
3. Except as otherwise approved by the Contracting Officer, the contract price shall be reduced by (or the allowable cost shall not include) the amount of duty that would be payable if the supplies were not entered duty-free.

d. The Contractor is not required to provide the notification under paragraph (c) of this clause for purchases of foreign supplies if—

1. The supplies are identical in nature to items purchased by the Contractor or any subcontractor in connection with its commercial business; and,
2. Segregation of these supplies to ensure use only on OSU contracts containing duty-free entry provisions is not economical or feasible.

e. The Contractor shall claim duty-free entry only for supplies to be delivered to OSU under this contract, either as end products or incorporated into end products, and shall pay duty on supplies, or any portion of them, other than scrap, salvage, or competitive sale authorized by the Contracting Officer, diverted to non-OSU use.

f. OSU will execute any required duty-free entry certificates for supplies to be accorded duty-free entry and will assist the Contractor in obtaining duty-free entry for these supplies.

g. Shipping documents for supplies to be accorded duty-free entry shall consign the shipments to the contracting agency in care of the Contractor and shall include the—
1. Delivery address of the Contractor (or contracting agency, if appropriate);
2. OSU/NSF prime contract number;
3. Identification of carrier;
4. Notation "UNITED STATES GOVERNMENT, (contracting agency) OSU/NSF Duty-free entry to be claimed pursuant to Item No(s) _____ [from Tariff Schedules] _____, Harmonized Tariff Schedules of the United States. Upon arrival of shipment at port of entry, District Director of Customs, please release shipment under 19 CFR Part 142 and notify [cognizant contract administration office] for execution of Customs Forms 7501 and 7501-A and any required duty-free entry certificates.";
5. Gross weight in pounds (if freight is based on space tonnage, state cubic feet in addition to gross shipping weight); and,
6. Estimated value in United States dollars.

h. The Contractor shall instruct the foreign supplier to—
1. Consign the shipment as specified in paragraph (g) of this clause;
2. Mark all packages with the words "UNITED STATES GOVERNMENT" and the title of the contracting agency; and,
3. Include with the shipment at least two copies of the bill of lading (or other shipping document) for use by the District Director of Customs at the port of entry.

i. The Contractor shall provide written notice to the cognizant contract administration office immediately after notification by the Contracting Officer that duty-free entry will be accorded foreign supplies or, for duty-free supplies identified in the Schedule, upon award by the Contractor to the overseas supplier. The notice shall identify the—
1. Foreign supplies;
2. Country of origin;
3. Contract number; and
4. Scheduled delivery date(s).

j. The Contractor shall include the substance of this clause in any subcontract if—
1. Supplies identified in the Schedule to be accorded duty-free entry will be imported into the customs territory of the United States; or
2. Other foreign supplies in excess of $15,000 may be imported into the customs territory of the United States.

I.3.12. Authorization and Consent

a. OSU authorizes and consents to all use and manufacture, in performing this contract or any subcontract at any tier, of any invention described in and covered by a United States patent—
1. Embodied in the structure or composition of any article the delivery of which is accepted by OSU under this contract; or,
2. Used in machinery, tools, or methods whose use necessarily results from compliance by the Contractor or a subcontractor with (i) specifications or written provisions forming a part of

this contract or (ii) specific written instructions given by the CO directing the manner of performance. the entire liability to OSU for infringement of a United States patent shall be determined solely by the provisions of the indemnity clause, if any, included in this contract or any subcontract hereunder (including any lower-tier subcontract), and OSU assumes liability for all other infringement to the extent of the authorization and consent hereinabove granted.

b. The Contractor shall include the substance of this clause, including this paragraph (b), in all subcontracts that are expected to exceed the simplified acquisition threshold. However, omission of this clause from any subcontract, including those at or below the simplified acquisition threshold, does not affect this authorization and consent.

I.3.13. Hazardous Material Identification and Material Safety Data

a. "Hazardous material," as used in this clause, includes any material defined as hazardous under the latest version of Federal Standard No. 313 (including revisions adopted during the term of the contract).

b. The Offeror must list any hazardous material, as defined in paragraph (a) of this clause, to be delivered under this contract. The hazardous material shall be properly identified and include any applicable identification number, such as National Stock Number or Special Item Number. This information shall also be included on the Material Safety Data Sheet submitted under this contract.

Material (If none, insert "None") Identification No.

_____ _____

_____ _____

_____ _____

c. This list must be updated during performance of the contract whenever the Contractor determines that any other material to be delivered under this contract is hazardous.

d. The apparently successful Offeror agrees to submit, for each item as required prior to award, a Material Safety Data Sheet, meeting the requirements of 29 CFR 1910.1200(g) and the latest version of Federal Standard No. 313, for all hazardous material identified in paragraph (b) of this clause. Data shall be submitted in accordance with Federal Standard No. 313, whether or not the apparently successful Offeror is the actual manufacturer of these items. Failure to submit the Material Safety Data Sheet prior to award may result in the apparently successful Offeror being considered nonresponsible and ineligible for award.

e. If, after award, there is a change in the composition of the item(s) or a revision to Federal Standard No. 313, which renders incomplete or inaccurate the data submitted under paragraph (d) of this clause, the Contractor shall promptly notify the CO and resubmit the data.

f. Neither the requirements of this clause nor any act or failure to act by OSU shall relieve the Contractor of any responsibility or liability for the safety of OSU, Contractor, or subcontractor personnel or property.

g. Nothing contained in this clause shall relieve the Contractor from complying with applicable Federal, State, and local laws, codes, ordinances, and regulations (including the obtaining of licenses and permits) in connection with hazardous material.

h. OSU's rights in data furnished under this contract with respect to hazardous material are as follows:

1. To use, duplicate and disclose any data to which this clause is applicable. The purposes of this right are to—
   i. Apprise personnel of the hazards to which they may be exposed in using, handling, packaging, transporting, or disposing of hazardous materials;
   ii. Obtain medical treatment for those affected by the material; and
   iii. Have others use, duplicate, and disclose the data for OSU for these purposes.

2. To use, duplicate, and disclose data furnished under this clause, in accordance with paragraph (h)(1) of this clause, in precedence over any other clause of this contract providing for rights in data.
3. The Government is not precluded from using similar or identical data acquired from other sources.

i. Except as provided in paragraph (i)(2), the Contractor shall prepare and submit a sufficient number of Material Safety Data Sheets (MSDS's), meeting the requirements of 29 CFR 1910.1200(g) and the latest version of Federal Standard No.313, for all hazardous materials identified in paragraph (b) of this clause.
(1) For items shipped to consignees, the Contractor shall include a copy of the MSDS's with the packing list or other suitable shipping document which accompanies each shipment. Alternatively, the Contractor is permitted to transmit MSDS's to consignees in advance of receipt of shipments by consignees, if authorized in writing by the OSU CO.
(2) For items shipped to consignees identified by mailing address as agency depots, distribution centers or customer supply centers, the Contractor shall provide one copy of the MSDS's in or on each shipping container. If affixed to the outside of each container, the MSDS's must be placed in a weather resistant envelope.

I.3.14. Toxic Chemical Release Reporting

a. Unless otherwise exempt, the Contractor, as owner or operator of a facility used in the performance of this contract, shall file by July 1 for the prior calendar year an annual Toxic Chemical Release Inventory Form (Form R) as described in sections 313 (a) and (g) of the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) (42 U.S.C. 11023(a) and (g)), and section 6607 of the Pollution Prevention Act of 1990 (PPA) (42 U.S.C. 13106). The Contractor shall file, for each facility subject to the Form R filing and reporting requirements, the annual Form R throughout the life of the contract.
b. A Contractor-owned or -operated facility used in the performance of this contract is exempt from the requirement to file an annual Form R if—
   1. The facility does not manufacture, process, or otherwise use any toxic chemicals listed in 40 CFR 372.65;
   2. The facility does not have 10 or more full-time employees as specified in section 313(b)(1)(A) of EPCRA, 42 U.S.C. 11023(b)(1)(A);
   3. The facility does not meet the reporting thresholds of toxic chemicals established under section 313(f) of EPCRA, 42 U.S.C. 11023(f) (including the alternate thresholds at 40 CFR 372.27, provided an appropriate certification form has been filed with EPA);
   4. The facility does not fall within the following Standard Industrial Classification (SIC) codes or their corresponding North American Industry Classification System sectors:
      i. Major group code 10 (except 1011, 1081, and 1094.
      ii. Major group code 12 (except 1241).
      iii. Major group codes 20 through 39.
      iv. Industry code 4911, 4931, or 4939 (limited to facilities that combust coal and/or oil for the purpose of generating power for distribution in commerce).
      v. Industry code 4953 (limited to facilities regulated under the Resource Conservation and Recovery Act, Subtitle C (42 U.S.C. 6921, et seq.)), or 5169, or 5171, or 7389 (limited to facilities primarily engaged in solvent recovery services on a contract or fee basis); or,
      vi. The facility is not located in the United States or its outlying areas.
c. If the Contractor has certified to an exemption in accordance with one or more of the criteria in paragraph (b) of this clause, and after award of the contract circumstances change so that any of its owned or operated facilities used in the performance of this contract is no longer exempt—
   1. The Contractor shall notify the OSU CO; and

2. The Contractor, as owner or operator of a facility used in the performance of this contract that is no longer exempt, shall—

d. Submit a Toxic Chemical Release Inventory Form (Form R) on or before July 1 for the prior calendar year during which the facility becomes eligible; and,
e. Continue to file the annual Form R for the life of the contract for such facility.
f. The OSU CO may terminate this contract or take other action as appropriate, if the Contractor fails to comply accurately and fully with the EPCRA and PPA toxic chemical release filing and reporting requirements.
g. Except for acquisitions of commercial off-the-shelf items, the Contractor shall—
   1. For competitive subcontracts expected to exceed $100,000 (including all options), include a solicitation provision substantially the same as this provision and
   2. Include in any resultant subcontract exceeding $100,000 (including all options), the substance of this clause, except this paragraph (e).

I.3.15. Bankruptcy

In the event the Contractor enters into proceedings relating to bankruptcy, whether voluntary or involuntary, the Contractor agrees to furnish, by certified mail or electronic commerce method authorized by the contract, written notification of the bankruptcy to the OSU Contracting Officer responsible for administering the contract. This notification shall be furnished within five days of the initiation of the proceedings relating to bankruptcy filing. This notification shall include the date on which the bankruptcy petition was filed, the identity of the court in which the bankruptcy petition was filed, and a listing of OSU contract numbers against which final payment has not been made. This obligation remains in effect until final payment under this contract.

I.3.16. Notification of Ownership Changes.

a. The Contractor shall make the following notifications in writing:
   1. When the Contractor becomes aware that a change in its ownership has occurred, or is certain to occur, that could result in changes in the valuation of its capitalized assets in the accounting records, the Contractor shall notify OSU within 30 days.
   2. The Contractor shall also notify OSU within 30 days whenever changes to asset valuations or any other cost changes have occurred or are certain to occur as a result of a change in ownership.
b. The Contractor shall—
   1. Maintain current, accurate, and complete inventory records of assets and their costs;
   2. Provide OSU or designated representative ready access to the records upon request;
   3. Ensure that all individual and grouped assets, their capitalized values, accumulated depreciation or amortization, and remaining useful lives are identified accurately before and after each of the Contractor's ownership changes; and
   4. Retain and continue to maintain depreciation and amortization schedules based on the asset records maintained before each Contractor ownership change.
c. The Contractor shall include the substance of this clause in all subcontracts under this contract that will require certified cost or pricing data.

(End of Section I)

Section J. Attachments

The following document(s), exhibit(s), and attachment(s) are hereby incorporated by reference into this solicitation and any resultant contract:

- Attachment #1 – Portable Heavy Lift Marine Winch – Specifications
- Attachment #2 – Specification Compliance Matrix Checklist
- Attachment #3 – Proposal Conformance Checklist
- Attachment #4 – Informational Documents:
  - Appendix A - 46 CFR 189-35-9
  - Appendix B - UNOLS RVSS Appendix B
  - Appendix C - Example MCD.pdf
- Attachment #5 – Site Acceptance Test (SAT)

(End of Section J)

Section K. Representations, Certifications and Other Statements of Offerors

K.1. Offeror Representations and Certifications

The Offeror certifies that (i) all Representations and Certifications contained in the solicitation and offer are complete, current, and accurate as required, (ii) the Offeror is aware that any contract/PO issued as a result of this RFP shall be considered to have incorporated the applicable Representations and Certifications by reference.

K.2. Taxpayer Identification

(a) Definitions:

"*Common parent*," as used in this solicitation provision, means that corporate entity that owns or controls an affiliated group of corporations that files its Federal income tax returns on a consolidated basis, and of which the Offeror is a member.

"*Taxpayer Identification Number (TIN)*," as used in this provision, means the number required by the IRS to be used by the Offeror in reporting income tax and other returns. The TIN may be either a Social Security Number or an Employer Identification Number.

(b) All Offerors are required to submit the information required in paragraphs (d) through (f) of this provision in order to comply with debt collection requirements of 31 U.S.C. 7701(c) and 3325(d), reporting requirements of 26 U.S.C. 6041, and 6041A, and 6050M and implementing regulations issued by the IRS. If the resulting contract is subject to reporting requirements described in FAR 4.904, the failure or refusal by the Offeror to furnish the information may result in a 31 percent reduction otherwise due under the contract.

(c) The TIN may be used by the Government to collect and report on any delinquent amounts arising out of the Offeror's relationship with the Government (31 U.S.C. 7701(c) (3)). If the resulting contract is subject to the payment reporting requirements described in FAR 4.904, the TIN provided hereunder may be matched with IRS records to verify the accuracy of the Offeror's TIN.

(d) Taxpayer Identification Number (TIN)

- ☐ TIN:_____.
- ☐ TIN has been applied for.
- ☐ TIN is not required because:
- ☐ Offeror is a nonresident alien, foreign corporation, or foreign partnership that does not have income effectively connected with the conduct of a trade or business in the U.S. and does not have an office or place of business or a fiscal paying agent in the U.S.
- ☐ Offeror is an agency or instrumentality of a foreign government.
- ☐ Offeror is an agency or instrumentality of the Federal Government.

(e) Type of organization

- ☐ Sole proprietorship
- ☐ Partnership
- ☐ Corporate Entity (not tax-exempt)
- ☐ Corporate Entity (tax-exempt)

- ☐ Government Entity (Federal, State or local)
- ☐ Foreign Government
- ☐ International Organization per 26 CFR 1.6049-4
- ☐ Other

f) Common Parent

- ☐ Offeror is not owned or controlled by a common parent as defined in paragraph (a) of this provision.
- ☐ Name and TIN of common parent:
  Name: _____
  TIN: _____

K.3. Certification Regarding Debarment, and Other Responsibility Matters

(a)1. The Offeror certifies, to the best of its knowledge and belief, that:

(i) The Offeror and/or any of its Principals –

(A) Are ☐, Are not ☐ presently debarred, suspended, proposed for debarment, or declared ineligible for the Subaward of contracts by any Federal agency.

(B) Have ☐ Have not ☐, within a 3-year period preceding this offer, been convicted of or had a civil judgment rendered against them for: commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, state, or local) contract or Subaward; violation of federal or state antitrust statutes relating to the submission of offers; or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, tax evasion, or receiving stolen property; and

(C) Are ☐, Are not ☐ presently indicted for, or otherwise criminally or civilly charged by a government entity with, commission of any of the offenses enumerated in subdivision (a)(1)(i)(B) of this provision.

(ii) The Offeror has ☐, has not ☐, within a 3-year period preceding this offer, had one or more contracts terminated for default by any Federal agency.

2. "Principals," for the purposes of this certification, means officers; directors; owners; partners; and, persons having primary management or supervisory responsibilities within a business entity (e.g., general manager; plant manager; head of a subsidiary, division, or business segment, and similar positions).

This certification concerns a matter within the jurisdiction of an agency of the United States and the making of a false, fictitious, or fraudulent certification may render the maker subject to prosecution under section 1001, title 18, United States Code.

(b) The Offeror shall provide immediate written notice to the Contracting Officer if, at any time prior to contract Subaward, the Offeror learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

(c) A certification that any of the items in paragraph (a) of this provision exists will not necessarily result

in withholding of a Subaward under this solicitation. However, the certification will be considered in connection with a determination of the Offeror's responsibility. Failure of the Offeror to furnish a certification or provide such additional information as requested by the Contracting Officer may render the Offeror non-responsible.

(d) Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render, in good faith, the certification required by paragraph (a) of this provision. The knowledge and information of an Offeror is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

(e) The certification in paragraph (a) of this provision is a material representation of fact upon which reliance was placed when making Subaward. If it is later determined that the Offeror knowingly rendered an erroneous certification, in addition to other remedies available to the Government, the Contracting Officer may terminate the contract resulting from this solicitation for default.

K.4. Drug-Free Workplace Certification

The Contractor certifies that it will provide a drug-free workplace by:

(a) Publishing a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession or use of a controlled substance is prohibited in the Contractor's workplace and specifying the actions that will be taken against employees for violation of such prohibition;

(b) Establishing a drug-free awareness program to inform employees about—

1. The dangers of drug abuse in the workplace;
2. The Contractor's policy of maintaining a drug-free workplace;
3. Any available drug counseling, rehabilitation and employee assistance programs, and
4. The penalties that may be imposed upon employees for drug abuse violations occurring in the workplace.

(c) Making it a requirement that each employee to be engaged in the performance of the Contract be given a copy of the statement required by paragraph (a);

(d) Notifying the employee in the statement required by paragraph (a) that, as a condition of employment under the Contract, the employee will:

1. Abide by the terms of the statement; and
2. Notify the employer of any criminal drug statute conviction for a violation occurring in the workplace no later than five days after each conviction;

(e) Notifying Ocean Leadership within ten days after receiving notice under subparagraph (d.2) from an employee or otherwise receiving actual notice of such conviction;

(f) Taking one of the following actions, within 30 days of receiving notice under subparagraph (d.2), with respect to any employee who is so convicted—

1. Taking appropriate personnel action against such an employee, up to and including termination; or,
2. Requiring such employee to participate satisfactorily in a drug abuse assistance or rehabilitation program approved for such purposes by a Federal, State, or local health, law enforcement, or other appropriate agency;

(g) Making a good faith effort to continue to maintain a drug-free workplace through implementation of paragraphs (a), (b), (c), (d), (f) and (g).

