

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. CONTRACT ID CODE		PAGE OF PAGES 1	
2. AMENDMENT/MODIFICATION NO. 0001	3. EFFECTIVE DATE 5/21/03	4. REQUISITION/PURCHASE REQ. NO. W25PHS-3100-9014	5. PROJECT NO. (If applicable)
6. ISSUED BY CODE	7. ADMINISTERED BY (If other than Item 6) Attn: Michelle Bertoline, 215-656-6914		CODE
US Army Engineer District, Philadelphia Wnamaker Building, 100 Penn Square East Philadelphia, Pennsylvania 19107-3390			

8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code)	<input checked="" type="checkbox"/> 9A. AMENDMENT OF SOLICITATION NO. DACW61-03-R-0022
	<input checked="" type="checkbox"/> 9B. DATED (SEE ITEM 11) May 8, 2003
	10A. MODIFICATION OF CONTRACTS/ORDER NO.
	10B. DATED (SEE ITEM 13)
CODE	FACILITY CODE

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers is extended, is not extended.

Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods:

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

12. ACCOUNTING AND APPROPRIATION DATA (If required)
20 Inch Cutterhead Suction Dredge

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

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

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

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

This Amendment extends the Proposal Due Date to 17 June 2003 at 4:00 p.m.

(CONTINUED ON NEXT PAGE)

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

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

14. DESCRIPTION OF AMENDMENT (CONTINUED)

- a. SECTION C – DESCRIPTION/SPECIFICATION/WORK STATEMENT – Delete pages C-51 and C-52 in their entirety and substitute the revised pages of the same number annotated Amendment Number 0001 attached hereto.
- b. SECTION E - INSPECTION AND ACCEPTANCE – Delete pages E-1 and E-10 thru E-22 in their entirety and substitute the revised pages of the same number annotated Amendment Number 0001 attached hereto.
- c. SECTION L –INSTRUCTIONS, CONDITIONS AND NOTICES TO BIDDERS – Delete page L-1 in it's entirety and substitute the revised page of the same number annotated Amendment Number 0001 attached hereto.

Please indicate receipt of this Amendment on Standard Form 33 (SOLICITATION, OFFER AND AWARD) as Amendment Number 0001. Failure to acknowledge all Amendments may be cause for rejection of the offer.

SECTION SF 30 – BLOCK 14 CONTINUATION PAGE

INSTRUCTIONS FOR USING AMENDED PAGES

1. Pages provided by amendment are to be substituted into the original Request For Proposal (RFP) document. Where an existing page number is provided as part of the amendment, the amended page is to be inserted and the original page with the same number discarded. Where a new page is provided, such as C-XX-A, it is to be added to the RFP document. Pages not addressed by amendment remain unaffected.

2. The amended pages use a Redline/Strikeout technique to show changes from the last issue of the page and simplify the contractor's effort in locating the changes. The technique works as follows:

a. Text that is *added* appears as underlined, and is also indicated by margin revision marks. This text must be considered by the contractor in preparing a bid.

b. Text that is *deleted* appears as ~~strikeout, and is also indicated by margin revision marks~~. Text so designated has been deleted and only appears to allow contractors to quickly determine "what has been deleted". This text should be disregarded by the contractor in preparing a bid.

c. Text that does not have the above appearance has *not* been altered.

d. In some cases, an alphabetical character has been added to a page number, to create a new page that allows room for a replacement page or "overflow" text.

INDEX OF CHANGES

<u>PAGES</u>	<u>CHANGED BY</u>	<u>REV I.D. NO</u>
INSTRUCTIONS/INDEX-1	Amendment 0001	20 May 2003
C-51 and 52	Amendment 0001	20 May 2003
E-1	Amendment 0001	20 May 2003
E-10 through 22	Amendment 0001	20 May 2003
L-11	Amendment 0001	20 May 2003

3. Please indicate receipt of this amendment on Standard Form 33 (SOLICITATION), OFFER AND AWARD) as Amendment No. 0001. Failure to acknowledge all amendments may be cause for rejection of the proposals.