K.5. Certification Regarding Lobbying Instructions on Certification Regarding Lobbying

This certification is required for an award of a Federal contract, grant or cooperative agreement exceeding $100,000 and for an award of a Federal loan or a commitment providing for the United States to insure or guarantee a loan exceeding $150,000.

The undersigned certifies, to the best of his or her knowledge and belief, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form LLL, "Disclosure of Lobbying Activities," in accordance with its instructions.

3. The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements and that all subcontractors shall certify and disclose accordingly. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

K.6. Certification Regarding Conflict of Interest Policies

The Offeror hereby certifies that the Contractor has implemented and is enforcing a written policy on conflicts of interest, consistent with the provisions of Award Administration Guide (AAG) Chapter IV.A; that, to the best of his/her knowledge, all financial disclosures required by the conflict of interest policy were made; and that conflicts of interest, if any, were, or prior to the institution's expenditure of any funds under the award, will be, satisfactorily managed, reduced, or eliminated in accordance with the institution's conflict of interest policy. Conflicts that cannot be satisfactorily managed, reduced, or eliminated must be disclosed to OSU. The Award Administration Guide can be found at:
http://www.nsf.gov/pubs/policydocs/pappguide/nsf10_1/aagprint.pdf

K.7. Certification Regarding Nondiscrimination

By submitting this proposal, the Authorized Organization Representative (AOR) is providing the Certification Regarding Nondiscrimination contained in Exhibit II-6 of the Grant Proposal Guide. The Grant Proposal Guide can be found at:
http://www.nsf.gov/pubs/policydocs/pappguide/nsf10_1/gpgprint.pdf

K.8. Certification Regarding Flood Hazard Insurance
Intentionally left blank

K.9. Certification for Authorization for Organizational Representation or Individual Proposer
By submitting this proposal and signing below, the AOR is hereby: 1) certifying that statements made herein are true and complete to the best of his/her knowledge; and (2) agreeing to accept the obligation to comply with applicable NSF award terms and conditions if an award is made as a result of this proposal. Further the Offeror is hereby providing certifications regarding debarment and suspension, drug-free workplace, lobbying activities, and nondiscrimination as set forth in the NSF Proposal and Award Policies & Procedures Guide, Part I: The Grant Proposal Guide (GPG) (NSF 10-1). Willful provision of false information in this proposal and its supporting documents or in reports required under an ensuing award is a criminal offense (U.S. Code, Title 18, Par. 1001).

Signature of AOR

Name of AOR and Date

K.10. Certification Regarding Organizational Conflict of Interest
The purpose of this form is to grant Offerors an opportunity to disclose any actual or potential organizational conflicts of interest. A disclosed Conflict of Interest will not automatically result in the Offeror being removed from consideration. Mark the appropriate boxes that pertain to you and your organization for this RFP as well as providing any needed explanations.

(a) Conflicts of Interest: A conflict of interest occurs when someone in a position of trust has competing professional or personal interests and these competing interests make it difficult to fulfill their professional duties impartially. A conflict of interest exists even if no unethical or improper act results from it. Conflicts of interest may be actual or perceived. An actual conflict of interest occurs when a decision or action would be compromised without taking immediate appropriate action to eliminate the conflict. A perceived conflict of interest is any situation in which a reasonable person would conclude that conflicting duties or loyalties exist.

(b) Organizational Conflicts Of Interest: An organizational conflict of interest occurs when: a contractor is unable or potentially unable to provide impartial contract performance due to competing duties or loyalties; a contractor's objectivity in carrying out the contract is or might be otherwise impaired due to competing duties or loyalties; or a contractor has an unfair competitive advantage through being furnished unauthorized proprietary information or source selection information that is not available to all competitors/Offerors.

All Offerors must provide a list of all relationships with OSUs that create, or may appear to create, a conflict of interest with the work that is contemplated in this RFP. The list shall indicate the relationship and a description of the conflict.

I certify that I have read and understand the description of organizational conflict of interest above and (check one of the following two boxes):

☐ Based on the criteria and description above, I do not have any conflicts of interest.

☐ Based on the criteria and description above, I have an actual or potential conflict of interest, or the appearance of a conflict of interest, which I am listing immediately below.

Name/Relationship and/or Description of the Conflict of Interest (attach additional pages if needed):

(c) Certification: The Offeror warrants that, to the best of its knowledge and belief, and except as otherwise disclosed, there are no relevant facts or circumstances which could give rise to organizational conflicts of interest. The Offeror agrees that if after award a conflict of interest is discovered, an immediate and full disclosure in writing shall be made to the Contracting Officer. The disclosure shall include a description of the action which the Contractor has taken or proposes to take to avoid or mitigate such conflicts. If a conflict of interest is determined to exist the award may be canceled at the discretion of the Contracting Officer. In the event the Offeror was aware of an organizational conflict of interest prior to the award and did not disclose the conflict, the Contracting Officer may terminate the award for default.

Printed Name	Offeror's Authorized Representative Title
Signature	Date

(End of Section K)

Section L. Instructions for Proposal

L.1. General Instructions

L.1.1. General Proposal Instructions

a. Offerors should examine the entire solicitation. Failure to do so shall be at Offeror's own risk. Proposals should be submitted per instructions as detailed in this section.

b. Offeror's Proposals should contain Technical, Management, Past Performance, and Cost/Price volumes as described below. The contractor should state how each requirement will be verified (test, certification, calculation, or other). In the event the Offeror's Proposals are considered to be unreasonable, OSU reserves the right to ask for further information or to not award this contract.

c. The Technical, Management, Past Performance and Cost/Price volumes should be based on the requirements contained in this RFP (including those documents, exhibits, and other attachments to the RFP identified in Section J). Any exception to these requirements shall be explicitly stated in writing in the proposal response. The Offeror should submit all information required by this RFP.

d. A proposed maintenance contract with costs shall be specified at the time of the proposal. This will be considered as part of the evaluation of this RFP but it will NOT be part of this procurement contract. Normal maintenance requirements and schedule shall be summarized in writing with each proposal.

e. Documents, exhibits, and other attachments that form a part of this RFP and which become part of any resultant contract are identified in Section J. Documents and attachments, which form a part of this RFP but will not become a part of any resultant contract, should not be submitted with the Offeror's proposal. Those documents and attachments to be excluded from the proposal are:
Section L – Instructions, Conditions, and Notices to Offerors
Section M – Evaluation and Award Factors

f. Offerors should comply with specific information submission requirements found in Section L and Section M. Failure of the Offeror to comply with all aspects of solicitation requirements located within the "Cost" section may render the proposal non-responsive and the Offeror may be removed from competition.

g. Evaluation Categories are explained in Section M, including the Cost/Price and Technical volumes sections. The Technical volume is comprised of five (5) factors: A) Technical Approach, B) Producibility Plan, C) Schedule, D) Maintenance and Refurbishment, and E) Test/Quality Assurance System.
   1. If needed, an additional Discussion/Final Proposal Revision will be requested of some Offerors.

h. Offerors are expected to reach a reasonable understanding of the requirements of this RFP by careful study (particularly Section C—Descriptions/Specifications and Section J, Attachment A—Portable Heavy Lift Marine Winch Specifications, and Other Attachments) and by the application of qualified knowledge and experience. If such a review establishes the need for correction or clarification, such information should immediately be brought to the attention of the OSU POC so that the matter can be resolved and so that, if necessary, official dissemination of such information can be made to all Offerors. All questions shall be submitted by the date specified in section A.1.

i. Proposal Structure
   1. Section Numbering. Section numbering should coincide with the numbering system of this document.
   2. The Offeror should structure the proposal such that information provided for each section is as comprehensive as possible. The information provided for each section should be

sufficiently self-contained to minimize the need to refer to other proposal sections for evaluation purposes. If cross-references are needed, page and paragraph numbers should be included.

3. The solicitation provides information upon which the Technical section should be based.
4. Section M of this solicitation outlines evaluation factors for award and their relative importance.

j. General Requirements
   1. Four volumes: Volume I (Technical), Volume II (Management), Volume III (Past Performance), and Volume IV (Cost/Price) are required. During the course of evaluating the Cost and Technical sections, OSU will compare data within each Offeror's Cost and Technical sections to verify consistency. Any inconsistencies may be viewed as weaknesses in the proposal. Timeliness of receipt of proposals will be determined based on the time of receipt at the OSU location.
   2. To ensure that each Offeror's proposal is uniformly formatted, the following guidelines apply for the preparation of proposals. The proposals should be presented in two files: Volumes I-III (Un-costed) - Technical, Management, and Past Performance; and, Volume IV – Cost. Additionally include in each file, attachments (numbered) and spreadsheets or exhibits as required. Both files should be formatted in Microsoft Word, Excel and/or other Microsoft Office Professional products. If .pdf files are required, margins may not exceed 1.5 inches.
   3. The pages should be typewritten or printed, single-spaced, single-sided with no reductions, on standard 8-1/2" x 11" paper. The proposals should be prepared using Arial type font and be no smaller than 12-point. Margins should be a minimum of one-inch top, bottom and both sides.
   4. Offerors are cautioned that, in accordance with the FAR clause "Instruction to Offerors-Competitive Acquisitions" (Jan 2004) (FAR 52.215-1), OSU intends to award a contract on the basis of initial proposals received, without discussions; therefore, each proposal shall contain the Offeror's best terms from a cost and technical standpoint.

k. Solicitation Responsiveness. Offerors are advised to submit proposals that are complete and clear in all respects without the need for additional explanation or information. Offerors are cautioned against the use of general, vague, or unsubstantiated statements, which prevent concise proposal evaluations. Each factor will be evaluated on how well the response meets the requirements of the solicitation. The response that completely addresses all of the solicitation requirements may be judged superior to the response that minimally addresses solicitation requirements under evaluation factors.

L.2. Proposal Submission Requirements

L.2.1. General Proposal Organization

The Offeror should prepare its proposal as set forth in the following paragraphs. To be considered compliant and eligible for award, the proposal should, at a minimum, include the information identified in these Instructions for Proposal and comply with the cited page limitations for each section. Non-conformance with the specified organization, content, and page limitations may result in the rejection of the proposal as non-responsive. Page limitations should be treated as maximums. If exceeded, the excess pages may not be read or considered in the evaluation of the proposal.

Offerors' proposals should contain the following four volumes:

Volume 1	Technical	20 page maximum limit
Volume 2	Management	10 Page limit maximum
Volume 3	Past Performance	5 Page limit maximum
Volume 4	Cost/Price	No page limit

In the event the Offeror's Proposals are considered to be inadequate or non-responsive, OSU reserves the right to ask for further information or not to award this contract.

L.2.2. Proposal Copies

Hard copies and CD ROM/DVD of the proposal volumes shall be submitted to OSU's designated POC (as listed in Section A-1). In the event of any discrepancy between the CD and hard copy, the signed hard copy shall take precedence. Un-costed hard copy Volumes I-III (Technical, Management and Past Performance) can be bound together, and Volume IV Cost/Price, bound separately. For the CD copies, each file shall be contained on a separate CD ROM/DVD labeled with the Offeror name, Volume numbers, and title (consistent with Section L-1.1, i.2).

Offerors shall submit:

Volume	Title	No. of "Paper Originals"	No. of "Paper Copies"	No. of "CDs"
I	Technical			
II	Management	1	6	2
III	Past Performance			
IV	Cost/Price	1	6	2

Note: The CDs should be scanned and free from computer viruses.

Submission shall be made to:

ATTN: James Figgins
Contracting Officer/Purchasing Analyst
Oregon State University
644 SW 13th Street
Corvallis, Oregon 97333

1. It is the Offeror's responsibility to ensure adequate time has been allowed to submit the proposal by the due date and time indicated. The outside of the package shall clearly indicate the Offeror's name, solicitation identification and contents of package.
2. Originals may be shipped in the same boxes as the copies to eliminate excess shipping costs. However, originals should be separately wrapped inside the container, and clearly labeled "ORIGINAL TECHNICAL VOLUME" or "ORIGINAL COST VOLUME" or "COST SUPPORTING DATA" The exterior of each box SHOULD clearly indicate its contents.

a) All proposals (originals and copies) should be prepared on 8-1/2" x 11" paper and placed into three-ring binders.

NOTE: Timeliness of receipt of proposals will be determined based on the time of receipt at the OSU location (See Section A-1 and FAR 52.215-1).

b) Cover pages on each proposal should clearly identify the volume. Proposal cover pages, table-of-contents, fold-outs such as design drawings, circuit diagrams, and flow-process charts, resumes, labor category descriptions and acronym list are excluded from the proposal page count limits stated in Section L-2. 1. Company marketing materials and profiles are not needed and will not be evaluated.

Offerors shall provide a proposal no later than 3:00 PM PT, October 21, 2013. Proposals must be

submitted in a sealed envelope/package and be delivered to POC listed above no later than the Proposal Due Date and Time. Proposer must specify on the outside of the envelope the Request for Proposal number, the Request for Proposal title and the Proposal Due Date and Time. E-MAIL OR FACSIMILE PROPOSALS WILL NOT BE ACCEPTED. The Offeror should complete the Proposal Conformance Checklist included as Section J, Attachment #2 to this RFP and submit it together with the proposal.
Prior to submittal, Proposers should initial modifications or erasures in ink by the person signing the Proposal. After submittal but prior to the proposal due date and time, proposals may be modified by submitting a written notice indicating the modifications and a statement that the modification amends and supersedes the prior proposal. After the proposal due date and time, proposers may not modify their proposal.

L.3. Clauses Incorporated by Reference

FAR SOURCE	Title, Text and Date
52.204-6	Data Universal Numbering System (DUNS) Number (Apr 2008)
52.211-2	Availability of Specifications, Standards, and Data Item Descriptions Listed in the Acquisition Streamlining and Standardization Information System (ASSIST) (Jan 2006)
52.215-1	Instructions to Offerors--Competitive Acquisition (Jan 2004)
52.215-2	Audit and Records--Negotiation (Oct 2010)
52.215-20	Requirements for Certified Cost or Pricing Data and Data Other Than Certified Cost or Pricing Data (Oct 2010)
52.216-1	Type Of Contract (Apr 1984)
252.209-7001	Disclosure of Ownership or Control by the Government of a Terrorist Country (Jan 2009)
252.209-7002	Disclosure Of Ownership Or Control By A Foreign Government (Jun 2010)

L.4. Clauses Incorporated by Full Text

52.252-1 **SOLICITATION PROVISIONS INCORPORATED BY REFERENCE (Feb 1998)**

This solicitation incorporates one or more solicitation provisions by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. The Offeror is cautioned that the listed provisions may include blocks that should be completed by the Offeror and submitted with its quotation or offer. In lieu of submitting the full text of those provisions, the Offeror may identify the provision by paragraph identifier and provide the appropriate information with its quotation or offer

52.252-5 **AUTHORIZED DEVIATIONS IN PROVISIONS (APR 1984)**

(a) The use in this solicitation of any Federal Acquisition Regulation (48 CFR Chapter 1) provision with an authorized deviation is indicated by the addition of "(DEVIATION)" after the date of the provision.
(b) The use in this solicitation of any Federal Acquisition Regulation (48 CFR Chapter 1) provision with an authorized deviation is indicated by the addition of "(DEVIATION)" after the name of the regulation.

L.5. Subcontract Information

Offerors shall provide all necessary information for the contemplated purchase, when requesting proposals from prospective Sub-Contractors. OSU will not advise or consult with prospective Sub-Contractors as to the requirements of their transactions with Offerors, nor will respond to direct inquiries from prospective Sub-Contractors concerning clarifications of specification or solicitation requirements. ALL SUCH REQUESTS FOR CLARIFICATION MUST BE SUBMITTED TO OSU THROUGH THE PRIME CONTRACTOR (OFFEROR).

In addition to the above, each significant Sub-Contractor and/or team member should provide a cost/price proposal for its portion of the proposal. Cost/price proposals should provide the estimating rationale required by the cost/price proposal requirements provision. Significant Sub-Contractor and/or team member cost/price proposals should also include supporting data breakdowns.

A significant Sub-Contractor is defined as one providing effort consisting of five percent (5%) of total direct dollars, and/or ten percent (10%) of total man-hours.

The significant Sub-Contractor and/or team member cost/price proposals referenced in the preceding paragraph should be included in the Offeror's required submission OSU, as described in the heading—Section A, RFP General Information.

If the Prime Contractor's estimate is different from the submitted Sub-Contractors' estimate for the same effort, the Prime Contractor must clearly justify this difference.

L.6. Owner Furnished Property (OFP)

None.

L.7. Organizational Conflict of Interest (OCI) Certification

The Offeror shall comply with the Conflict of Interest Certification requirements identified in Section K-6 and provide (if necessary) a Conflict of Interest Avoidance or Mitigation Plan.

L.8. Offeror Points of Contact

The Offeror shall indicate their responsible/authorized POC in the beginning of each proposal volume. The POC should be authorized to hold discussions and negotiations with OSU and shall have full authority to bind the Offeror to a contract. The Offeror shall also provide a POC who will be responsible for reviewing any applicable performance evaluation reports rendered by OSI. POC information required includes: First name, last name, title, e-mail address, phone number, and Fax number.

L.9. Proposal Content

L.9.1. Non-Cost/Price Proposal Content (Technical Volume)

The Offeror's non-cost/price proposal volumes (I-Technical, II Management, III-Past Performance) should clearly state and reflect how the Offeror proposes to comply with the performance and requirements identified in the Winch, Specifications (Attachment 1) and the Statement of Work, Section C. The proposal volumes, including any supporting documentation, should be clear, concise and focused

on responding to the requirements. None of the non-cost/price proposals shall include or identify any of the proposed prices; however, they shall contain resource information (such as staffing levels) as called for by the instructions set forth in this RFP. The overall level of effort and support proposed should be consistent with the stated contract solution in the proposal. The proposal should fully document and substantiate a cross mapping of the cost approach as it relates to the non-cost/price volume.

L.10.1 Volume I – Technical

A Technical section is required from each Offeror and will be evaluated as specified in Section M.
The Offeror shall include in this volume discussion in sufficient detail to allow assessment of its ability to accomplish the solicitation requirements, including the baseline and options.

The Offerors should provide information organized in the following parts:
Total Page limit - 20
a) Cover letter: Page limit – 1
b) Table of Contents: Page limit – 1
c) Technical Sections: Page limit – Not to exceed 20 pages for Volume I

A. Technical Approach
B. Producibility Plan
C. Schedule
D. Maintenance and Refurbishment
E. Test/Quality Assurance System

If necessary, further Discussions and/or a request for a Final Proposal Revision may be requested.

OSU reserves the right to request such additional information regarding capabilities as may be necessary to determine the Offeror's qualifications for award of a contract or to clarify any aspect of the proposal.

Offerors should note that if awarded a contract based upon this solicitation, the Offeror's Technical Volume or portion thereof, may be incorporated into the contract by reference.

Release of Technical Information: All technical information submitted pursuant to this clause is for the exclusive use of OSU representatives, the Endurance Array (EA) Implementing Organization (IO), Source Selection Committee, Ocean Leadership, and appropriate NSF personnel. Technical information will be treated as business confidential and will not be publicly disclosed, provided that, where a request for disclosure of such technical information is submitted to OSU pursuant to the Freedom of Information Act (5 U.S.C. 552a), OSU will not disclose the Offeror's technical information if public disclosure of information would substantially harm the Offeror in its competitive position. In the order to help ensure non-disclosure, the title page of the technical proposal and other sheets of proposal data should be marked "TECHNICAL INFORMATION – NOT TO BE PUBLICLY DISCLOSED".
The technical proposal should be enclosed in a sealed envelope also marked "TECHNICAL INFORMATION – NOT TO BE PUBLICLY DISCLOSED".

CAUTION: Technical (Volume I) should contain brief statements of fact rather than wordy, generalized narratives.

The Technical (Volume I) should consist of no more than 20 pages. Offerors are cautioned that no more than the first 20 pages of Technical section will be evaluated. Any portion of a Technical section which exceeds the 20 pages will not be evaluated and will be treated in the same manner as late proposals or modifications in accordance with the FAR clause (FAR 52.215-1) in Section L of the RFP entitled, "Instructions to Offerors-Competitive Acquisitions."

Each single sided piece of paper shall be counted as one page toward the 20-page limit except for the following items:

1. The first page of the Technical volume shall be a title page with only basic information, including: volume number and category name; the solicitation number; the name of the contract, Offeror's name; the full name and address designation of the OSU representative; and the Offeror's position regarding disclosure of proposal data. No pages will be evaluated which are placed before this page.
2. The next page shall be the table of contents for the Technical volume.
3. Any pages in the proposal used solely for the purpose for separating sections of the proposal.

The Technical volume (Volume I) should consist of five (5) parts: A. Technical Approach, B. Producibility Plan, C. Schedule, D. Maintenance and Refurbishment, and E. Test/Quality Assurance System. A separate Discussion/Final Proposal Revision section may be requested of Offerors based upon their offer. Each part should be appropriately marked and separated. The Technical volume should be separated from the Cost/Price Proposal and should not contain Cost information.

Items in the Technical volume and exceeding a 20-page total allowance may not be considered. Each single side piece of paper is a page. Items in excess of the 20-page allowance used for an exhibit will count as one page. Pages are restricted to standard 8-1/2" x 11" paper, (including items such as: facility layout, organizational charts, etc). Exhibits should not contain any text other than simple explanations pertinent to the exhibit.

A. Technical Approach

The proposal should demonstrate the Offeror's capabilities in the following:

1. Provide clear details on how product offering aligns to the specifications listed in Attachment A.

B. Producibility Plan
The Offeror will develop a Firm Fixed Price for the production of the Winch. The Offerors will demonstrate their plan for producing this unit. This plan will include, but not be limited to, man hour estimates and material estimates. Risks associated with the plan and their mitigation strategies will be described.

C. Schedule
The Offeror should develop a Project schedule identifying milestones, risks associated in achieving these milestones, and a mitigation plan if milestones are not met.

D. Maintenance and Refurbishment
If the Offeror has performed maintenance and refurbishment for the winch, this section will discuss the Offeror's capabilities and experience. The estimated operational life and refurbishment cycles will be used to assess cost of ownership and life cycle cost.

E. Test/Quality Assurance System
The Offeror should describe their approach to testing during manufacturing and indicate whether tests are samples or 100%. The Offeror should also describe design verification testing approach as product modifications are made.

Offerors should provide a statement indicating ISO-9001 standing, if applicable.

The Offerors shall complete Attachment 3, Specification Compliance Matrix for Winch, and include in their proposal describing how their system meets the requirements.

F. Discussion/Final Proposal Revision (If applicable).
If discussions are applicable, all Offerors selected to participate in discussions should be advised of weaknesses in their proposal, and should be offered a reasonable opportunity to correct or resolve such weaknesses and to submit such technical and cost information, or other revisions to their proposal, that may result from such discussions. OSU reserves the right to enter into discussions if the only weakness is the affordability of the initial proposal.

The OSU Contracting Officer intends to make award without conducting discussions; however, at his/her discretion, the contracting representative may determine the competitive range and elect to conduct either verbal and/or written discussions. If the OSU Contracting Officer elects to conduct discussions, the representative reserves the right to conduct oral presentations of discussion question responses followed by a question-and-answer session. At such time, the OSU Contracting Officer will also provide the Offerors with information as to the format, length and rules which will govern the conduct of oral presentations of discussion question responses. The content of these presentations will be in response to questions the OSU Contracting Officer may submit to the Offeror during the discussion period. The purpose and goal of presentations of discussion question responses is to clarify and gain a better understanding of questions posted to the Offeror by OSU and the Offeror's responses and will not constitute part of the Offer. Written answers to discussion questions will become part of the proposal. When discussions are completed, the OSU Contracting Officer will close discussions and request the Final Revised Proposal (FRP).

Subsequent to the conclusion of discussions, if an FRP is requested, Offerors have the option of providing a completely new Technical volume, not to exceed 20-pages, or of providing substitute/additional pages to their updated Technical volume with the resulting page count of the Technical volume not to exceed 20 pages. After discussions Offerors may be asked to submit a revised version that represents a more affordable option for OSU. Issues not raised during discussions may be addressed in the FRP, but only information included in the FRP will be evaluated.

Volume II – Management
The Offeror should provide a Management Plan and Structure documenting how it will manage this project. The plan should address the lines of communication between the Offeror and OSU. This plan should address the corporate resources that the Offeror will be able to devote to this project. Additionally, as part of the management plan, the Offeror should address how it will manage logistics, quality control, configuration management, and risk management.

The Management Volume should consist of three (3) parts and be organized as follows:
A. Qualifications and resumes of key personnel.
Key personnel may include design engineers, QA/QC engineers, test engineers, software engineers, and/or hardware engineers.
B. Cost Control:
a) Methodology,
b) Procedures,
c) Cost control lessons learned from previous work.
C. Training Plan
a) The Offerors should provide its proposed training plan as well as their methodology supporting the SAT.

Volume III – Past Performance

The Offerors shall provide Past Performance information on up to three contracts/deployments that the Offeror considers most relevant to demonstrate the ability to perform the proposed effort. The Offeror's past performance should include examples relevant to both the technical requirements detailed in Attachment 1 and the Offeror's ability to meet all delivery requirements. The Offeror should provide descriptive text limited to two pages for each example provided. In this text, the Offeror should describe the relevance of each effort to the current acquisition as well as any problems encountered during these efforts and their resolution.

Volume IV – Cost/Price

The Offeror's Cost/Price Proposal shall include the information detailed below. These instructions are to assist the Offeror in submitting the information that is required to evaluate the reasonableness and realism of the proposed cost/price.

A. Overview/estimating Methodology and System

The overview shall provide narrative support for the Cost/Price Volume. Contractor format descriptions of each instrument, instrument option, and bundled fixed price service (e.g., special equipment required to perform user maintenance, factory repairs, recalibration, test, or refurbishment) shall be provided as an electronic exhibit (no hard copies required).

B. Cost Assumptions

The Offeror shall provide all relevant cost assumptions and information, which form the basis of its proposal. Cost assumptions and information include, but are not limited to, order size, order frequency, advanced procurement costs, and long lead costs. If the Offeror takes exception to any ground rules or assumptions stated in the solicitations, describe each exception or qualification and provide complete rationale.

C. Firm Fixed Price

Offeror's shall provide a Firm Fixed Price supporting the requirements of this RFP. Pricing shall include shipping to any destination in the lower 48 States.

D. Complete and submit Price/Cost Table, Section B.1 and Cost Breakdown Summary #1-A.

WINCH SUPPORTING COST DATA BREAKDOWN #1-A

COST SUMMARY

OFFEROR:_____

Cost Element	Hours	Rate* Amount
Prime Direct Labor (D/L by category of labor) Overhead Subcontract Costs (List each Significant Subcontractor D/L) Prime Material Subcontract Material All Other Costs (By Name) Subtotal G&A Total Cost		*(In dollars not percentage)

The Offeror should provide a basis of estimates sufficiently detailed to demonstrate the reasonableness and realism of proposed costs. The basis of estimates should include description of tasks, rationale, and calculations to support all proposed Prime Direct Labor, Subcontract Costs (list each Significant Subcontractor), Prime Material, Subcontract Material, and Other Costs. The following basic information should be provided in a basis of estimates. Contractor formats are acceptable.

1. Task Description
2. Estimating Rationale
3. Calculation Method

Compliance Matrix for Portable Heavy Lift Marine Winch

Compliance Matrix Checklist for Heavy Lift Winch is provided as a separate Attachment #3 in this RFP. It consists of a summary table matched to each Technical Specification (Attachment #1). The offerer shall fill this out and it will be evaluated as part of the source selection and reevaluated as part of the design review and the FAT test.

(End of Section L)

Section M. Evaluation Factors for Award

M.1. General

The contract will be awarded to the Offeror whose proposal represents the best value after evaluation of the factors and subfactors in the solicitation. "Factors" include all of those evaluation factors described in this Section M.

OSU intends to evaluate proposals and award a contract without discussions with Offerors. However, OSU reserves the right to conduct discussions if later determined by the Contracting Officer to be necessary. Therefore, each initial offer and response should contain the Offeror's best terms.

OSU intends to evaluate risk, including the risk of performance within the overall evaluation of each Offeror's response to the solicitation. The Offerors' relative capability, as indicated by their response to the solicitation, will be considered in this evaluation. OSU will evaluate the reasonableness and realism of the cost for each acceptable offer in relation to the Offeror's relative capability.

Only one offer will be accepted. OSU will not accept alternate proposals.

Offerors are advised that a proposal receiving an unacceptable rating under any factor or subfactor may be rejected as ineligible for award (see Section M-4.1 and M-4.2 for Adjectival Rating structure).

Basis for Award: Award will be made on a competitive best value basis, using "Best Value Tradeoff" among cost/price and non-cost/price factors (see Section M-4.3 for Best Value Tradeoff Rating structure). A best value tradeoff process will be used when OSU elects to award to other than the lowest priced Offeror, or other than the Offeror with the highest rated non-cost/price proposal. OSU reserves the right to award to other than the lowest price Offeror. Past Performance will be evaluated independently from the other non-cost/price evaluation factors using the Adjectival Rating structure in Section M-4.2. The evaluation factors are as follows:

(1) Technical
(2) Management
(3) Past Performance
(4) Cost/Price

After each factor is rated by individuals on the Source Selection Committee, a consensus rating will be assigned to the factor. Only proposals receiving a consensus rating of "Acceptable" or higher will be considered for award. When considering the proposals for award OSU will consider the total impact to the OOI program, opportunities for quantity discounts, maintaining multiple potential sources, and ease of integration along with other programmatic concerns.

Relative Importance of Factors: Of the non-cost/price factors (as detailed in Technical Volume I), the non-past performance factors are more important than past performance. The non-cost/price factors (including Past Performance) are more important than cost/price. However, a lower rated proposal may be selected when in OSU's judgment the higher rated proposal carries with it a risk of not being affordable.

M.2. Non-Cost/Price Evaluation Criteria

The proposal should manifest the Offeror's assent, without exception, to the terms and conditions of the RFP, including attachments, to be eligible for award. If an Offeror takes exception to any of the terms and conditions of the RFP, then OSU may consider its offer to be unacceptable.

The following criteria will be used to evaluate the non-cost/price aspects of the proposal.

M.2.1. Factor 1- Technical: The technical approach will be evaluated for evidence of the degree to which the Offeror's technical approach demonstrates the Offeror's understanding of tasks to be performed, as well as the technical approach and methodology for accomplishing performance requirement from the Specification(s) and tasks to meet the requirements of the SOW.

A. Technical Approach
   1) Ability of the offer to meet the requirements for the end item and a description of the approach to the product to meeting the requirements.
   2) Form and Fit evaluation of the Winch

B. Producibility Plan
   1) Description of the plan to produce the Winch.

C. Schedule
   1) Schedule's ability to meet milestones and Test/Quality Assurance System
   2) Tests
   3) Deliveries
   4) Installation – Site Acceptance Test

D. Maintenance and Refurbishment
   1) Capability and experience with maintaining and refurbishing the Winch.
   2) Estimated operational life and refurbishment cycles

E. Test /Quality Assurance System:
   1) Document systems used
   2) Demonstrate an ability to verify delivery to the specification

Discussion/Final Proposal Revision – if selected to participate in discussions;
   1) Corrective plan to resolve weaknesses
   2) Revised Technical and Cost (or other) information to resolve issues

M.2.2. Factor 2 - Management Approach:
The management approach will be evaluated for the degree to which the Offeror's proposal reflects a management approach (including approach to staffing) that will lead to the successful accomplishment of the requirement.

Subfactors:

A. Quantifications and qualifications of personnel – tabular form of evidence that the organization (including Subcontractors) has current capabilities and for ensuring performance of this requirement (see Volume II – Management for examples of key personnel). Provide resumes as applicable.

B. Cost control
   1) Methodology
   2) Procedures
   3) Cost control lessons - from previous work

M.2.3. Factor 3 - Past Performance:

The Past Performance evaluation will assess the risks associated with an Offeror's likelihood of success in performing SOW requirements and meeting the Specifications requirement as indicated by the Offeror's record of past performance on relevant efforts, either included in the proposal or identified by the evaluators in any other manner. In this context, "Offeror" refers to the proposed Prime Contractor and all proposed Subcontractors. The Prime Contractor and proposed Subcontractors will first be assessed individually and the results will then be assessed in their totality to derive the Offeror's Past Performance rating.

OSU will conduct a Past Performance evaluation that will be based on the quality, relevance, and recentness of the Offeror's past performance, as well as that of its Subcontractors. This evaluation will consider how each Offeror's past performance relates to the probability of successful accomplishment of the required effort. The Evaluators will access any sources of information available and will consider all information found in addition to considering information provided in the proposal and information supplied by Offeror references.

In the case of an Offeror without a record of relevant experience or for whom information on experience is not available, the Offeror will not be evaluated favorably or unfavorably on relevant experience (i.e., that Offeror will be rated neutral). OSU has determined that a neutral rating will be assigned an Acceptable rating.

OSU reserves the right to investigate and to consider the references and the past performance of any Proposer with respect to such things as its performance or provision of similar goods or services, compliance with specifications and contractual obligations, and its lawful payment of suppliers, subcontractors, and workers. OSU further reserves the right to consider past performance, historical information and facts, whether gained from the Proposal, Proposer interviews, references, OSU or any other source in the evaluation process. OSU may postpone the award or execution of the Contract after the announcement of the notice of intent to award in order to complete its investigation.

Subfactors:

A. Contractor performance - Areas to review include, but not limited to; completion of deliverables, timeliness of deliverables, responsiveness to redirection, inquiries, adherence to cost provisions, and adherence to contract provisions.
B. Project management – Areas to review include, but not limited to; adherence to schedule, change management, schedule, staffing, project execution, quality plans, adequacy of plans/reviews/test, and transition to operational support.
C. Technical performance – Areas to review include, but not limited to; product alignment to technical specifications, performance, reliability, and ongoing maintenance expectations.
D. User satisfaction - Areas to review include, but not limited to; delivered measurement performance, delivered environmental range, durability, form and fit, and whether the Offeror is reasonable and cooperative.

M.3. Factor 4 - Cost/Price

Factor 4 - Cost/Price: The Cost evaluation will be based on an analysis of the reasonableness, realism and completeness of the cost data.

Evaluation of the options will not obligate OSU to exercise the options. All costs will be assessed on the

basis of magnitude and realism. This evaluated cost will be used in making an award recommendation. Therefore, any inconsistency, whether real or apparent, between promised performance and cost should be explained in the supporting cost data. The burden of proof for cost credibility rests with the Offeror. Offerors are cautioned that to the extent proposed costs appear unrealistic, OSU may infer either a lack of understanding of the requirements, increased risk of performance, or lack of credibility on the part of the Offeror.

A. The total evaluated cost/price will be evaluated for reasonableness in terms of:
   1. Proposed cost
   2. Level of effort, in that the proposed cost is based on reasonable assumptions
B. The total evaluated cost/price will be evaluated for realism in terms of:
   1. Whether proposed costs are realistic for the work to be performed
   2. Consistency of supporting documentation/methods for the costs proposed
C. Unsubstantiated costs that are considered unrealistic, not fully supported, or both, may cause the overall non-cost/price evaluation to be adjusted in the non-Cost/Price Factors.
D. OSU will analyze the Offerors' estimated costs for both realism and reasonableness. The cost realism analysis will be used to determine each Offeror's most probable cost of performance. This will preclude an award decision based on an overly optimistic cost estimate. Additionally, OSU will also perform profit analysis.