C554 SWING & LADDER HOIST WINCHESA. GENERAL

The swing and ladder hoist winches shall provide safe, reliable and smooth operation in both directions, throughout their range of speed and power. These winches shall provide stepless variable speed operation.

Winch drums shall be flanged and provided with positive holding mechanisms capable of holding the drum under a line pull equal to the breaking strength of the rope. The design shall ensure easy line replacement. Fail-safe brakes shall hold all drums in the event of a drive failure.

All sheaves shall be anti-friction, sealed, tapered bearing type.

If hydraulic winches are selected, the hydraulic system shall operate on biodegradable synthetic fluid (i.e. Chevron Clarity hydraulic oil AW ISO 32).

Manual controls shall be provided to operate all functions of the winches from one central control station in the dredge control room.

B. SWING WINCHES

Two swing winches shall be provided for the dredge. The winches shall be capable of swinging the ladder through its full range of motion.

Each winch shall be furnished with 1200 feet of wire rope. ~~Swing wires shall have a safety factor of 5.~~ Swing winch line pull shall be sufficient to hold the cutting edge firmly against the cut. As a minimum, the line pull shall be capable of applying a force greater than 1.5 times the maximum force exerted by the cutter. Line speed shall be continuously variable from zero to 80 feet per minute, depending upon the amount of line pull, and from 80 to 150 feet per minute when operating in a free spooling, i.e., unloaded, mode.

C. LADDER HOIST

The ladder hoist winch shall be capable of raising and power lowering the ladder at a rate of 40 feet per minute minimum. The winch shall have a disc type brake for holding the load and a positive, mechanical means of holding the ladder when in the stowed position. Winch drive power may be either electric or hydraulic.

The ladder hoisting wire shall have a safety factor of 53.5. Maximum line pull shall be sufficient to raise the ladder through a collapsed bank with approximately 5 feet of material burying the cutter.

C560 DREDGE LADDER

The ladder shall be of welded steel construction and have fabricated steel trunnions and replaceable, pinned bushings. The ladder and assembly shall be of sufficient length and strength to dredge at a maximum depth of 25 feet at a maximum of 60 degrees angle with the water plane. ~~Balanced type-s~~ Swing sheaves shall be provided on each side of the forward end of the ladder.

The ladder shall be suspended from an A-frame constructed of structural steel with rigid backstays. All structure and rigging including blocks, tackle, brackets, frame feet and doubler plating shall be of sufficient strength to easily raise the ladder in all modes of operation.

Means shall be provided for locking the ladder in a raised position, independent of the hoisting wires, during towing or maintenance.

C570 SUCTION & DISCHARGE PIPING

All dredge pipe and fittings shall be fabricated from high abrasion resistant steel suitable for dredging service. Arrangement of the pipe shall permit rotation to equalize wear.

Suction piping shall be sized to match the pump suction. The connection between the ladder and the hull shall be made with a heavy-duty abrasion resistant rubber hose rated by the manufacturer for a full zero to 60-degree bending service. An expansion type spool piece with a clean-out connection shall be installed at the suction line near the pump. A replaceable root knife shall be bolted into the suction pipe to break up debris entering the impeller suction. An automatic acting vacuum relief valve shall be provided in the suction line near the cutter.

Discharge piping shall be 20-inch I.D. and shall be securely supported. A back flow prevention valve shall be provided in the discharge line.

C580 WIRE ROPE CERTIFICATION

The Contractor shall provide the COR with a "Certificate of Examination and Test of Wire Rope Before Being Taken Into Use" for each wire rope installed on the dredge's winches. The certification shall be performed to the requirements of 29 CFR, part 1919 and be in accordance with the requirements of 29 CFR 1918.11(a).

PART I - THE SCHEDULE - SECTION E
INSPECTION AND ACCEPTANCE

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2. Superstructure Deckhouse

All weathertight exterior bulkheads, doors, windows, manholes and hatches that have been modified or added as part of the contract work shall be hose tested for tightness prior to coating.