M.4. Ratings for the Non-Cost/Price Proposal

M.4.1. Adjectival Ratings for the Non Cost/Price Proposal Technical and Management Factors and Subfactors

Rating	Definition
Exceptional (E) 91-100	The proposal has exceptional merit and reflects an excellent approach which should clearly result in the superior attainment of all requirements and objectives. The proposed approach includes numerous substantial advantages, and essentially no disadvantages, and can be expected to result in outstanding performance. The solutions proposed are considered very low risk in that they are exceptionally clear and precise, fully supported, and demonstrate a complete understanding of the requirements. The impact of the strengths greatly outweighs the impact of any weaknesses. The proposed solution exceeds requirements in a way that adds significant value to the performance of the OOI mission. Risk Level: Very Low
Good (G) 81-90	The proposal demonstrates a sound approach which is expected to meet all threshold requirements. This approach includes substantial advantages, and few relatively minor disadvantages, which collectively can be expected to result in better than satisfactory performance. The solutions proposed are considered to reflect low risk in that they are clear and precise, supported, and demonstrate a clear understanding of the requirements. The impact of the strengths outweighs the impact of the weaknesses. The proposed solution exceeds requirements in a way that adds value to the performance of the OOI mission. Risk Level: Low

Acceptable (A) **71-80**	The proposal demonstrates an approach which is capable of meeting all threshold requirements. The approach may have both advantages and disadvantages, however any disadvantages do not outweigh the advantages and the approach can be expected to result in satisfactory performance. The solutions proposed are considered to reflect moderate risk in that they are for the most part clear, precise, and supported, and demonstrate a general understanding of all the requirements. The impact of weaknesses is balanced by the impact of strengths. Risk Level: Moderate
Marginal (M) **61-70**	The proposal does not demonstrate a full understanding of all the requirements and may pose a risk that the Offeror might fail to perform satisfactorily without significant Procuring Organization oversight or participation. Any advantages that may exist in the approach are outweighed by existing disadvantages. The solutions proposed are considered to reflect high risk in that they lack clarity and precision, or are unsupported. The impact of weaknesses outweighs the impact of strengths. Risk Level: High
Unacceptable (U) **0-60**	The proposal demonstrates an approach which will very likely not be capable of meeting all requirements and objectives. This approach has one or more substantial disadvantages or contains a deficiency. Collectively, the advantages and disadvantages are not likely to result in satisfactory performance. The solutions proposed are considered to reflect very high risk in that they lack any clarity or precision, are unsupported, or indicate a lack of understanding of the requirement. The impact of weaknesses greatly outweighs the impact of any strengths. Risk Level: Very High

M.4.2. Adjectival Ratings for the Non Cost/Price Proposal Past Performance Factor and Subfactors

Rating	Definition
High Confidence **91-100**	Essentially no doubt exists that the Offeror will successfully perform the required effort.
Significant Confidence **81-90**	Little doubt exists that the Offeror will successfully perform the required effort.
Confidence **71-80**	There may be some doubt due to the Offeror's past performance record, but Confidence exists that the Offeror will successfully perform the required effort.
Little Confidence **61-70**	Substantial doubt exists that the Offeror will successfully perform the required effort. Changes to the Offeror's existing processes may be necessary in order to achieve contract requirements.
No Confidence **0-60**	Extreme doubt exists that the Offeror will successfully perform the required effort. Apply this rating if the Offeror cannot provide any information about its past performance.

M.4.3. Best Value Tradeoff Definitions

Term	Definition
Evaluation	The evaluators' conclusions (supported by narrative write-ups) identifying the strengths, weaknesses, and deficiencies applicable to requirements and criteria of an evaluation factor or subfactor.
Strength	Any aspect of a proposal that, when judged against a stated evaluation criterion enhances the merit of the proposal or increases the probability of successful performance of the contract.
Significant Strength	A significant strength appreciably enhances the merit of a proposal or appreciably increases the probability of successful contract performance.
Weakness	A flaw in the proposal that increases the risk of unsuccessful contract performance.
Significant Weakness	A flaw that appreciably increases the risk of unsuccessful contract performance.
Deficiency	A material failure of a proposal to meet a Procuring Organization requirement or a combination of significant weaknesses in a proposal that increases the risk of unsuccessful contract performance to an unacceptable level.
Meets Requirements	The item evaluated satisfies the requirement stated in the RFP or in an attached or referenced specification.

(End of Section M)

ATTACHMENT 1

Technical Specification ver 2-06
For
Heavy Lift Winch

1. Background

Oregon State University (OSU), with funding from the National Science Foundation (NSF) is soliciting proposals from qualified organizations interested in providing one oceangoing, portable heavy lift winch as specified below. This will be used to support the research and field operations of the Ocean Observatories Initiative (OOI). The winch will be used from a range of UNOLS vessels for a minimum of 25 years in the deployment and recovery of moorings, and will typically be used to spool loaded mooring lines in conjunction with an A-frame or a marine crane to support the over-boarding sheave. The primary tension members will be of a synthetic, soft line type. The specifications listed below consist of requirements and options. The attached Compliance Matrix Checklist should be filled out to verify that the bid meets these requirements. If the winch is not able to meet the requirements, this does not necessarily disqualify the bid, but a detailed discussion should be presented showing how the winch compares with the specifications. The source selection panel will prioritize bids that meet the spec and reserves the right to reject bids that clearly fall outside of the specification we require.

2. Winch Operating Environment

2.1 Winch shall be designed for 25-year service in a marine environment with exposure to all weather and salt spray during operations, as well as exposure to occasional green water while not operating. Typical annual duty will be 120 days/year distributed over six separate cruises and vessels.

2.2 Winch shall be able to operate at full capacity (see Section 5.3) over the air temperature range of -20 to +45 °C.

3. Winch Structural and Handling Requirements

3.1 Winch shall be designed in accordance with 46 CFR 189.35-9 and UNOLS RVSS Appendix B, based on design line tension (DLT) of 70,000 lbf.

3.2 Winch shall have suitable lifting points to allow for level lifting by crane without special rigging hardware, or rigging hardware will be provided to lift winch level.

3.3 Winch shall have 14" wide x 5" high forklift pockets accessible from opposite sides of the winch base. Winch center of gravity should be midline between forklift pockets with a maximum 75" fork spread. Pockets should be perpendicular to the drum/longest side.

3.4 All exposed winch structural elements shall be of corrosion-resistant materials (e.g. bronze, stainless steel) or shall be coated with a maintainable paint system that is suitable for the marine environment. [A multi-coat system including zinc-primer, high-solids epoxy (such as MIL-P-244441 formula 159 & 153), with a polyester-acrylic polyurethane over coat should be detailed in the bid].

3.5 All exposed stainless steel surfaces shall be passivated.

3.6 All lubrication will use stainless steel zerk fittings and must be easily accessible for routine maintenance.

3.7 Winch frame shall include wire-mesh safety gratings designed for personnel protection that retain good operator visibility and access to the enclosed areas (e.g. 2"x2" wire mesh).

3.8 Winch frame shall have provision for securing the winch to the UNOLS deck pattern of 1"-8NC threaded inserts on 24 inch centers. 1.188" clearance holes shall be provided to accommodate insert location tolerances.

4. Winch Dimension and Capacity Requirements

4.1 Winch drum and sheaves shall have a minimum diameter of 12 inches.

4.2 Winch drum shall have a minimum working capacity of 2,750 m of ¾ inch synthetic line, double spaced (cable pitch of 2 diameters or greater), with a minimum of 2 inch freeboard.

4.2..1 OPTION. Provide a spare drum with one or two dividers for use with multiple lines.

4.3 Winch shall be capable of handling many types of synthetic lines from 3/8 to 3/4 inch diameter.

4.4 Winch shall not exceed plan dimensions of 84 inch x 104 inch, and height of 80 inches. Some components of the winch system can be separate (HPU/Motor drive). System shall fit on a standard flat rack for shipping.

4.5 Target winch weight should not exceed 10,000 lb, empty drum.

4.6 Winch weight shall be prominently labeled in lbs. on the outer frame in easy view of riggers and lifting gear operators.

5. Winch Performance Requirements

5.1 Winch shall provide minimum line pull at full drum (flange diameter minus freeboard) of 25,000 lbf, and, at minimum, a Maximum Permissible Tension (MPT) of the same value.

5.2 Winch shall provide minimum line speed at mid-drum of 40 m/min in both directions.

5.3 Winch shall be capable of a minimum 75% operational duty cycle over a four hour period, i.e. at least three hours continuous operation followed by no more than one hour cool-down without the need for external input medium for cooling throughout the air temperature range stated in Section 2.2. Cabinets will be enclosed, with no air exchange in routine operation.

6. Control and Monitoring Requirements

6.1 Drum control shall be via joystick.

6.2 Local (i.e. at the winch) and remote control stations shall be provided.

6.3 Local and remote stations shall include Measurement Technology Northwest LCI-90i displays. OSU will consider alternate displays but will make the final decision regarding their acceptability.

6.3..1 OPTION. Winch controller shall have connector/port for ease of connection to Measurement Technology Northwest WinchDAC. Software for WinchDAC is not requested in this bid.

6.4 Remote station shall be wireless or cabled.

6.5 If remote station is cabled, the cable shall include stainless steel SubConn Micro Series connectors (with dummy plugs and lanyards) to allow it to be readily detached and reattached at either end to support winch installation and removal.

6.5..1 OPTION. If provided, remote station cable shall be offered in lengths of 50 ft, 100 ft and 150 ft.

6.6 Line tension, speed and payout length shall be digitally displayed with a 10 Hz update rate on local and remote stations with characters of minimum ½ inch height that are readily visible at night and in direct sunlight.

6.7 Provision shall be made for user calibration of line tension, speed and payout.

6.8 The following parameters shall be updated and archived at 20Hz for control, alarm, and wire logging functions

6.8..1 Line tension shall be displayed at an accuracy of 3% when no hardware is being passed.

6.8..2 Line speed (in or out) shall be displayed at an accuracy of ± 3 m/min when no hardware is being passed.

6.8..3 Winch Mode (speed mode, autorender, etc…)

6.8..4 Winch Alarms

6.8..5 Data should be archived in separate files for each operation and downloadable in CSV format

6.9 Level wind override control switch shall be provided at local and remote stations designed to drive level wind regardless of drum motion.

6.10 Winch Start and Stop button shall be at winch local station only.

6.11 Local and remote stations shall both have an illuminated E-stop switch.

6.12 Auto-render functionality with user adjustable setpoint up to 110% of MPT shall be provided. Adjustable to accommodate different line sizes and safety factors.

6.13 Load holding of a braked line shall be at least 30,000 lbf at full drum.

6.14 Auto-render shall be capable of being enabled and disabled from local and remote operating stations.

7. Level Wind Requirements

7.1 Motor powered level wind shall operate automatically with manual override (per 6.9).

7.2 Level wind shall accommodate tension members between 3/8" and ¾" diameter with adjustable speed.

7.3 Level wind shall accommodate passage of shackles, flexible boots, and other in-line hardware of up to 10 inch maximum diameter under full tension without obstruction.

7.4 Level wind shall accommodate vertical fleet angles, relative to the bare drum, from – 10 ° to +45 °, and horizontal fleet angles from –10 ° to +10 °.

8. Electrical Requirements

8.1 OSU will give preference to an all-electric winch, i.e. without hydraulic power pack.

8.2 The winch shall operate on ship's power only; a dedicated diesel engine power unit is unacceptable.

8.3 Winch shall be designed for 400 VAC/50 Hz to 480 VAC/60 Hz three phase, with 200 A maximum current draw.

8.4 Winch local controller shall have provision to limit and digitally display the maximum current draw over the full range in 25 A, or smaller, increments.

8.5 Over-current protection shall be provided by breakers.

8.6 Motors, cables and electrical enclosures shall be rated for NEMA 4X allowing washdowns and splashing water.

8.7 Winch controller shall be supplied with a Russellstoll Angle Type Receptacle #3344 (reverse service, male inlet with angle adaptor) and shall be supplied with one matching Water Proof Plug (Reverse service) #3348 and watertight covers for both items. OSU and winch users will provide wiring to connect winch to ship's power.

8.8 Winch shall be provided with the following IP-67-rated status and alarm lights.
8.8..1 A red beacon to indicate that a general alarm on faults/auto render has occurred
8.8..2 An amber beacon to indicate that the winch is currently operating.

9. Documentation Requirements

9.1 Winch shall be shipped with a comprehensive operations and maintenance (O&M) manual. Two printed and bound copies of the O&M manual shall be provided together with one PDF file copy in digital format (e.g. CD-ROM, jump drive). All copies shall be identical in terms of content and version number.

9.2 Manual shall include a separate listing of all torque-critical bolts.

9.3 Winch shall be shipped with a complete set of assembly and schematic drawings. Two printed and bound copies of these documents shall be provided together with one PDF copy and one copy of digital source material for ease of editing to document future changes. This digital material will be provided in a mutually agreed file type and media, prior to contract closure. All copies shall be identical in terms of content and version number.

9.4 Winch shall be shipped with UNOLS-compliant Maximum Capability Document (MCD). Two printed and bound copies of this document shall be provided together with one PDF copy in digital format (e.g. CD-ROM, jump drive). All copies shall be

identical in terms of content and version number. An example MCD is provided with this RFP.

9.4..1 The MCD must contain an engineering analysis for a worst-case scenario (DLT, Fleet angles, etc) and provide the maximum reaction forces for the UNOLS bolt down pattern.

9.4..2 MCD must contain a free body diagram displaying the forces and reactions.

9.5 Winch shall be shipped with one set of printed copies of all manufacturer's internal test and FAT documents in an appropriately labeled three-ring binder.

9.6 Vendor shall provide OSU a priced list of recommended spares at the time of the Final Design review.

ATTACHMENT 2

Compliance Matrix Checklist for Heavy Lift Winch

(see Technical Specification ver2-06 for full details)

Offerer shall fill this out and it will be evaluated as part of the source selection and reevaluated as part of the design review and the FAT test.

Spec I.D.	Parameter	Units	Parameter Value	Meets Spec	Verification Approach
	Winch Operating Environment				
2.1	25 year Service Life design	Yes/No			
2.2	Operation -20 to +45 C	Yes/No			
	Winch Structural and Handling Requirements				
3.1	DL Tension 70,000 lbf (per 46 CFR189.35-9 & UNOLS RVSS Appendix B)	Yes/No			
3.2	Lifting point design - level	Yes/No			
3.3	Forklift pockets 14x5" w/design details (center, access, spacing)	Yes/No			
3.4	Corrosion resistance / paint system detailed	Yes/No			
3.5	Exposed stainless passivated	Yes/No			
3.6	Lubrication – accessible zerk fittings	Yes/No			
3.7	Wire-mesh safety gratings	Yes/No			
3.8	Mounting to UNOLS vessel deck pattern (1"-8NC bolts on 24" centers)		1.188" bolt holes capable of matching UNOLS 24" bolt pattern		
	Winch Dimension and Capacity Requirements				
4.1	Winch drum/sheaves diameter	inches	Minimum 12" diameter		
4.2	Drum - Min. working line capacity details	meters	2750m of ¾" synth		
4.2.1	Spare drum with dividers/compartments	Yes/No			
4.3	Capable of handling 3/8 to 3/4" line diam.	Yes/No			
4.4	Winch dimension requirement detailed	Inches	84x104", 80"H		
4.5	Winch weight, target maximum	Lbs	10,000 Lbs		
4.6	Winch weight prominently labeled	Yes/No			
	Winch Performance Requirements				
6.1	Minimum line pull and MPT at full drum	Lbf	25,000		
6.2	Minimum line speed in/out at half-full drum	meters/min.	40		
6.3	Operational duty cycle	% continuous	75% over 4 hours ops.		
	Control and Monitoring Requirements				
7.1	Drum control via joystick	Yes/No			
7.2	Local (at winch) and remote control stations	Yes/No			
7.3	Preferred Control technology	Yes/No	MTN LCI-90i		

Spec I.D.	Parameter	Units	Parameter Value	Meets Spec	Verification Approach
7.3.1	OPTION Port for MTN WinchDAC	Yes/No			
7.4	Remote station Wireless or Cabled				
7.5	Cabled remote connectors – Subconn Micro	Yes/No			
7.5.1	Cabled remote – cable lengths	Feet	50, 100, and 150 feet		
7.6	Line data display spec at 10Hz with visibility	Yes/No	See RFP		
7.7	User calibration possible (T, Speed, Payout)	Yes/No			
7.8	Parameters updated and archived	Yes/No	(see below)		
7.8.1	Line Tension (with no hardware passing)	Yes/No	At 3% accuracy		
7.8.2	Line Speed (in/out with no hardware passing)	Yes/No	3 meters/min accuracy		
7.8.3	Winch mode (speed mode, auto-render, etc.)	Yes/No			
7.8.4	Winch alarms	Yes/No			
7.8.5	Data archive files and CSV download format	Yes/No			
7.9	Level wind override control / separate drum	Yes/No			
7.10	Winch START and STOP only at Winch.	Yes/No			
7.11	Emerg. Stop at both remote and winch stations	Yes/No			
7.12	Auto-render with adjustable set-point	Yes/No	Up to 110% MPT		
7.13	Brake: minimum load holding at full drum	Yes/No	At least 30,000 Lbf		
7.14	Auto-render – enable and disable from both control stations	Yes/No			
	Level Wind Requirements				
8.1	Motor powered level wind function	Yes/No	Automatic w/man override		
8.2	Handle 3/8" to 3/4" line with adjustable speed.	Yes/No			
8.3	Accommodate in-line hardware (shackles etc.)	Yes/No	Up to 10" max diameter		
8.4	Vertical and horizontal fleet angle specified	Yes/No	Vertical: –10 ° to +45 ° Horizontal: –10 ° to +10 °		
9	**Electrical Requirements**				
9.1	All-electric winch preferred (without HPU)	Yes/No	*preferred*		
9.2	Operate on ship's power only	Yes/No			
9.3	Designed for 400 VAC/50 Hz to 480 VAC/60 Hz 3-phase, 200 A maximum current draw	Yes/No			
9.4	Local controller shall provide limit and digital display the current draw over the full range	Yes/No	Display in 25 A increments, or smaller		
9.5	Over-current protection with breakers	Yes/No			
9.6	Motors, cables, electrical enclosures rated.	Yes/No	NEMA 4X		
9.7	Winch controller electrical connectors: Russellstoll Angle Type Receptacle & Plug	Yes/No	See full specification		
9.8	IP-67-rated status and alarm lights:	Yes/No	See below		

Spec I.D.	Parameter	Units	Parameter Value	Meets Spec	Verification Approach
9.8.1	Red beacon indicate gen. alarm or auto-render	Yes/No	See full specification		
9.8.2	Amber beacon indicate winch is operating	Yes/No	See full specification		
10	**Documentation Requirements**				
10.1	Comprehensive Operations & Maint. Manuals	Yes/No	2 printed/bound; 1 pdf copy. *See full specification*		
10.2	Separate listing of torque-critical bolts	Yes/No			
10.3	Complete assembly and schematic drawings	Yes/No	2 printed/bound; 1 pdf; 1 digital source material *See full specification*		
10.4	UNOLS-compliant Maximum Capability Document (MCD)	Yes/No	2 printed/bound; 1 pdf; *See full specification*		
10.4.1	MCD: contain engineering analysis for worst case and provide max. reaction forces for UNOLS bolt-down pattern	Yes/No	*See full specification*		
10.4.2	MCD: contains a free body diagram displaying forces and reaction	Yes/No	*See full specification*		
10.5	All manufacturers internal tests and FAT documents provided	Yes/No			
10.6	Provide priced listing of recommended spares	Yes/No			

ATTACHMENT 3
Proposal Conformance Checklist

Offeror: _____

**** Proposal conformance to the RFP should include, but not be limited to the following:***

Volumes Submitted (Per Section L.-1.1 i,))

Volume Name / #	Content		Submitted (Y/ N)
Volume 1	Technical Proposal		
Volume 2	Management		
Volume 3	Past Performance		
Volume 4	Cost / Price		

General

Section Reference	Requirement	Proposal Reference	Comments
A-1	Due dates for Offeror questions and Proposal submission. Submission sealed and labeled correctly.		
B.1	Fully complete/sign/submit Price/Cost Table		
C.2.1	Timeline Gantt Chart		
L-2.2	Mail: One (1) signed original, six (6) hard copies, and two (2) CD's of volumes 1, II, III, and IV.		
A.2 and Attachment 2	Proposal Conformance Checklist requirement		
L-2.2	CD's labeled with volume identified		
L.-1.1 i, 3)	8 ½" x 11" paper with 1-inch margins around all edges, 12-font type		
L-9, Volume II	Complete information for Offeror Points of Contact		
K	Signed Representations and Certifications		

Volume 1—Technical

Section Reference	Requirement	Proposal Reference	Comments
L-10.1 M.2.1	Technical specifications and technical characteristics for the Deep Sea Marine Winch. Address all five parts. Technical Approach, Producibility Plan, Schedule, Maintenance and		

	Refurbishment, and Test/Quality.		

Volume 2—Management

Section Reference	Requirement	Proposal Reference	Comments
L-10.1, Volume II M.2.3.	Provide a Management Plan, comprising parts A.-E, to include Qualifications and Personnel, Resumes of Key Personnel, Cost Control, and Training plan.		
L-10.1, Volume II	Address lines of communication between contractor and OSU		
L-10.1, Volume II	Address corporate Resources to be devoted to this project		
L-10.1, Volume II	Describe how logistics, quality control, configuration control and risk will be managed.		

Volume 3—Past Performance

Section Reference	Requirement	Proposal Reference	Comments
L-10.1 Volume III M.2.3	List at least three relevant past contracts that demonstrate ability to perform to the proposed effort.		

Volume 4—Cost

Section Reference	Requirement	Proposal Reference	Comments
L-10.1 Volume IV M.3.	Narrative support for cost estimating methodology and system		
L-10.1 Volume IV	Provide relevant cost assumptions		
L-10.1 Volume IV	Provide Bill of Materials in support of proposed material amounts		
L-10.1 Volume IV	Fill out Cost Breakdown sheets #1A		
L-10.1 Volume IV	Completed Section B-1 Table for Winch		

End of Checklist

ATTACHMENT 4

APPENDIX A - 46 CFR

examination with access covers removed. Suitability of the equipment for the service intended will be emphasized. Disassembly of the equipment will be required only when there is evidence of a deficiency or an unsafe condition. Non-destructive tests, such as radiography, ultrasonic, electronic, or other methods may be used if appropriate, however will not be required.

§ 189.35-9 Plans.

(a) Plans will not normally be required, however depending on the use of the weight handling gear, submission of plans or other technical information may be required by the Officer in Charge, Marine Inspection. Unless an unsafe condition is in evidence, vessel operations will not be delayed while plans or other technical information are under review. Plans, when required, shall normally include:

(1) One line electrical diagrams showing appropriate overload protection as currently required by subchapter J (Electrical Engineering) of this chapter.

(2) Plans showing hydraulic or pneumatic equipment.

(3) Stress and/or arrangement diagrams with supporting design calculations as appropriate to the specific equipment in question.

(b) When weight handling gear is built to a recognized code or specification, plans or other technical data will not normally be required. Purchase specification or vendor's information may be accepted in lieu of design calculations if sufficiently definitive of materials, design (safety) factors and operating limitations.

(c) Design information, when required, will be evaluated against the following minimum design criteria:

(1) Wet Weight Handling Gear: Wet gear shall be considered to consist of gear used to lower equipment, apparatus or objects beneath the surface of the water or for trailing objects, where the wire rope or cable is payed out beneath the surface and becomes part of the line pull at the head sheave or winch drum. Wet gear shall be designed, as a minimum, to withstand and operate in excess of the breaking strength of the strongest section or wire to be used in any condition of loading. The safety factor for all metal structural parts shall be a minimum of 1.5; i.e., the yield strength of the material shall be at least 1.5 times the calculated stresses resulting from application of a load equal to the nominal breaking strength of the strongest section or wire rope to be used. Suitable assumptions for the actual loading conditions shall be used in the design of wet gear. The lead of the wire rope from the head sheave or winch drum shall be considered to vary from the vertical and in azimuth in a manner to represent the most adverse loading condition.

(2) Other weight handling gear will be evaluated on the basis of the standards of a recognized organization or association recognized by the Commandant under § 31.10-6.

(3) Hydraulic or pneumatic systems will be evaluated on the basis of Subchapter F (Marine Engineering) of this chapter.

[CGFR 67-83, 33 FR 1118, Jan. 27, 1968, as amended by CGFR 69-116, 35 FR 6863, Apr. 30, 1970; CGD 95-028, 62 FR 51219, Sept. 30, 1997]

§ 189.35-11 Special cases.

(a) If the above safety requirements defeat the purpose of any particular piece of weight handling gear, consideration will be given to a relaxation of the requirements.

§ 189.35-13 Master's responsibility.

(a) The master of the vessel shall ensure the following:

(1) The gear is properly installed and secure.

(2) Suitable safety guards are installed in way of rotating machinery, hazardous cable runs and at other appropriate locations.

(3) Operating limitations are posted in an appropriate manner.

(4) Only qualified operators are permitted to operate the weight handling gear. The master shall designate the operators.

(5) A minimum number of persons are allowed in the immediate area.

(6) The installation does not violate the approved trim and stability information.

APPENDIX B

UNOLS OVERBOARD HANDLING SYSTEMS DESIGN STANDARDS

CRITERIA FOR THE DESIGN AND OPERATIONS OF OVERBOARD HANDLING SYSTEMS

B.0 INTRODUCTION

B.0.1 TABLE OF ACRONYMS

- ABL Assigned Breaking Load (see Appendix A)
- CFR Code of Federal Regulations
- CTD Conductivity, Temperature and Density
- DLT Design Line Tension
- DP Dynamic Positioning
- FS Factor of Safety
- MAOT Maximum Anticipated Operating Tension
- MCD Maximum Capability Document
- MPT Maximum Permissible Tension
- NBL Nominal Breaking Load
- NSF National Science Foundation
- OHDD Overboard Handling Data Document
- OHS Overboard Handling System
- PI Principal Investigator
- QA Quality Assurance
- ROV Remotely Operated Vehicle
- RVSS Research Vessel Safety Standards
- SS Sea State
- SWL Safe Working Load
- UNOLS University-National Oceanographic Laboratory System

B.0.2 OBJECTIVE

The objective of this document is to provide a unified code of practice for the structural design and operating principles of overboard handling systems used on board vessels in the UNOLS Fleet. Attachment A2 provides a flow chart of the process the Operator will use when applying the requirements of Appendix B to overboard handling operations.

Appendix B is not intended to supersede existing regulations. It is intended only to better define the design limits, procedures, documentation, and capabilities of overboard handling systems used specifically for modern oceanographic research.

All UNOLS vessels must comply with Appendix B. UNOLS vessels that are inspected and certificated by USCG under*46 CFR Subchapter U* must comply with Appendix B, as well as the requirements of *46 CFR Subchapter U* (whichever are greater).

B.0.3 SCOPE OF APPLICATION

This document DOES apply to all overboard handling systems and their component parts intended for use on UNOLS vessels. An overboard handling system is defined as a load handling system intended to lift, deploy, and/or recover science packages over the side and into or out of the water.

This document DOES apply to:

- All fixed and portable overboard handling systems
- General purpose, as well as dedicated systems
- Each component of the overboard handling system
- Components include (as applicable):
  - Winches
  - Overboarding appliances (e.g., frames, davits, cranes, booms, etc)
  - Sheaves (or any other device a tension member is lead through)
  - Foundations for all above components – including ship structure
  - Deck tie downs
  - Shackles and other necessary equipment to achieve the task

This document SHALL apply to cranes if they are used to lift, deploy, and/or recover science packages over the side and into or out of the water.

This document DOES NOT apply to the design of winches and overboard handling systems to be used for manned overside operations (e.g., hyperbaric chambers or submersibles). RVSS Chapter 12, *Human Occupied Vehicles* and *UNOLS Safety Standards for Human Occupied Vehicles* provides the applicable guidance for this activity.

The wire ropes and cables used in overboard handling systems are covered under Appendix A as described in Section B.1 below. Throughout Appendix B the wire ropes and cables are generically referred to as the "tension member".

Ship operators and their seagoing staff must understand that if, by force of circumstance or by their wish to maintain scientific operations while on a cruise, they re-configure or use systems outside the bounds of the analyzed capability without undertaking the required study of the new arrangement in accordance with Maximum Capability Document, they are embarking on a potentially dangerous activity. The consequences of this activity could be loss of valuable equipment, damage to the vessel and its fixed equipment, and, in the worst case, injury to personnel.

B.0.4 APPLICABLE DATE

All systems commencing development on or after 07/15/2011 must comply with the requirements of this document.

B.0.5 APPLICABILITY TO EXISTING SYSTEMS

All systems already in existence or to be completed before the applicable date are to be brought into compliance with these standards by 07/15/2014

B.0.6 Application and Responsibilities

It is the responsibility of the Owner of each component of an overboard handling system to ensure that it meets the standards of Appendix B (e.g., a portable winch owner must have documentation that gives that winch's maximum capabilities per Section B.5).

It is the responsibility of the Operator of a UNOLS vessel to ensure that each overboard handling system (including all components either fixed or portable) used on the vessel complies with Appendix B. Each system must have documentation of the system maximum allowable capabilities and configurations per Section B.5. **Component** maximum capability documentation shall be a part of **system** maximum capability documentation. If the Owner of a portable component brought aboard a UNOLS vessel does not have the documentation that provides the maximum capability for the Owner's component, the Operator may reject its use.

When purchasing a new component or system, or retroactively gaining compliance for an existing system, the Owner/Operator must work with the naval architect/engineer and/or the system manufacturer to define all expected uses per Section B.3. If a specific deployment/use is not defined in advance, it will not be part of the component or system maximum capability documentation and thus cannot be approved for a deployment/use without further analysis. An exception to this may be made if it can be shown by the Owner/Operator that the deployment/use is within the parameters of an already defined use.

It is the responsibility of the naval architect/engineer or system manufacturer to apply the described deployment/use loads in the prescribed geometries and determine the maximum capability of the component or system. **The maximum allowed capability shall be described as a maximum permissible tension (MPT) on the tension member along with diagrams of analyzed/approved geometry.** The structural criteria for developing the maximum allowed capability are given in Section B.4.

A flowchart for the process, from development of system deployment information to analysis and development of the maximum allowed capability, is included as Attachment A2.

The naval architect/engineer or system/component manufacturer shall fully share their structural calculations with their client/customer, and these calculations shall be allowed to be reviewed by UNOLS and other government agencies that provide support and/or oversight.

The system/component owner/operator shall comply with operation, maintenance, testing, training, and documentation requirements given in Sections B.6 to B.9.

The details of various tension mitigation devices and systems are given in Section B.10.

B.1 COMPANION STANDARD – RVSS - APPENDIX A

B.1.1 COMPATIBILITY

Appendix B is to be used in conjunction with and its application is to be fully compatible with, Appendix A -*UNOLS Rope and Cable Safe Working Load Standards*.

B.1.2 APPLICATION OF APPENDIX A

The tension member employed is considered part of the overboard handling system for any given deployment scenario. Therefore, the Maximum Permissible Tension (MPT) of the overboard handling system when considered in total must include consideration of the tension member Safe

Working Load (SWL) from Appendix A in addition to the limiting MPT of the components (see Attachment A2).

B.2 DEFINITIONS

B.2.1	Assigned Breaking Load (ABL)	A term defined in Appendix A that is the breaking load for the tension member.
B.2.2	Auto Render	The capability of the Overboard Handling System (OHS) to automatically pay out at a pre-set maximum tension in order to prevent the tension member from exceeding the pre-set tension.
B.2.3	Component	Any part of the OHS. Typically, each component has a load imparted upon it by the tension member either by altering the direction of the tension member or otherwise resisting the tension. This includes, but is not limited to, turning blocks, shackles, overboarding frames, booms or cranes, winches, and the ship's supporting structure.
B.2.4	Design Line Tension (DLT)	This is the value used to design or evaluate the capability of OHS components. Normally the DLT is the Nominal Breaking Load (NBL) of the strongest tension member anticipated to be used with the component(s) to ensure the components do not fail at a line tension less than the tension member NBL. However, the Maximum Anticipated Operating Tension (MAOT), potentially a lesser value than the NBL, may be used where the OHS meets criteria that limit the potential maximum loads.
B.2.5	Factor of Safety (FS)	For components, FS = Yield Load/SWL For tension member, FS = ABL/SWL (see Appendix A).
B.2.6	Fixed System	An OHS that is permanently installed in a specific location permanently attached or integrated to the ship structure or systems.
B.2.7	Hydrodynamic Drag	The force due to the cable and or the payload being pulled through the water encompassing the velocities of a tow, of recovery, of waves, and ship motions.
B.2.8	Lifting Appliance	A reference definition used by classification societies that is any equipment that is involved in supporting an elevated load; this includes OHS components, as well as cranes not handling wet gear.
B.2.9	Load Geometry	The inlet and outlet tension member angles possible for an OHS component.
B.2.10	Maximum Anticipated Operating Tension(MAOT)	A calculated maximum load on the tension member based on the package specifics for weight and the added loads due to dynamic and hydrodynamic effects.

		The vertical acceleration used for calculation of dynamic effects shall be at least 1.75g (per ABS Rules for Building and Classing Underwater Vehicles, Systems and Hyperbaric Facilities, Appendix 3, 9.3.4).
B.2.11	Maximum Capability Document (MCD)	Defines the MPT for a specific component or system, for a given range of load geometries.
B.2.12	Maximum Permissible Tension (MPT)	The maximum line tension that results in the Safe Working Load of a component or of the Overboard Handling System (OHS). This may vary, depending on the arrangement and geometry of the OHS.
B.2.13	Nominal Breaking Load (NBL)	Manufacturer's minimum published breaking load for a tension member. See Appendix A.
B.2.14	Overboard Handling Apparatus	The component of the OHS that launches/retrieves a package directly from the water, or maintains the tension member leading to the water; i.e., A-frame, hydro-boom, etc.
B.2.15	Overboard Handling System (OHS)	All shipboard components that support the tension member, from the point where the tension member attaches to the science package, to the ship supporting structure/foundation for the shipboard termination of the tension member (typically a winch attached to the ship's structure). The combination of components and tension member constitute the "overboard handling system".
B.2.16	Owner	The party or their representative who is responsible for the inspection, maintenance, and testing of the equipment. This could be the vessel operator, a winch pool managing institute, or the science party.
B.2.17	Portable System	An OHS brought aboard the ship and not permanently attached, or an OHS made up of component(s) brought aboard and integrated with shipboard components that work together to form an OHS for a specific use.
B.2.18	Render/Recover	A means of a winch to automatically maintain a pre-set tension by alternately paying-out and hauling back. Generally recovery haul back is limited to the point of initial rendering.
B.2.19	Safe Working Load (SWL)	The maximum total load that is allowed on any given component in an OHS during normal operation. This is determined by the designer of the component and reflects the maximum total force on the component, not the line tension. SWL = Yield Load for the material/FS for components SWL = ABL/FS for the tension member (see Appendix A)
B.2.20	Tension Member	Generic name used to describe a rope or cable in service for over the side work. The Safe Working Load for the tension member is the value determined by compliance with Appendix A (see definition of SWL in Appendix A)

B.2.21	Tension Mitigation Devices	Hardware and or technology employed in the OHS to limit the tension member tension to a pre-set value.
B.2.22	Ultimate Design Load	The load at which the weakest piece of a component reaches the Yield Load of the material.
B.2.23	Wet Weight Handling Gear	46 CFR 189.35-9 (c) (1) term for what Appendix B refers to as "Overboard Handling System" and includes all "gear used to lower apparatus or objects beneath the surface of the water....."
B.2.24	Yield Load	The load at which the weakest component piece of the OHS reaches the yield stress of that component's material. This excludes the tension member.

B.3 DEPLOYMENT SCENARIOS AND POTENTIAL FOR APPLIED LOADINGS

B.3.1 OVERALL REQUIREMENTS

For any new system or system component, the information listed in the attached Overboard Handling Data Document (OHDD) shall be developed by the Owner to the extent possible see Section B.3.7). The Designer and/or Vendor shall also provide the Maximum Capability Document (MCD) for each component and/or system (see Section B.5). This information shall be highlighted in the introductory section of the system's *Operator's Manual.* The Maximum Capability Document may be either a standalone document provided by the Designer/Vendor that is referenced in the introductory section of the system's Operator's Manual, or added to the Operator's Manual as an addendum.

For any existing system or system component, the Owner shall develop the OHDD and MCD by working closely with the Designer and/or Vendor. This information shall be added to the system Operator's Manual.

For standard deck hardware such as mounting bolts for deck sockets, shackles, swivels, and turnbuckles that are not custom made, a copy of the manufacturer's specification sheet for the hardware will fulfil the requirements of Appendix B for the component Overboard Handling Data Document and Maximum Capability Document. The vessel operator shall establish a written procedure for how standard deck hardware is stored and inspected. The written procedure shall document the controls in place to ensure that when standard deck hardware is used, it has the load capability of the hardware components used when the overboard handling system Maximum Capability Document was developed.