3. Spud Shop Tests

The as-built dimensions of the spud(s), as well as the Spud Depth Markings, shall be verified by the COR prior to installation of any spuds on the vessel. The contractor shall also perform the following:

- Air test each spud to verify watertight integrity.
- The design spud length overall (LOA) shall be verified and recorded.
- Check the accuracy of the spud markings and the locking pin/dog locations with respect to the spud tip and the stowage position.

These shall be coordinated to permit the government representative to witness the tests.

Outfitting

~~The as-built dimensions of the spud(s) shall be verified by the COR prior to installation of any spuds on the vessel.~~

4. Piping System Tests

a. General

The testing requirements set forth herein include system flushing procedures to demonstrate system cleanliness and integrity on any piping added or modified as part of the contract. Hydrostatic testing shall be performed at 1-1/2 times working pressure unless indicated otherwise by the applicable code.

b. Compressed Air

Upon completion of installation, the piping of the compressed air system shall be hydrostatically tested in accordance with the ASME code. The system shall be inspected for leaks at the welds, fittings, etc. Upon completion of the hydrostatic test, the entire system shall be blown dry with air.

c. Hydraulics

Upon completion of the installation, the system's piping and fittings shall be flushed with hydraulic fluid. Jumpers shall be provided as necessary. Flushing shall be accomplished using a Contractor furnished pump to circulate the hydraulic fluid, and the Contractor furnished filters to collect all contaminants.

d. Piping

After thorough flushing, hydrostatically test all piping systems for leaks for no less than 10 minutes per test. Each system shall be inspected for leaks at the welds, fittings, hoses, etc.

e. HVAC

Blow out with compressed air all installed ductwork. Operationally test each supply and exhaust fan, along with it's ducting, to ensure absence of leaks, adequate support and acceptable vibration levels.

f. Potable Water

The Contractor shall clean, chlorinate, and flush all system tanks and piping.

g. Fixed Fire Extinguishing (CO₂) SystemInstallation test requirements:

- Upon completion of the piping installation, and before the cylinders are connected, a pressure test of the fixed CO₂ system shall be performed IAW CFR 46 Subchapter 76.15-15 paragraph (j) subparagraph 1-4.
- The piping from the cylinders to the manifold stop valves shall subjected to a static pressure of 1000 psig for two minutes with less than a 150 psi loss per minute.
- The individual branch lines to the various spaces protected shall be tested in the same manner at a static pressure of 600 psi.
- In lieu of the tests prescribed above, small independent systems protecting spaces such as emergency generator room, lamp lockers, etc., may be tested by blowing out the piping with air at a pressure of at least 100 psi.

Demonstrate the proper operation of the CO₂ system. Demonstrate the operation of the audible alarms and the automatic shutdown of the ventilation system fans. (These tests may be done concurrently with the required ABS tests on this system. A Government representative must be present to witness the tests).

5. Electrical Cabling

Insulation resistance readings of all installed or modified power and lighting cable shall be taken using a 500-volt megger, and shall be in accordance with IEEE Standard 45, Section 46. The measured cable insulation resistance must meet or exceed the minimum values outlined in the referenced IEEE publication. Also, measure the voltage drop of the longest receptacle circuit. A complete record of all readings shall be kept to assure that all circuits and equipment have been checked and for possible assistance in troubleshooting any discrepancies detected during subsequent testing.

6. Exhaust Systems

Blank off and test the flanges, welds, and gaskets of each exhaust system using compressed air and soap bubbles. All engine exhausts shall all be checked in this manner.

C. BUILDER'S DOCK TRIALS (LEVEL 2)

Builder's Dock Trials are a preliminary "run-through" of all required Dock Tests (Level 3) by the Contractor. The intent of this testing is to provide both the Contractor and the COR reasonable assurance that all equipment and systems have been thoroughly prepared and are ready for formal testing and that the Contractor has made adequate provisions for Dock Trials (Level 3).

Builder's Dock Trials shall be conducted at the Contractor's facility listed in Section B of the contract. The COR shall be notified, in writing, at least 2 working days prior to the scheduled commencement date of Builder's Trials. The Test Report must be current prior to commencing Builder's Dock Trials.

The trials shall be of sufficient scope and duration to assure that all equipment and systems are complete and capable of performing as required during Dock Trials.