B.3.2 PORTABLE SYSTEMS

For Portable Systems, the Owner (of the portable system or the portable components brought aboard and integrated with the vessels components) shall provide to the Operator the Maximum Capability Document information for each component the Owner brings aboard. Once brought aboard a ship, the Operator will develop a new Overboard Handling Data Document for the resulting overboard handling system that is made up of the portable components brought aboard in combination with the components being provided by the vessel. For example, a science party may bring aboard a portable winch and overboarding sheave with shackle that will be mounted on the ship for deployment using the ship's A-frame. The resulting overboard handling system would

be comprised of a combination of portable components provided by the science party and ship components provided by the Operator:

- Portable Components – Winch (with tension member), overboarding sheave, shackle to connect the sheave to the A-frame.
- Ship Components – Deck mounting system (sockets and bolts) and the A-frame.

The resulting portable system is evaluated:

- The Owner provides the Maximum Capability Documents for the three portable components along with the logbook for the tension member (per Appendix A requirements).
- The Operator provides the Maximum Capability Documents for the two shipboard systems.
- The Operator develops the Overboard Handling Data Document for the resulting portable system.
- The Operator utilizes the above information and develops the Maximum Capability Document for the portable system and makes a determination of the Maximum Permissible Tension for the safe use of the portable system.

A new overboard handling system Maximum Capability Document for the portable system shall be generated:

- Each time any of the components are repositioned on board the vessel (system Maximum Capability Document only)
- Each time the system geometry is modified, either alongside or underway. (Overboard Handling Data Document and Maximum Capability Document)
- When the specification of the tension member employed is changed (Overboard Handling Data Document only)

B.3.3 FIXED SYSTEMS

For fixed shipboard systems with a Maximum Capability Document, the Operator shall verify that the currently planned deployment scenario is at or below the existing/original design criteria given in the Maximum Capability Document. A new overboard handling system Overboard Handling Data Document and MCD shall be generated:

- When the specification of the tension member employed is changed
- When there is a modification to any component (geometry or hardware) of the ship's fixed overboard handling system (Maximum Capability Document).

NOTE: An important consideration for both fixed and portable systems are the hydrodynamic characteristics and entrained mass of the science packages and whether or not the induced accelerations from the vessel exceed the requirement of Section B.4 (>1.75g). The impact these characteristics would have on the tension for the overboard handling system must be evaluated and shown to be within the overboard handling system's capability (Maximum Capability Document).

B.3.4 NON-COMPLIANCE WITH MAXIMUM CAPABILITY IN THE MAXIMUM CAPABILITY DOCUMENT

For either Fixed or Portable Systems, if the planned deployment scenario is determined to NOT be within the existing design criteria, then the deployment shall NOT be allowed, or the operator shall take one of the following actions:

- Structural modifications shall be made to bring the components within the bounds of the original design criteria,
- Geometry modifications shall be made to re-configure the system such that it can safely accommodate the new deployment scenario,
- Perform the planned operations with a reduced payload size (lesser package weight, entrained mass, and/or drag).
- A combination of lesser modifications in all three above areas

In all cases above, a new Overboard Handling Data Document and/or Maximum Capability Document are to be prepared for the system.

B.3.5 DEPLOYMENT TYPE

The Deployment Type shall be determined at the beginning of the design and/or system evaluation process that will then allow the Principal, Secondary, and Worst Case loading cases to be defined. The anticipated Worst Case loading shall then determine the Structural Design Criteria to be used in Section B.4.

The following table lists the deployment types for oceanographic operations to be specified for design purposes in the OHDD. The allowable deployment type should also be shown in the MCD.

NOTE: The length of the tension member is used in lieu of the deployed depth to take into consideration a science package settling to the bottom if vessel speed is decreased or lost completely.

	Operation	Examples
B.3.5.1	Towing – Surface (Floating or shallow tow)	Towed arrays (e.g., streamers, smart floats) Air gun arrays Towed sonar fish (e.g., PES, 3.5kHz, EK60)
B.3.5.2	Towing - Mid Water (Where the deployed length of the tension member does not exceed 75% of the water depth)	Fisheries Nets (Twin and single wire) Magnetometers, Sonar (e.g., SeaSoar, TriAxis, MVP) MOCNESS
B.3.5.3	Towing - Deep Water (Where the deployed length of the tension member is greater than 75% of the water depth	Deep water fisheries nets (single wire) Sonar, Multidiscipline deep towed platforms Dredges, Bottom trawls, Sledges, Grapnel/Batfish, Camera Sled, SeaSoar, TriAxis.

	with either intentional or high likelihood of bottom contact)	
B.3.5.4	Station Keeping – Surface (Shallow Dips With or without Dynamic Positioning (DP)	Plankton nets Precision Echo Sounders (PES) Hydrophones Free floating buoys Autonomous Underwater Vehicles (AUVs, Gliders Sink and Rise Systems)
B.3.5.5	Station Keeping – Mid Water (Where the deployed length of the tension member does not exceed 75% of the water depth, with or without DP)	Acoustic arrays Conductivity, Temperature, Density (CTD)/water sampler operations
B.3.5.6	Station Keeping – Deep Water (Where the deployed length of the tension member is greater than 75% of the water depth with either intentional or high likelihood of bottom contact, with or without DP)	• Remotely Operated Vehicles (ROVs) • CTD/water sampler operations • Elevators • Standard Wire Coring • Deep Coring (Synthetic Rope) • Multicorer • Rock Drilling • Seabed Laboratory Placement/Retrieval • Steered Bottom Samplers (e.g., HyBIS, ARGO), which differ from ROVs in having no buoyancy. • Moored Buoys

B.3.6 PRINCIPAL, SECONDARY, AND WORST CASE LOADING SCENARIOS

B.3.6.1 Principal Loading

Principal Loading is defined as the tension member loading or loadings and the line(s) of action (vertical, longitudinal and transverse) prevalent at the handling system overboarding sheave during the principal phase or phases of the deployment.

As an example, for a CTD it would include the package weight, tension member weight, dynamic factoring due to ship motion, and hydrodynamic and resistance load during retrieval. Any special requirements of an activity that might have a modifying effect on the loading regime or tension member and equipment lifetime, such a sheave compensation, auto render, or differences between load properties of fixed and free end cables(i.e., use of swivels.) are to be highlighted.

B.3.6.2 Secondary Loading

Secondary Loading is defined as the potential for changes in loading or the primary line(s) of action of the loading.

For example, the vessel, for whatever reason, drifts off station leading to a large tension member angle to the normal nominally vertical case, imparting side loading to the overboarding mechanism. Another example would be for a Track Line Tow when the vessel crabs to maintain its track and imparts a side loading to the towing 'A' frame. In this latter case, a similar but much larger angle of the tension member can occur when the vessel executes a turn in order to follow a reciprocal track, or for collision avoidance while maintaining sufficient tow speed to keep the package from dropping to the seabed.

B.3.6.3 Worst Case Loading

Worst Case Loading situations are to be considered and defined in consultation with the operator.

For example, the ship's machinery suffers a failure while towing a package close to the seabed and the package sinks, risking a hook-up on a rocky seabed, a taut tension member situation, and potential overload of the overboard handling system tension member results as the ship drifts down weather. Or when towing a net at speed near the bottom the net becomes hung-up causing a taut tension member situation and potential overload of the overboard handling system tension member.

The worst case loading situations may also consider the use of mitigation devices.

For example, auto-render with high value packages;e.g., Scanfish or weak links with low value equipment such as a dredge or net.

NOTE: It is important to specify the tension member properties that each piece of equipment is deployed with and the operating FS envelope required. The choice of tension members and their loadings are, as a pre-requisite, to be in accordance with the requirements of RVSS Appendix A.

B.3.7 OVERBOARD HANDLING DATA DOCUMENT (OHDD)

The Overboard Handling Data Document is a standard data sheet that shall be developed for each component that may be used as part of an overboard handling system for both existing systems and new systems equipment. A Maximum Capability Document (see Section B.5) is then developed for each component using the deployment type information in the Overboard Handling Data Document. The owner of the component must work with the Designer/Vendor to complete the data fields on the Overboard Handling Data Document. The owner would provide as many of the data fields in the Overboard Handling Data Document as is known as part of a purchase specification for new equipment (or as part of an engineering analysis specification for existing equipment) with the Designer/Vendor providing the rest. The use of either metric or imperial units should be consistent throughout the document.

Table B.3 is shown below, with examples and explanations regarding completion of the document.

TABLE B.3 — Overboard Handling Data Document

REQUIRED DATA	Operator/Designer Response
Deployment Type	**e.g., "Towing (Surface) – Section B.3.5.1"**
Provide a brief narrative of scientific purpose and the equipment to be deployed. A drawing or drawings of the proposed "system" or "component" architecture is to be appended showing, for example, tension member angles and potential loadings (Principal, Secondary & Worst Case) relative to the various system elements. Provide information on the vessel or vessels (size(s), type(s), UNOLS or not, etc) intended for the system deployment, its/their area(s) of operation and the likely weather conditions to be encountered	e.g., "Portable Deck Winch intended for..." *If this winch were used in a "system" for a particular cruise, a new Table B.3 would be developed using the individual "component" B.3 tables. For example, the stern A-frame would have a B.3 table from the original construction where it was integrated from the fixed trawl winch.* *For portable systems, bolting arrangements (number size and material) are to be defined along with the expected deck loads the system will apply to the vessel*
Provide Primary Deployment Information:	
Package Type	e.g., "Various" for a general purpose system
Maximum Package Weight	
Base Package Mass	
Added Mass to include Captured and Entrained Added Mass (e.g., water/mud)	
Maximum Hydrodynamic Resistance	
Dynamic Factors	
Tension Member Type and Safe Working Tension	e.g., "Various" for a General-Purpose system and/or Manufacturer's model number
Maximum Tension Member Weight (in water)	
Maximum Tension Member Mass	
Selected Tension Member Factor of Safety per Appendix A	
Maximum Anticipated Depth of Deployment	
Maximum Allowable Depths of Water	

Tension Member Length/Water Depth (%)	*Needed to confirm "Deployment Type"*
Principal Loading	*Verbal Description*
Secondary Loading	*Verbal Description*
Worst Case Loading	*Verbal Description*
Ultimate Design Load	
Load Limiting Equipment	e.g., auto render and/or weak link along with proposed set values, See B.5
Maximum Anticipated Operating Tension (lbs or tons)	e.g., Estimated Maximum Load from Appendix A
Design Line Tension (lbs or tons	e.g., Either Tension Member Breaking strength or Maximum Anticipated Operating Load as applicable.
Other Emergency Means of Package or Tension Member Detachment	e.g., Acoustic release or deck mounted tension member cutter
Other means proposed for package control	e.g., Heave Compensation, state method and excursion limits proposed
Description of Fail Safes in the event of power loss or mechanical/electrical failure of system components	e.g., Connection of electric winch to the ship's emergency generator suitably sized to allow continued winch use. Use of standardized system components, spare parts and redundancies such that failed parts can be replaced

Attachment A1 provides a blank form of Table B.3 for use in the development of equipment proposals.

B.3.8 THE "SYSTEMS DESIGN" APPROACH

The previous sections establish the range and potential loadings applied to the different components that may be utilized in an overboard handling system. It is rare that a single component with its Overboard Handling Data Document and Maximum Capability Document is enough to comprise an overboard handling system since an overboard handling system is normally made up of multiple components (e.g. a winch, load path with necessary sheaves and shackles, and an A-frame). The handling apparatus, intermediate diverter sheaves, winches, ship attachments, ship support structural arrangements, and tension member must also be evaluated as a completely integrated system from the deployed science package through to the foundation structure of the winch taking into account increases in tension member loading due to passage around any sheaves enroute. For shipboard systems, the operator shall also develop Overboard

Handling Data Document's for the standard suite of overboard handling systems that are used aboard their respective ship:

> A ship may be equipped with a hydrographic winch that may be outfitted with either 0.322 EM cable or 3/8" 3x19 rope using interchangeable drums. The load path for the winch may be via a gantry style handling apparatus off the side of the ship, a crane boom with an under slung sheave off the side of the ship, or an A-frame off the fantail. This results in six possible "standard" overboard handling systems that utilize the hydrographic winch, each of which would have an Overboard Handling Data Document developed and a resulting Maximum Capability Document.

Likewise, portable winches are to eventually be incorporated as a component into a completely integrated system through and including, the existing overboarding equipment. Handling apparatus designs (A-frame, gantry, cranes, etc.) need to consider the potential positioning and loads arising from portable systems temporarily mounted on deck and overboarding via the fixed systems.

B.4 STRUCTURAL DESIGN CRITERIA

A flow chart given in Attachment A2 gives the information gathering and decision-making process that allows the appropriate analysis and/or use of an overboard handling system.

The Design Line Tension (DLT) for an overboard handling system shall be the Nominal Breaking Load (NBL) of the tension member used in the system with a minimum factor of safety of 1.5 on the yield of all components in the system, per 46 CFR 189.35 UNLESS the overboard handling system meets <u>any one</u> of the following criteria:

a. It is intended to be used with a deployed tension member length less than 75% of the nominal water depth for any deployment envisioned for that system (except as noted in Section B.0.2).
b. Winches are designed and operated with Auto Render or Render/Recover as described in Section B.10. Tension Member monitoring requirements shall be per Appendix A.
c. Calibrated and tested weak link as described in Section B.10.
d. It can be shown that the ship carrying the overboard handling system cannot develop the thrust or accelerations required to create the full breaking strength of the tension member installed. The calculations must show that the vessel cannot create such loads under power – or in a dead ship or inadvertently anchored situation in Sea State (SS 5/6 (high 5/low 6) wind and sea conditions. Consideration should be given to the added effect of momentum and deceleration of the vessel in the event the payload hangs up on the bottom. It must also be shown that the vessel's stability is adequate to sustain the loads and geometries which might be presented. Based on these calculations, the maximum imparted load on the tension member shall be used in lieu of the breaking strength of the tension member and SS 5/6 shall represent the limiting conditions for operations.

If any one of these conditions is met, then the DLT may be the MAOT in lieu of the NBL of the tension member used in the system and defined as follows:

For B.4 (a):MAOT = The GREATER OF:

[Package Weight (in water) + Tension Member Weight (in water)] +

(Package mass + Tension Member mass+ added mass) x 0.75 + Hydrodynamic drag

or

the maximum imparted load from the vessel

For B.4 (b): MAOT = Adjusted to a lower value with a Render or Render/Recover System to:

Load setting at which winch/system will render (Pay Out)

For B.4(c): MAOT = Adjusted to a lower value with use of a Calibrated Weak Link.

When using a weak link at the payload package, the Calibrated Weak Link load must be reduced by the weight of the maximum amount of tension member anticipated to be deployed and the towing resistance of the tension member, the added mass and other dynamic effects such as strumming.

All UNOLS vessels must comply with Appendix B. UNOLS vessels that are inspected and certificated by USCG under*46 CFR Subchapter U* must comply with Appendix B, as well as the requirements of *46 CFR Subchapter U* (whichever are greater).

B.5 MAXIMUM CAPABILITY DOCUMENT (MCD)

The maximum capability for a component is determined by calculation by a Naval Architect/Engineer (Designer) or component/system manufacturer (Vendor), and will be provided for use in the form of a Maximum Capability Document (MCD). For a fixed component this analysis should include not only that component itself, but also the supporting elements such as foundations and supporting ship's structure. The MCD presents the Maximum Permissible Tension (MPT) coupled with the allowed load geometry for the given Tension for each component in a system. Reactions on ship's structure for fixed components, and the bolting pattern for portable components, should also be given in the MCD based on the MPT.

For components that lend themselves to a single limiting MPT regardless of the geometry, the Maximum Capability Document may simply be a single value MPT that is applicable for all uses of that component. More complex components whose MPT is impacted by geometry may require a more complex Maximum Capability Document to take full advantage of the component capability. Some examples to illustrate this distinction include:

- Shackle – the Maximum Capability Document may be the manufacturer's specification sheet for the shackle with a single value that is the shackle's safe working load.
- Deck Socket – the Maximum Capability Document may be three limits depending on the geometry of how the load is applied; vertically, horizontally, or at an angle.

- A-frame – the Maximum Capability Document may look very similar to the load handling diagram for a crane that has different limits dependent upon the geometry of how the load is applied.

For some components that could have a complex Maximum Capability Document such as an A-frame, the operator may choose to simplify it for ease of use. For instance, a single MPT could be derived that applied to all geometries and modes that component could be used with. In this instance, the engineer would investigate all anticipated uses and modes and return with the LOWEST maximum from their calculations and this single blanket MPT could be stamped on the component. For this approach, it is likely that in some modes a possibly higher MPT is being sacrificed for simplicity during operations. Alternatively, various MPT could be presented for various modes of operation (Towing, Vertical Lift, Luffing) and/or tension member angles. In this instance, all approved geometries would be presented within the Maximum Capability Document.

Attachment A3 is a simplified illustration of how the tension a component sees (in this case an A-frame) is dependent on the geometry of the overboard handling system.

In the ultimate example of a Multiple Capability Document, curves and graphs could be presented that allow for varying MPT based on location of the winch on board, as well as location and angle of science package deployed (similar to a crane's loading diagram).

The engineering costs rise proportionally with the rising complexity of the document as a matter of presentation, rather than the necessity of performing the analysis. Over the life of the vessel and/or the equipment, the added understanding of system capabilities far outweighs the up-front cost.

The Maximum Capability Document shall be presented as a booklet with general information on the system or component, the controlling MPT and the various loading diagrams. Completed Overboard Handling Data Documents shall be attached to the booklet to establish the design criteria from which components were selected or developed.

Each system that uses portable components (for instance, a winch from winch pool) shall have the component maximum capability document included in their documentation as an attachment.

NOTE: The MCD Booklet shall be kept with the component at all times and at least two (2) copies should be delivered with it to the vessel operator; one (1) copy kept on the vessel and one at the marine office for after the vessel departs.

As with the Maximum Capability Document developed for each component based upon the component Overboard Handling Data Document, each overboard handling system will have a Maximum Capability Document developed based upon that overboard handling system's Overboard Handling Data Document and evaluation of the MPT for all the components.

The consolidation of the Overboard Handling Data Document's and Maximum Capability Document's for all components aboard a ship along with the standard suite of overboard handling system documentation results in a complete library of documents that will:

- Provide a permanent record of the basic design data and operational set-up of the components.
- Be incorporated into the equipment Operator's manual for each component.
- Promote consistency of approach.

- Be superseded by subsequent amended versions as and when required by changes made (such as new tension members, changes in system configurations, etc) thus providing a 'life history' of the equipment.
- Provide a record of the installation of portable pieces of equipment on different vessels or, of different positions and configurations on the same vessel, for future reference.

The OHS Operator's Manual and the MCD Component Booklets will also provide the operator with the means to evaluate and determine the Maximum Capability Document for a "new" overboard handling system that has not been previously evaluated. The operator would develop the Overboard Handling Data Document for the "new" overboard handling system and evaluate its capability as a system using the Maximum Capability Documents for each component to determine the Maximum Capability Document for the "new" overboard handling system. This evaluation by the operator would be documented prior to using the "new" overboard handling system.

If the complexities of the "new" overboard handling system are such that the operator is not confident in their ability to properly evaluate the overboard handling system, then it is incumbent upon the operator to have the evaluation done and a Maximum Capability Document prepared by a naval architect/engineer. The availability of the Maximum Capability Documents for each component that makes up the "new" overboard handling system should make this process relatively simple and efficient. This demonstrates the need for early communication between the ship operator and the Principal Investigators (PIs) for each science cruise to ensure "new" overboard handling systems (particularly if portable equipment will be used) can be properly evaluated before use and the necessity for obtaining MCD related information at manufacture.

Attachment A4 (in development) will provide an example Maximum Capability Document for an overboard handling system.

B.6 TESTING AND TEST DOCUMENTATION

Not withstanding the following, all USCG inspected UNOLS vessels must comply with 46 CFR 189.35-5 and as referenced, 189.35-13.

B.6.1 COMPONENT TESTING

Except for tension members and standard deck hardware in good physical condition and previously tested and recorded including those that have a Quality Assurance (QA) data record of manufacturer's testing (shackles, deck bolts, etc.), system components shall be tested to 125% of their MPT at least every two years. If it can be shown that a system test has applied 125% of MPT (for component in question) to that specific component, then that test is acceptable for compliance. Winches and sheaves may be bench tested to comply with this requirement. This requirement ensures that idle gear that may be in a pool or in storage is still tested at a minimum every two years.

Deck bolting sockets are considered components, NOT standard deck hardware and thus are periodically SWL tested on a 2 year testing cycle.

Tension members shall be tested in accordance with Appendix A.

B.6.2 FIXED SYSTEMS

Fixed systems shall be tested every two years to 125% of the system MPT. A fixed system shall be tested in the configuration(s) it will be used in during operations. A test shall consist of all components including winch, diverter sheaves, handling apparatus, and overboarding sheaves.

Each fixed system shall be tested once in each mode it operates in. As an example, an A-frame might lift vertically (1), tow astern (2), or luff inboard (3). This system would need to be tested in each of these modes. However for testing the tow astern it is anticipated that alternative testing as defined in section B.6.5 will be used. As far as geometry (winch location, sheave location, tension member angle) is concerned, the Maximum Capability Document shall identify a worse case geometry for each mode. Only that worst case geometry need be tested. Therefore, the example A-frame would be tested in three modes based on the worst case geometry in each model for a total of three (3) tests every two years. If a component (such as an ancillary winch) is not included in the system test (as it may not be part of worst case geometry) it must be tested on its own.

Auxiliary lifting appendages (lower rated side arms on an A-frame for instance) shall also be tested in their modes of operation at their worst case geometrical configuration. Duplicate appendages of identical design (port/stbd for instance) shall be alternated every two year cycle (year 0 – Port, year 2-Stbd). This does not apply to auxiliary pad eyes in the main lifting section of the apparatus, however – these pad eyes should be tested separately every four years.

B.6.3 PORTABLE SYSTEMS AND COMPONENTS

A complete portable system shall be tested on board the vessel of opportunity after installation and before its first use begins. System shall be tested to 125% of MPT. System shall be tested on every new installation/use. If the system has been used on the subject vessel within previous two years and has been tested on the subject vessel, the testing shall be confined to proper function and shall not require a load test.

A portable component (such as a winch) shall be tested on board the vessel of opportunity after installation on the vessel and before its first use. If the portable component has its own current (< 2 year) test documentation and its MPT and geometry falls within the limits of the vessel's pertinent system's Maximum Capability Document, the system test shall be confined to operational testing. If the component does not have its own stand alone test documentation or if its operation is not within the normal scope of the system's Max Capability document (i.e. new geometry) an in situ load test to 125% of the MPT shall be performed.

This test shall be recorded in both the component and system test logs to avoid unnecessary retesting.

In no case shall the MPT of the host system or the Safe Working Load of the tension member used, be exceeded when using a portable component.

B.6.4 PREFERRED TESTING METHOD

The preferred testing method for a system is to test the system in the configuration it is to be used at sea. A tension member of suitable strength for the test should be used and reeved from the winch through all sheaves, at the worst case angle geometry, through sheave attached to pad eye or lifting point on apparatus and to a "virtual package". A substitute tension member can be synthetic line of higher strength but approximate diameter as the normally used tension member. The virtual package may consist of a certified test weight hung on a tension member to create the prescribed tension (125% MPT) or it can be a dead ended tension member with the tension provided by hauling back on the system winch. Test tension shall be measured by properly calibrated and verified tension measuring device(s) that are either part of the system or that are introduced for the testing purposes only.

This method of mimicking every aspect of an operation is the most rigorous test method as it tests each component in the exact orientation and loading that will be experienced at sea. This also simultaneously tests the adequacy of standard deck hardware (deck bolts, shackles) for a given system configuration.

Even for towing operations where a handling apparatus can be exposed to loads in both the vertical and horizontal planes simultaneously, testing of the "real life" configuration is the only way to ensure the system can consistently withstand the calculated MPT for that particular operation.

B.6.5 ALTERNATIVE TESTING METHODS

In lieu of testing an entire system in the precise configuration it will be used at sea, an alternative test method can be developed that results in the same effect as 125% of MPT. This alternative test method can separate the testing functions for the various components, and/or resolve real world at sea MPT diagrams into more manageable static load tests alongside.

For instance, a configuration might exist where an A-frame is used at sea with a winch somewhat forward on the deck and a vertically lifted load over the transom with a tension member leading from the winch over a sheave hung on the A-frame to a payload package. In lieu of testing this scenario, a test could be developed that mimicked the resultant load on the A frame and a single calibrated weight could be hung at the appropriate angle from the A-frame. In that case, however, a separate test would still have to be performed on the winch, any fairleads or sheaves in the tension member path as well as the hanging sheave used at the A-frame.

A more logical scenario in which this methodology could be used is for testing the Tow mode. While it is possible that an off center, far astern tow situation could be modelled by reeving a test tension member far astern of a vessel to a fixed point on a pier or to a substantial mooring, the logistics of such a test are complex. In lieu of that, a vertical resultant load could be applied to the overboard handling apparatus as well as additional fore/aft and/or side loads that collectively model a real world tow situation.

B.6.6 TEST PROCEDURE AND RECORDING

A formal test procedure shall be developed for each component and/or the entire system. While this may be done by the operator, it may be best accomplished as part of the scope of work for the naval architect/engineer and/or the system manufacturer. The test procedure shall delineate

the real world scenarios and geometry to be tested with reference made to the component or system Maximum Capability Document. The test procedure shall include reeving diagrams, indication of tension member to be used, description of system of tension application (test weight or dead end tension, by system winch or ancillary winch), methods of certification of accuracy of tension (on board tension measuring equipment and that system's calibration, calibrated test weights, calibrated test scale used to weigh miscellaneous weights) and safety precautions. If "alternative" testing method by calculation of equivalent resultant loads is to be used, reference shall be made to these calculations or calculations shall be provided within the test procedure.

Each component and/or the system shall have a Test Log that indicates test dates, test results, test methods (per procedure) and those present. Test logs must be kept aboard the vessel with a shore-side copy maintained at the Marine Office.

The system Test Log shall also incorporate information required by 46 CFR 189.35-13. Specifically, this includes inspections, testing, important repairs and casualties experienced. The Test log shall be kept aboard the vessel and shall be made available to inspectors (regulatory such as USCG and oversight such as NSF or other government agencies as appropriate).

B.6.7 TESTING RESPONSIBILITY

For fixed systems, testing is the responsibility of the vessel Operator.

For portable system components, testing is the responsibility of the component Owner.

For portable systems, testing is the shared responsibility of the component Owner and the vessel Operator. Financial responsibility for setup and conducting the test may be shared with the science user depending on the complexity and availability of documentation (or lack thereof). The ship operator shall assist in making arrangements for all required testing and shall conduct the test with the support of the science user.

B.6.8 TESTING OF LOAD LIMITING DEVICES

Testing of Auto Render, Render/Recovery, and other load limiting devices are as described in Section B.10 below.

B.7 PROCEDURAL AND GENERAL SAFETY REQUIREMENTS

B.7.1 PROCEDURAL REQUIREMENTS

Procedures are to be developed during system design or integration for: Rigging and un-rigging the system, launching and retrieval of packages with emphasis on protection of the handling system, the deployed packages, the vessel, and most importantly, the personnel involved.

These procedures are to be continually reviewed during the design, manufacturing, and/or integration stages to ensure that the process remains valid and safe throughout. Factory acceptance trials and harbor acceptance trials are to be utilized to verify the proposed procedures as far as practicable.

Prior to the first mobilization and sea trial of the system, all the participants are to be rehearsed in the procedures, and a detailed plan prepared of all the tests and trials required to prove the system 'fit for service.'

During the first mobilization and sea trials, the procedures are to be implemented. Where changes become necessary from this experience, they should be incorporated into a revision of the procedure documentation.

On completion of the sea trials, the procedures are to be reviewed, approved for service, and provided along with all other necessary documentation to the Owner/Operator.

B.7.2 GENERAL SAFETY REQUIREMENTS

All moving elements shall be protected by guards or guard rail enclosures to prevent inadvertent contact by personnel in a seaway environment.

All tension member paths shall be protected by wire mesh guards, casings, restraining posts, or safety zones as far as possible to prevent personnel contact in case of failure in accordance with Appendix A.

Where tension members are led from below deck through trunks, due regard must be taken of the potential for down flooding through the open trunks and the requisite coaming heights provided.

Any other penetrations required by the design must also take into account the need for watertight integrity of the hull and superstructure, and be configured accordingly.

Where portable systems are proposed using a vessel's deck bolting system, the equipment weights and tension member loads and directions must be proven not to overstress the bolting system or the deck in which it is incorporated (part of B.3 analysis).

Where permanent systems are proposed, the equipment weight and tension member loads and directions for Principal, Secondary, and Worst Case loadings are to be used in defining the deck and its underdeck support structural designs (part of B.3 analysis).

B.8 TRAINING

Load Handling System and/or component training shall be auditable, comprehensive, and comply with the requirements for winch operator training in Appendix A *UNOLS Rope and Cable Safe Working Load Standards*

B.9 LABELLING AND DOCUMENTATION

As a minimum, the system components shall be labelled with the following information:

Maximum Permissible Tension (MPT)	XXX	
Test Date	XX/XX/XXX	
MPT Diagram	[providing a clear definition of the geometry]	
Ref. Drawing:	XXXXXX	[where MPT diagram alone is inadequate]

While a system might be designed specifically for a particular use and restricted solely to that, on general purpose ships a tension member, and its winch or handing appliance, might be used for a variety of purposes (e.g., coring, dredging, grappling, trawling). Therefore, proper labelling must be carefully considered, comprehensive in its information and based upon the information contained in its Maximum Capability Document.

The labelling of winches capable of handling more than one tension member (e.g., traction types) must be comprehensive in its information and based upon the information pertaining to each configuration contained in its Overboard Handling Data Document and Maximum Capability Document.

On general purpose vessels, a trawl winch and its tension member may be pressed into service to take over from a coring winch in support of a science program or to grapple for a piece of lost equipment. Therefore, such eventualities have to be considered and included in the labelling information. General redundancy to meet these requirements and a wide variety of scientific programs must be understood at the concept stage and their implications carefully considered.

Overboarding appliances can be even more complex by being capable of deploying a number of tension members either individually or simultaneously. For example, a midship frame might be capable of deploying a CTD (vertically), a coring wire (vertically), and a dredging wire (at a towing angle to the vertical). An aft frame might be configured to deploy long cores vertically, but also tow nets, which also impart significant side loads when in a turn. All these activities are to be illustrated in Overboard Handling Data Document and Maximum Capability Document documentation.

Overboarding appliances that come as part of the vessel at delivery generally stay with the vessel for its entire service life. Since this equipment may impose limits on the ship's stability and structural design, the initial design loads should be set recognizing that the vessel overboarding requirements may increase over time.

Ship operators and their seagoing staff must understand that if, by force of circumstance or by their wish to maintain scientific operations while on a cruise, they re-configure or use systems outside the bounds of the labelling information without undertaking the required study of the new arrangement in accordance with Maximum Capability Document, they are embarking on a potentially dangerous activity. The consequences of this activity could be loss of valuable equipment, damage to the vessel and its fixed equipment, and, in the worst case, injury to personnel.

B.10 TENSION MITIGATION DEVICES AND SYSTEMS

Detailed requirements for various tension mitigation devices and systems are given in subsections below.

B.10.1 AUTO RENDER AND RENDER/RECOVERY REQUIREMENTS

Where auto render or render/recovery is specified in order to allow the application of the Maximum Anticipated Operating Tension during design, the Overboard Handling Data Document shall clearly state this along with the specific system capabilities.

Auto render and render/recover shall have the following capabilities:

1. Continually monitor the loading condition of the winch
2. Operate continuously in all modes of winch operation without intervention of the operator
3. Provide rapid response to an overload condition, never allowing the tension member to exceed 100% of Design Line Tension
4. Capable of manual adjustment by the winch operator to enable rendering at any tension between, 10% and 75% of the Design Line Tension.
5. Retain tension at the pre-set load while activated in an overload condition
6. Signal that the system is armed and monitoring with a continuous visual indicator at the control station.
7. Signal that the system is operating in an overload event with a continuously illuminated signal at the control station. The signal shall remain illuminated after the overload event until manually re-set by the operator or until the winch system is powered down.
8. Signal that the system is operating in an overload event with a continuous audible alarm at the control station, winch and working deck areas. The alarm shall stop when the overboard event has passed.
9. Return the winch to full operating capability after the overload event has passed without intervention by the operator.

A means of reliably testing the auto render or render/recover system during winch trials (Factory Acceptance, Harbor Acceptance, Sea Acceptance) and for required periodic load testing shall be described in detail in the Operator's manual.

Note: Render/recover winches can also provide a means of maintaining a constant tension, preventing potential snatch loads after the winch has paid out. The operator should consider the need for an emergency power supply which might be drawn from the ship's emergency generator, in order to keep the winch and its auto render/recovery facility in operation.

B.10.2 WEAK LINKS

Where weak links are specified in order to allow the application of the Maximum Anticipated Operating Tension during design, the Overboard Handling Data Document shall clearly state this along with the design details of the weak link, the calculation of the mechanics of failure and the value of the failure load. The weak link shall be included at the end of the tension member and set to the MPT less the weight of the supported tension member weight and the towing resistance of the tension member, the added mass and other dynamic effects such as strumming.

NOTE: Use of weak links must recognise their limitations when using metallic tension members (as opposed the near neutrally buoyant synthetics) due to the impact of metallic tension member weight on activities such as deep coring. A weak link placed at the package only protects against the package becoming entangled, and if the tension member becomes entangled, it is still possible for the breaking load of the tension member to be generated and transferred to the handling system.

B.10.3 ACOUSTIC RELEASES

In the event a science package may become irretrievable if the tension member parts, an acoustic release device may be considered for inclusion in the system in order to recover either the package and/or a section of the tension member (which could be of very high value).

An acoustic release is not considered a load limiting device for the purposes of designing to MAOT, as it does not automatically prevent the potential overloading of tension members or the overboarding system components. The release is considered a method of last resort if a package is irretrievable.

B.10.4 REMOTELY OPERATED CUTTERS

Where a remotely operated cutting device is installed to sever the tension member, it shall be under the direct control of the vessel's Master who will be the sole arbiter of the necessity and timing of its use.

Load monitoring/alarms as per Appendix A are to be fitted in support.

The cutter should be a stored energy device totally independent of the ship's power system.

Cutters are not considered load limiting device for the purposes of designing to MAOT, as it does not automatically prevent the potential overloading of tension members or the overboarding system components. Cutters are to be used to either release an irretrievable package if an acoustic release is not installed, or if the Captain deems it necessary to cut the tension member to ensure the safety of the vessel.

B.10.5 MOTION COMPENSATION

Motion compensation shall be specified only for the control of the scientific package in the water column to improve scientific data quality (e.g. CTD thermocline following), prevent bottom impact of "low flying" equipment, and/or reduce the dynamic loading per Appendix A. **Motion compensation is not considered a load limiting device for the purposes of designing to MAOT**

NOTE: For motion compensation by winch pay-in/pay-out, the potential for continual working of sections of the tension member over intermediate sheaves and overboarding sheaves must be considered. Sheave diameters and groove profiles should be chosen to minimize possible damage with diameters in excess of the minimum Appendix A requirements fitted if possible.