D. DOCK TRIALS (LEVEL 3)

Dock Trials are the operability tests the Contractor must perform in the presence of the Government Representative to demonstrate the proper installation, operation, control, and performance of all equipment, machinery, and systems installed as part of this contract. Specific dock trials and demonstrations are defined in paragraph E.

In addition, each test or demonstration shall include control, instrumentation and alarm operation as applicable.

Prior to the start of Dock Trials, all construction and installations must be complete (except for final cleaning and touch-up painting), and all Level 1 and Level 2 testing must be successfully completed and documented. The Test Report must be current through the two levels of testing and accepted by the COR before Level 3 testing can proceed.

Commencement of Dock Trials shall not be sooner than one full working day after completion of Builder's Dock Trials. The COR shall be notified immediately of any condition which would delay the conduct of Dock Trials.

The COR shall be notified in writing 10 working days in advance of the date set for testing. Results of the Level 2 Testing must be faxed to the Marine Design Center at least one day prior to the start of the Dock Trials, if Level 2 Testing was not attended by a Government Representative.

All testing and trials shall be conducted in accordance with the Agenda and in the presence of a Government representative and vendor representatives for the following equipment:

- Dredge Pump
- Dredge Pump Reduction Gear
- Diesel Generator Set(s)
- Auxiliary Engine and Gear (if applicable)
- Variable Speed Motor Drives (if applicable)
- Main Switchgear
- Control and Monitoring System
- Winches

The Contractor shall indicate in the test memoranda which tests will be performed using the diesel generators and which tests will be performed using the shore power.

During dock trials and thereafter, the atmosphere in spaces being prepared for, and preserved by, paints and tank coatings dissolved in highly volatile, toxic, and flammable solvents (29 CFR 1915.35(b)), shall be tested frequently and shall be in accordance with the U.S. Occupational Safety and Health Agency Standards regulations stated in CFR 1915.31-36.

Within 24-hours of final inspection, and before any representative of the U.S. Government boards the vessel for such duties, each compartment or space to be inspected shall be certified "SAFE FOR WORKERS" by the National Fire Protection Association's (NFPA) competent person. This means that in the compartment or space so designated:

- The oxygen content in the atmosphere is at the least 19.5 percent by volume;
- Toxic materials in the atmosphere are within permissible concentrations;
- The residues are not capable of producing toxic materials under existing atmospheric conditions while maintained as directed on the Marine Chemist's certificate.

The Contractor shall notify the Government when this certificate has been issued. The vessel will not be inspected and accepted by the Government without an NFPA Marine Chemist certificate for each hull compartment designated "SAFE FOR WORKERS."

The success of all tests and the existence of any deficiencies shall be determined by the COR. Deficiencies shall be remedied prior to start of the Extended Dredging Trials (Level 4).

E. SPECIFIC DOCK TRIALS AND DEMONSTRATIONS

The Contractor shall test in the presence of the Government representative all onboard equipment and systems. Among the tests performed shall be the following:

1 DIESEL ENGINES

For the generator set(s), auxiliary engine and dredge pump engine demonstrate the following in the presence of an authorized manufacturer's representative:

- Cold starting. The cold starting testing shall demonstrate the minimum number of starts required by ABS for each engine.
- Starting and stopping of each engine from all control panels.
- Operation of all emergency stops.
- Operation of all engine alarms from all control panels. Ensure the proper operation of all alarm test circuits for each main engine.

2 LOAD BANK TESTING

- Each diesel generator shall be load bank tested. Operate each generator set at 1/4, 1/2, 3/4 and full loads in 15 minute intervals, and then at 110% rated load (with the use of a load bank) for a minimum of 2 hours until the jacket water and exhaust temperatures stabilize.
- On board loads may be used to supplement, or in lieu of, the load bank provided that the Contractor can demonstrate a stable load for the duration of the test including power factor. Load levels required below shall be based on the engine rating.
- All engine and generator parameters shall be recorded at 5-minute intervals for the partial and full load periods, and at 15-minute intervals for the 110% load period. If the test is interrupted for any reason, the entire test must be repeated.
- If applicable, operate the generators in parallel for two hours each, at no less than 60% of the combined rated load. Record all engine and generator parameters at 30-minute intervals.

3 ENGINE COOLING SYSTEM

- Demonstrate that proper cooling water flow takes place during the operation of the dredge pump and auxiliary engines and diesel generators.
- Inspect the system for leaks.

4 ENGINE EXHAUST SYSTEM

- Demonstrate the operation of each engine and diesel generator exhaust system.
- Inspect each system for leaks and verify the backpressure on each system.

5 FUEL OIL SYSTEM

- Ensure proper fuel flow to the engines during operation.
- Demonstrate operation of all remote operated shut-off valves.
- Ensure correct operation of the fuel oil coolers.
- Check for evidence of leaks at connections.

6 BILGE SYSTEM

Demonstrate the operation of the potable bilge pump by taking suction from the compartment farthest from each pump and discharging the flow overboard.

7 POTABLE WATER

- Demonstrate capability of the potable water pressure set to cycle on and off at the set pressures and deliver water to the toilet and sink.
- Extract sufficient water effluent samples and have them tested by a qualified facility to demonstrate that the water meets the EPA regulations of Title 40, Chapter 1, Part 141 – “National Interim Primary Drinking Water Regulations.”
- Measure the chlorine level in each potable water tank using a standard test kit.

8 SANITARY & SEWAGE SYSTEM

Demonstrate proper operation of the system by flushing the toilet several times. Demonstrate operation of the holding tank pumpout system.

9 FIXED FIRE EXTINGUISHING (CO₂) SYSTEM

In the presence of a manufacturer’s representative perform an operational test on the CO₂ systems to demonstrate operation of the trip devices, nozzles, audible alarms and the automatic shutdown of the ventilation system fans. Note: This system must be certified by the National Fire Protection Associations (NFPA) competent person.

10 FIRE DETECTION & ALARM SYSTEM

Demonstrate the operation of the fire detection system. The testing and trials shall demonstrate activation of the alarms from each smoke detector and heat sensor. A representative of the alarm system shall be present during the tests and trials of the detection and alarm system.

11 HVAC

- Demonstrate the operation of the air conditioning and heating equipment.
- Demonstrate the operation and measure the cfm output of all ventilation fans.

12 COMPRESSED AIR SYSTEMS

- Fill the air receiver from empty to automatic shut off using the compressor. Record the time to fill tank and the cut-out pressures of the compressor.
- Bleed air from the system until the respective compressor cuts in. Record the cut-in pressures.
- Demonstrate air availability at each service air connection.

13 WINCHES AND HOISTS

- Demonstrate operation of the ladder winch by raising and lowering the ladder.
- Demonstate operation of the spud hoists.
- Demonstrate operation of the swing winches.
- Demonstrate operation of the traveling spud carriage
- Load test the deck crane at overload conditions.

14 HYDRAULIC SYSTEMS

If applicable, demonstrate the operation of the hydraulically operated spud hoist cylinder and the traveling spud carriage.

15 DREDGING SYSTEM

- Demonstrate operation of the dredge pump priming system.
- Conduct a performance test on the dredge pump using clear water. The objectives of these performance trials shall be to demonstrate operation of the dredge pump, pump drive, pump controls, gear lube oil cooling system, and gland flushing system; to develop pump performance curves (flow vs. head and NPSHR); and to familiarize the USACE crew members with operation of the new pump drives and controls.
- Operating at full and $\frac{3}{4}$ speeds, the pump shall be tested at three separate operating points along its performance curve, for a total of six trials. Each trial shall be run for a period of 1 hour, during which the Contractor shall measure and record - at 15 minute intervals - the pump suction and discharge pressures, dredge pump reduction gear lube oil and cooling water pressures and temperatures, the flow rate of gland flushing water, and the dredge discharge pipeline water velocity.
- Prior to the test the Contractor shall fabricate three, sharp-edged type orifice plates sized to develop discharge pressures equal to those at pipeline lengths of 1000 feet, 3000 feet and 5000 feet. The diameters of the orifices shall be determined by the Contractor and shall be installed in the dredge pipe at the discharge connection. Beginning with the smallest size orifice, the Contractor shall install each orifice plate in turn and conduct performance trials on the dredge pump at speeds of full and $\frac{3}{4}$ speeds.