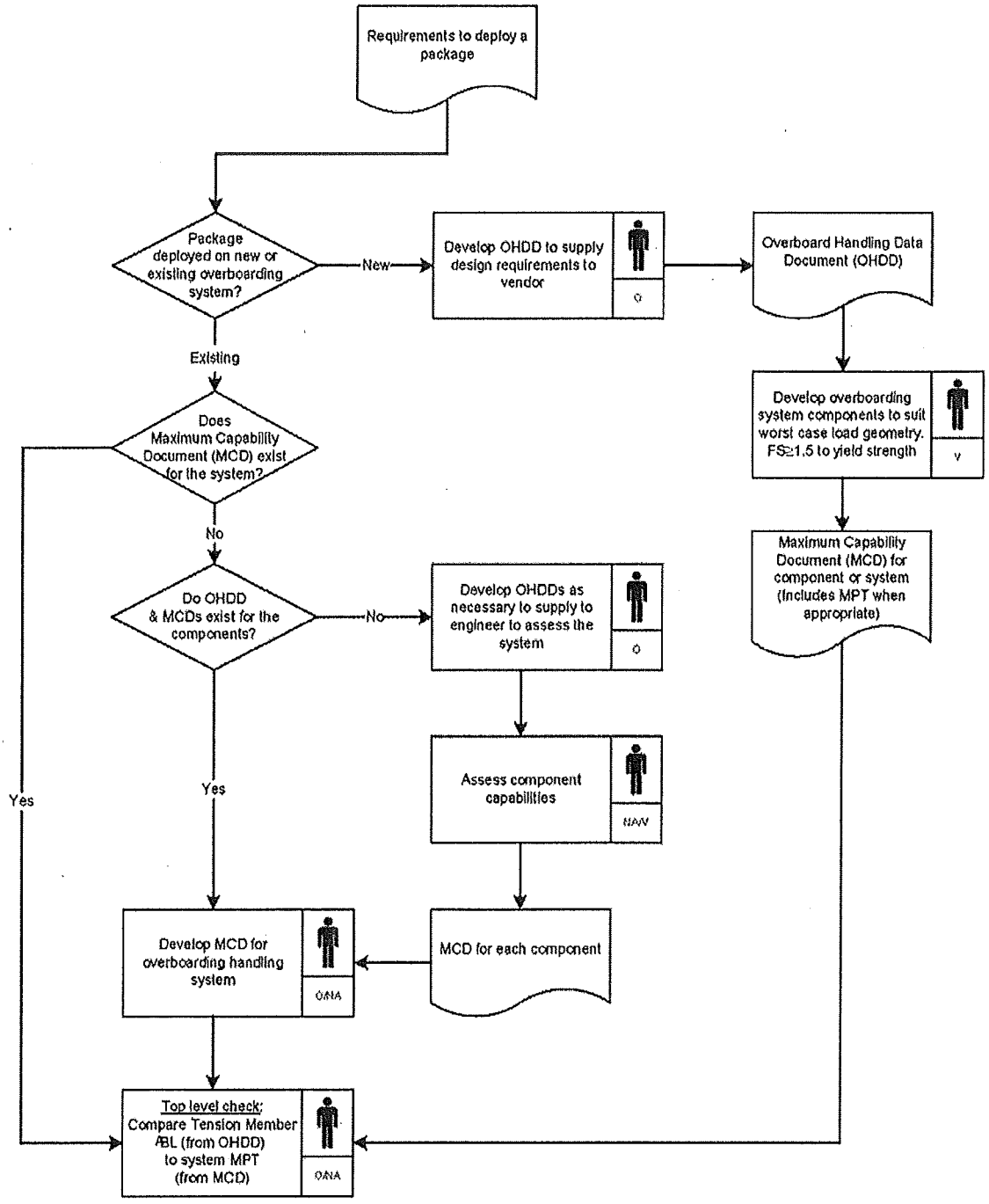
Attachment A1

TABLE B.3 — Overboard Handling Data Document

REQUIRED DATA	Operator/Designer Response
Deployment Type	
Provide a brief narrative of scientific purpose and the equipment to be deployed. A drawing or drawings of the proposed "system" or "component" architecture is to be appended showing, for example, tension member angles and potential loadings (Principal, Secondary & Worst Case) relative to the various system elements. Provide information on the vessel or vessels (size(s), type(s), UNOLS or not, etc.) intended for the system deployment, its/their area(s) of operation and the likely weather conditions to be encountered.	
Provide Primary Deployment Information:	
Package Type	
Maximum Package Weight (lbs.)	
Base Package Mass	
Added Mass to Include Captured and Entrained Added Mass (E.G., Water/Mud)	
Maximum Hydrodynamic Resistance	
Dynamic Factors	
Tension Member Type and Breaking Load	
Maximum Tension Member Weight (In Water)	
Maximum Tension Member Mass	
Selected Tension Member Factor of Safety Per Appendix A	
Maximum Anticipated Depth of Deployment	
Maximum Allowable Depths of Water	
Deployment/Water Depth Ratio	
Principal Loading	
Secondary Loading	
Worst Case Loading	

Ultimate Design Load	
Load Limiting Equipment	
Maximum Anticipated Operating Tension	
Design Line Tension	
Other Emergency Means of Package or Tension Member Detachment	
Other Means Proposed for Package Control	
Description of Fail Safes in the Event of Power Loss or Mechanical/Electrical Failure of System Components	

Attachment A2 Appendix B Flow Chart



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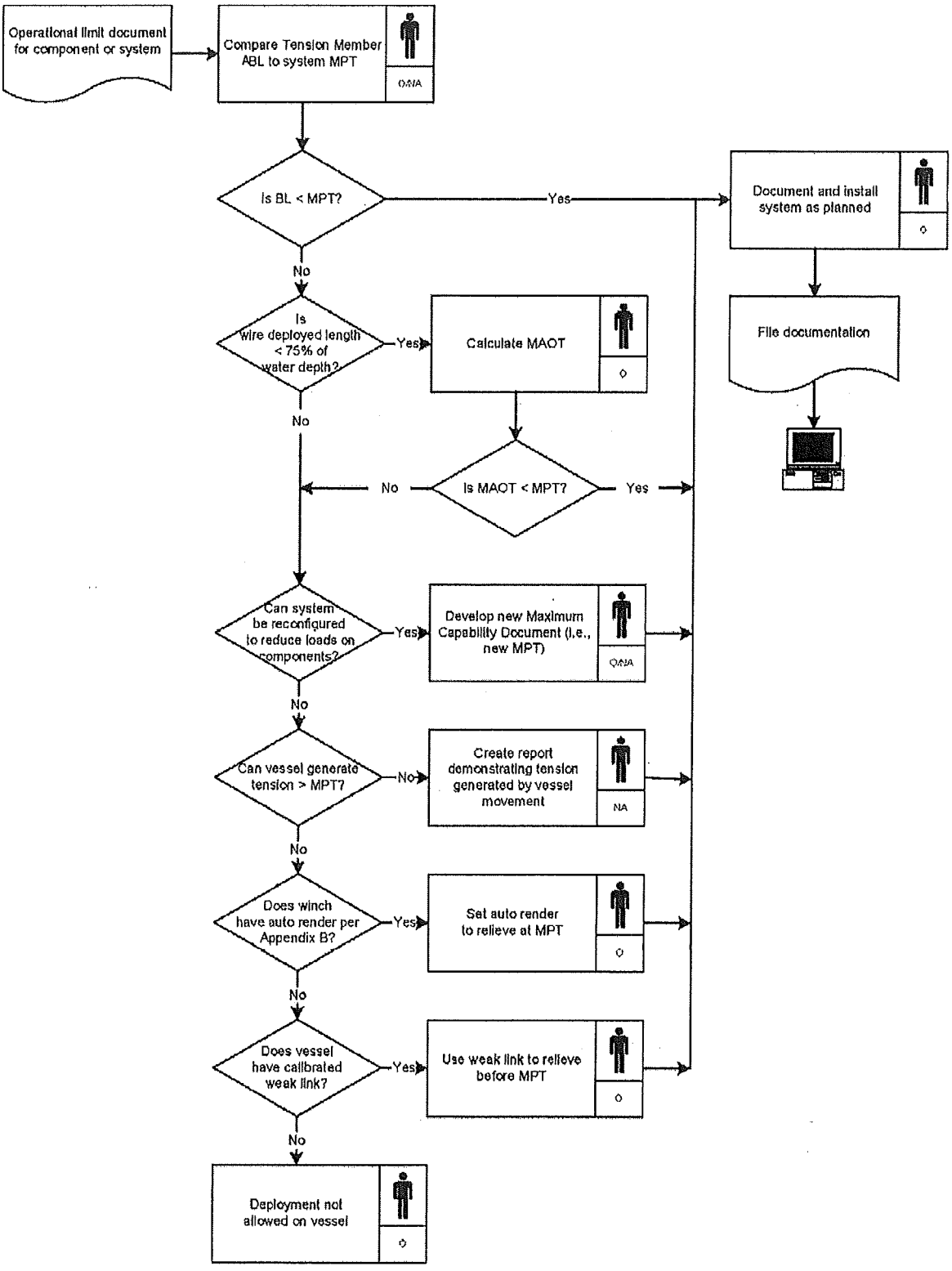
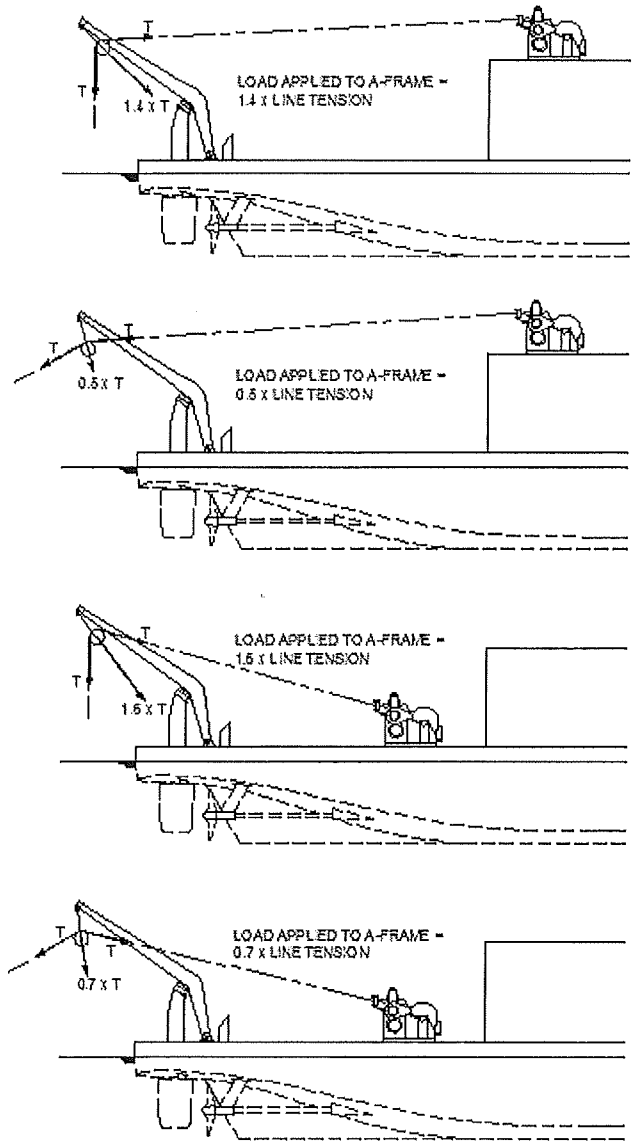

Operational limit document for component or system
Compare Tension Member ABL to system MPT
O/A/A
Is BL < MPT?
Yes
Document and install system as planned
O
No
Is wire deployed length < 75% of water depth?
Yes
Calculate MAOT
O
File documentation
No
No
Is MAOT < MPT?
Yes
Can system be reconfigured to reduce loads on components?
Yes
Develop new Maximum Capability Document (i.e., new MPT)
O/A/A
No
Can vessel generate tension > MPT?
No
Create report demonstrating tension generated by vessel movement
NA
No
Does winch have auto render per Appendix B?
Yes
Set auto render to relieve at MPT
O
No
Does vessel have calibrated weak link?
Yes
Use weak link to relieve before MPT
O
No
Deployment not allowed on vessel
O

Attachment A3: Example of the impact of the overboard handling system geometry on the tension an A-frame would see.

MAX WORKING TENSION (MWT) =10,000 LBS
ACCEPTABLE FOR ALL POSITIONS SHOWN



Attachment A4

Reserved for including an example MCD for an overboard handling system in a later revision to Appendix B.

Attachment A5 Potential Appendix B data structure:

Note: Some of the items will become non-applicable or optional for specific systems and components.

Each Overboard Handling System (OHS):

The potential contents of the OHS Operator's Manual for each OHS:

- Overboard Handling System Data Document (OHDD) for the system
- Maximum Capability Document for the system with "Top Level Check" of the MPTs of each of the components and compared with the tension member Nominal Breaking Load (NBL)
- OHS test logs
- OHS layout and geometries
- Training and operator qualification requirements
- Inspection procedures
- Testing procedures
- Operational and safety precautions
- Emergency procedures

Each Component:

The potential contents of the MCD Component Booklet for each component:

- Maximum Capability Document with proof or analysis of the MPT included.
- Overboard Handling System Data Document (OHDD) for the system (a list of excluded items such as shackles, turning blocks, cleats, tie down bolts and deck foundations, tugger winches will reduce the complexity and the work load.)
    - Footprint and bolt pattern if applicable
    - Attachment loadings
    - Ship system interface requirements such as electrical power, hydraulics, data transfer
    - Component Test Logs
    - Component weight
    - Overall dimensions
    - Equipment Operator's Manual
    - Training and operator qualification requirements
    - Inspection procedures
    - Testing procedures
    - Preventative maintenance
    - Operational and Safety precautions

For portable components additionally:

- Sub-component inventory list
- Delivery check-off list
- Installation instructions

APPENDIX C -- MCD Example

WOODS HOLE OCEANOGRAPHIC INSTITUTION

Joshua Eaton, *Engineer II*

UNOLS East Coast Winch Pool Manager

Maximum Capability Document

ECWP Dynacon LD-1

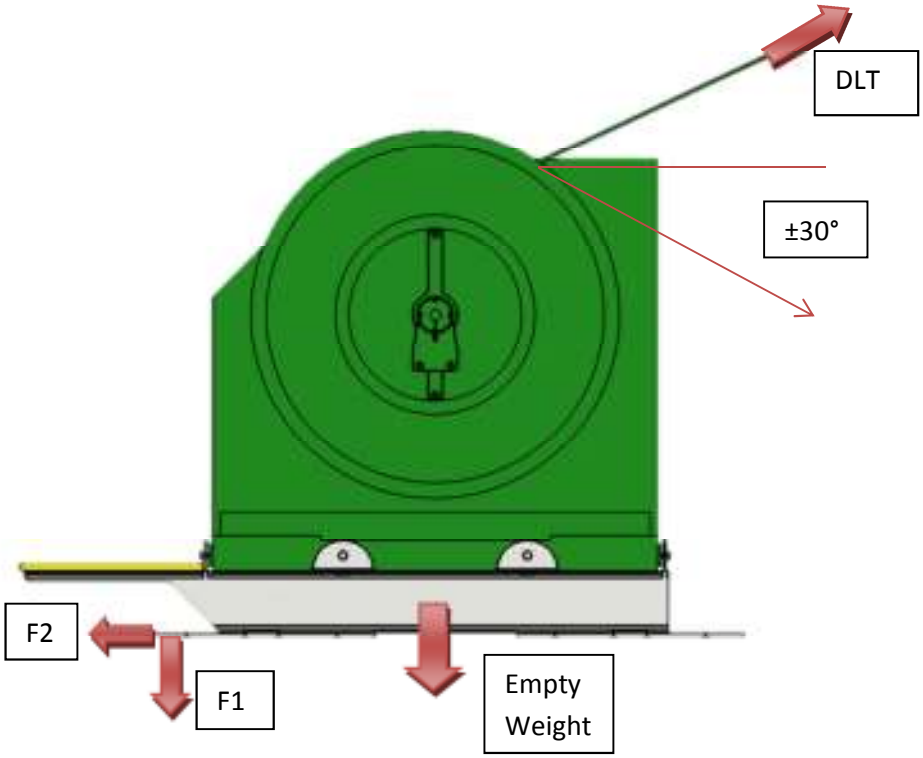
This document has been prepared in accordance with Appendices A & B from the UNOLS RVSS. This machine is primarily used for 0.322/0.393 tension members, with 11,600 lbf and 16,000 lbf breaking strengths, respectively. Per Appendix A, the machine in its' current configuration is limited to a Factor of Safety (FS) of 5.0 on the tension member due to the lack of cable monitoring system. The FS on the tension member could be lowered if a monitored over-boarding block is employed in accordance with Appendix A. Per Appendix B this machine is only rated for "Lifting & Towing - Mid Water" (Section B.3.5.2 & 5) with .322/.393 or stronger tension members as currently configured due to the lack of load limiting equipment. This strictly limits tension member deployed length to 75% of water depth. This machine could be rated for "Lifting and Towing - Deep Water" if proper load limiting equipment were employed per Appendix B.

System Characterizations

Empty Weight	5,500	lbf
Maximum Weight	6,500	lbf
Maximum Pull at Bottom Layer / MPT	3,500	lbf
Maximum Continuous Allowed Structure Load / DLT[1]	9,300	lbf
Maximum Speed at Bottom Layer	40	m/min
Maximum Oil Operating Temperature	180	F
Minimum Operating Temperature	-20	F
Power Requirements	3 Phase 480VAC 60 Hz	
	60 Amp Circuit	

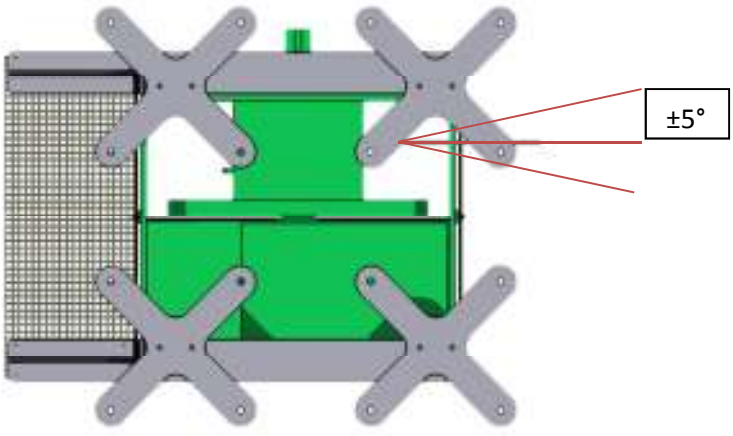
[1] At this tension the brake will slip causing the winch to render cable

Free Body Diagram



At DLT
F1 = 1,200 lbf
F2 = 500 lbf

Forces are maximum forces per bolt, at DLT, for a 16 bolt hold down pattern (Rows spaced at 24”, 48”, and 72”). Analysis is good for a vertical fleet angle of ±30° and a horizontal fleet angle of ±5°.



ATTACHMENT 5

Site Acceptance Test

Install and Commission Winch
All documentation for the winch will be delivered to OSU at the time of the Factory Acceptance Test. The winch will be shipped to OSU and all installation requirements will be communicated ahead of time so that OSU is prepared to support installation. The manufacturer's field service technician/engineer will travel to the ship and work directly with the ship's engineers to install and demonstrate all the operational functions of the winch system. The winch will be put in service shortly after this test is completed so the installation must be verified as consistent with the MCD delivered. The respondent should price the costs and basis of estimates for this service separately from the other costs of the winch.