16 CONTROLS, INSTRUMENTATION AND ALARMS

- All control, instrument, and alarm functions shall be demonstrated with the system or equipment for which they function. All remote control, indication, and alarm

functions shall be divided up and included on the Test Data Sheet with the test or demonstration with which they are most logically associated. Similarly, all local control, instrumentation, and alarm functions shall be included on the Test Data Sheet demonstrated with the test or demonstration with which they are associated.

- Controls - Automatic controls shall be demonstrated by exceeding the parameter set point(s), during the specified operations if possible; otherwise, the Contractor shall develop a specific test to extend an operating parameter beyond its set point(s). Also, a sensor set point may be manually activated. If these "natural" methods of testing are impractical due to excessive time or disassembly, then the control contacts may be bridged or opened to simulate a control function. Relief valves shall be considered a control device and tested to insure proper actuation at the specified pressure. Manual and remote controls shall be demonstrated during the specified operations if possible otherwise the Contractor shall develop a specific test for which the control function can be demonstrated.
- Instruments - Demonstration of instruments and other non-alarm indicators shall consist of recording the readings once during the appropriate time of operation or as specified. The appropriate time of operation is the time at which the instrument is displaying a useful output. If an operation for which an instrument reading can be recorded is not specified, the Contractor shall develop one.
- Alarms - Similar to control demonstrations, alarms shall be demonstrated by exceeding the parameter limit(s) during the specified operations if possible; otherwise, the Contractor shall develop a specific test to extend an operating parameter beyond its limit(s). Also, a sensor limit may be manually activated. If these "natural" methods of testing are impractical due to excessive time or disassembly, then the alarm contacts may be bridged or opened to simulate an alarm condition.

19 AC ELECTRICAL SYSTEM

- Switchgear - Demonstrate the operation of all circuit breakers and all equipment in the main switchboard. Safely demonstrate all mechanical and electrical interlocks on the generator breakers, bus ties breakers, and shore power breakers.
- Variable Speed Drives (if applicable) – Demonstrate operation of all variable speed drives, including monitoring, controls, and shutdowns.
- Switchboard - Demonstrate all features of the switchboard such as the voltmeters and selector switches, ammeters and selector switches, frequency meters and selector switches, power available indicator lights, space heaters, ground detection lights and test switches, and ground ammeter and test switch.
- Distribution Panels - Demonstrate the operation of all circuit breakers in the distribution panel boards.

- Convenience Receptacles - Demonstrate the operability of all receptacles. Check the receptacles for polarity and voltage drop. For GFCI types, demonstrate their ability to reset.
- Lighting - Demonstrate the operation of all new interior, exterior and floodlights. Demonstrate the operation of all new lighting switches.

20 DC ELECTRICAL SYSTEM

- Demonstrate the general operation of the DC electrical system.
- Distribution Panels - Demonstrate the operation of all circuit breakers in the DC panels.
- Demonstrate the operation of all battery chargers.

22 NOISE SURVEY

The survey will entail the taking of sufficient noise measurements in each of the vessel's manned spaces, including quarters, and at several exterior locations on-deck to determine noise levels. A report shall be prepared containing the survey results.

The Contractor shall perform the survey using a subcontractor especially qualified for this work either by training or experience. The Contractor shall identify the proposed subcontractor in the Subcontracting Plan (Clause H12) and include the subcontractor's qualifications.

The test shall be conducted with the ventilation systems and dredge pump engine operating at full speed, and the auxiliary engine and generator(s) operating at normal load.

The sound levels reported for each compartment shall be based on the average of the broadband A-weighted sound pressure levels taken at various representative locations of the reverberant field of the compartment or space in question. These measurements shall typically be taken at locations within a space where operating personnel are expected to spend a majority of their time. Measurements shall be taken in accordance with NVIC 12-82.

A report shall be prepared by the Contractor detailing the test results. The report shall include:

- A tabulation of the actual raw data taken during the survey for noise.
- Sketches of the spaces measured with the recorded sound levels denoted at the location of their measurement. Reduced size general arrangement drawings will be acceptable for this purpose.

The Contractor shall take corrective action as necessary to achieve the required criteria. The report shall describe any compartments which present a noise hazard according to OSHA regulation, 29 CFR 1910.95 "Occupational Noise Exposure".

The Contractor shall prepare a report detailing the test results.

F. EXTENDED DREDGING TRIALS (LEVEL 4)

Following "Provisional Acceptance" by the Government, delivery by the Contractor (Clause E07), and a 7-14 day period to outfit the vessel in St. Paul, the Government shall exercise the vessel for a period of 14 calendar days. This period shall be considered "Extended Dredging Trials". Daily operation during dredging trials will be three eight-hour shifts, including the preparation of a meal during each shift. During this period the Government will place the vessel at a dredging location within the St. Paul, MN area and perform dredging operations with the Government crew. The Contractor shall participate in these trials.

The Contractor shall furnish manpower to train the government crew to operate the vessel, troubleshoot problems and make necessary adjustments and repairs. As a minimum, the Contractor shall arrange to have 2 of his own experienced shop personnel on board to handle routine mechanical and electrical problems; enough operators to completely man the vessel one shift per day; and one representative of the manufacturer of the dredge automatic control system to instruct the government crew members in troubleshooting problems and if necessary, repairing and adjusting the controls.

The Government will provide ship-to-shore launch service for the Contractor's crew. The Contractor shall provide land side/shore transportation, lodging and subsistence (except for the meals prepared in the preceding paragraphs) for his personnel and the manufacturer's representatives, for the entire period.

The Government will provide all necessary fuel, lubes, and other consumables (except parts) for the Extended Dredging Trials.

The Contractor shall develop a Schedule for the first 7 calendar day period, which will include final adjustments to all equipment under operating conditions by the manufacturer's representatives and training and demonstrations for the Government crew of all equipment and systems in the vessel. The schedule shall be prepared and submitted to the COR for approval during the "Engineering & and Scheduling Phase".

The Contractor shall prepare a daily record of the adjustments made, training, operations performed and other milestones. This record shall be bound and submitted in the same quantities and manner as the Test Report.

In the event trials are delayed more than four hours due to contractor performance, the contractor shall extend the length of time for trials four hours for each four-hour period of downtime. The COR shall determine when failure of equipment or machinery is of sufficient importance to call a delay in the trials. The correction of the equipment or machinery failure shall be to the satisfaction of the COR or his representative prior to resuming trials and calculating trial time extension.

E06 FINAL INSPECTION

When all work and Phase 3 testing has been satisfactorily completed at the builder's yard, the Contractor and a Government Representative shall make a complete physical inspection and inventory of the vessel. A "punch list" of deficiencies will be developed and presented to the Contractor for corrective action.

All corrective action necessary to eliminate the "punch list" deficiencies shall be completed at the Contractor's facility. The Contractor shall give the COR 7 working days notice prior to the desired date of reinspection.

Prior to any inspection or reinspection, the vessel and all its equipment shall be thoroughly cleaned and all painting and finishes required to be performed by the contractor put in first class condition.

At the time of Final Inspection, the Contractor shall take water samples of the potable water on board the vessel for a water analysis. The Contractor shall have the water analyzed by a subcontractor especially qualified for this work. The Contractor shall identify the proposed subcontractor in the Subcontracting Plan (Clause H12) and include the subcontractor's qualifications.

A lab report shall be prepared showing that the potable water provided on the vessel meets the standards prescribed in the Environmental Protection Agency's Primary Drinking Water Regulations as set forth in 40 CFR part 141.

If the potable water fails to meet the EPA standards, the Contractor shall clean and flush the potable water system and potable water storage tanks. Fresh potable water meeting the EPA standards shall be supplied and a second lab report verifying that the potable water supplied meets the EPA standards shall be prepared.

E07 PROVISIONAL ACCEPTANCE AND DELIVERY

Delivery of the vessel may not be started until Provisional Acceptance of the vessel has been made. The vessel will be Provisionally Accepted at the builder's yard upon satisfactory completion of the following:

- Phase 3 Tests and Trials.
- Correction of all "punch list" deficiencies
- Receipt of a "passing" potable water lab report
- Receipt of required contract deliverables

The Contractor shall deliver the vessel to St. Paul, MO. The vessel shall be delivered under tow by a vessel operated by contractor personnel. The vessel shall be subject to a complete inspection at the time of delivery.

The Contractor shall assume all costs associated with the delivery and shall deliver the vessel afloat and "Ready for Service", which is defined as clean inside and out; all trash, dunnage, lashing, and delivery related material disposed of; loose items of outfit in place; all electrical and mechanical systems operational; equipment properly adjusted; instruments and electronics calibrated or aligned, fuel and water tanks filled and damaged paint touched up. The Contractor shall provide necessary personnel, equipment and materials to make the vessel "Ready for Service". Every space, compartment, and deck of the vessel shall be cleaned to the satisfaction of the COR.

E08 FINAL ACCEPTANCE

Final Acceptances will be made following successful completion of the Extended Dredging Trials (see Clause EO5) being performed by the Government. Following Dredging Trials the contractor's crew shall be responsible for touching up any damaged paint and providing any necessary adjustments, alignments or calibrations still remaining. Final acceptance will be made at the Dredging Trial site.

E09 COMMERCIAL WARRANTY OF SUPPLIES

The Contractor shall assign, in writing, all commercial warranties for equipment provided under this contract to the Government. The effective date of all commercial warranties shall be the date of Final Acceptance.

B2. PRODUCT PROPOSAL SUBMITTAL REQUIREMENTS**List of Proposed Deliverables**

The purpose of this submittal is for the Government to evaluate the completeness and extent of the engineering drawings and data that will be furnished during the engineering phase of the contract and prior to construction. The Offeror shall furnish a list of the drawings and engineering data that will be developed and provided to the government after contract award, during the Engineering Phase of the contract.

Satisfaction of the Product Evaluation Criteria

The Offeror shall describe the way that the dredge satisfies the evaluation criteria listed in paragraph B1 (Product Evaluation Criteria). When addressing the criterion of Performance, the Offeror shall specifically provide:

- Dredge production rates when dredging medium sand ($d_{50} = 400\text{-}600$ microns) at 10, 20 and 25-foot dredging depths, with 20-inch I.D. pipeline at discharge lengths between 500 and 5000 feet. Assume 100% dredge efficiency and in situ material having a specific gravity of 2.1.
- Dredge pump performance curve showing hp, efficiency, TDH and NPSHR at maximum rated rpm of the pump driver
- Dredge production rates when dredging at a 10, 20 and 25-foot dredging depths with the booster pump in line and between 5,000 and 10,000 feet of 20-inch I.D. pipeline. Assume 100% dredge efficiency and in situ material having a specific gravity of 2.1.
- Engine air emission standards met
- Any features to prevent contamination of the waterway by oil leakage/spills
- Tank capacities
- Intact and damaged stability criteria that will be met
- Features to reduce noise and vibration. Noise characteristics of the dredge at the operator's station, on the open deck and the machinery spaces.
- Hull and deck structural features, including plating thickness, types of welds, equipment lifting pads and removal hatches, personnel access/egress hatches, etc
- Fire alarm and protection systems
- Tank construction and level indicating systems provided
- Features used to handle contaminants in fuel oil, lube oil and hydraulic oil
- Specifics about dredging control and monitoring systems
- Specifics about paint systems to be used
- Insulation and joiner work and sheathing used in machinery spaces and control room
- Types and materials of interior and exterior doors and windows to be used
- Types of deck fittings
- Description and performance (hp, speed, max swing angle, factors of safety used, etc.) of ladder hoist and swing winches ~~and~~, spud handling equipment, and wire rope. Indicate wind and current design conditions used for sizing the swing winches and their drives.
- Interior and exterior deck coverings used