## UNAVCO, INC.
### INVITATION FOR BID (IFB)
(THIS IS NOT AN ORDER)

<table>
<thead>
<tr>
<th>IFB Number:</th>
<th>B201053</th>
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<tbody>
<tr>
<td>IFB Title:</td>
<td>STRAINMETER BOREHOLES IN THE ANZA REGION OF CALIFORNIA</td>
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</table>
| IFB Due Date and Time: | **May 26, 2010**  
12:00 p.m., Mountain Time |
| Number of Pages: | 31 |

### ISSUING AGENCY INFORMATION

<table>
<thead>
<tr>
<th>Procurement Officer:</th>
<th>Celine de Bourgoin</th>
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<tbody>
<tr>
<td>Issue Date:</td>
<td>May 12, 2010</td>
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UNAVCO, Inc.
Office of Procurement Services
6350 Nautilus Drive
Boulder, CO 80301

Phone: (303) 381-7500  
Fax: (303) 381-7501

Website: [http://www.unavco.org/](http://www.unavco.org/)

### INSTRUCTIONS TO BIDDERS

COMPLETE THE INFORMATION BELOW AND RETURN THIS PAGE WITH YOUR BID AND ANY REQUIRED DOCUMENTS TO THE ADDRESS LISTED ABOVE UNDER "ISSUING AGENCY INFORMATION."

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<th>Mark Face of Envelope/Package:</th>
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Special Instructions:
- Bids sent by fax must have a cover sheet noting the total number of pages being sent.

### BIDDERS MUST COMPLETE THE FOLLOWING

<table>
<thead>
<tr>
<th>Payment Terms:</th>
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<tr>
<td>Delivery Date:</td>
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<tr>
<td>Bidder Name/Address:</td>
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<tr>
<td>Authorized Bidder Signatory:</td>
<td>(Please print name and sign in ink)</td>
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<td>Bidder Phone Number:</td>
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<td>Bidder FAX Number:</td>
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<td>Bidder E-mail Address:</td>
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<tr>
<td>Bidder Web Address:</td>
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A signed W-9 must be submitted before award will be made.

**IMPORTANT:** SEE STANDARD TERMS AND CONDITIONS
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SECTION 1: GENERAL REQUIREMENTS

1.0 INTRODUCTION

UNAVCO, Inc. (hereinafter referred to as “UNAVCO”) is soliciting bids for STRAINMETER BOREHOLES IN THE ANZA REGION OF CALIFORNIA. A more complete description of the supplies and/or services sought is provided in Section 2 of this IFB. Bids submitted in response to this solicitation must comply with the instructions and procedures contained herein.

1.1 INSTRUCTIONS TO BIDDERS

1.1.1 Procurement Officer Contact Information. Contact information for the procurement officer is as follows:

Procurement Officer: Celine de Bourgoin
UNAVCO, Inc.
Office of Procurement Services
6350 Nautilus Drive
Boulder, CO 80301
Telephone Number: (303) 381-7500
Fax Number: (303) 381-7501
E-mail Address: bourgoin@unavco.org

1.1.2 Examination of Solicitation Documents and Explanation to Bidders. Bidders are responsible for examining the solicitation documents and any addenda issued to become informed as to all conditions that might in any way affect the cost or performance of any work. Failure to do so will be at the sole risk of the bidder. Should the bidder find discrepancies in or omissions from the solicitation documents, or should their intent or meaning appear unclear or ambiguous, or should any other question arise relative to the solicitation documents, the bidder shall promptly notify the Procurement Officer in writing. The bidder making such request will be solely responsible for its timely receipt by the Procurement Officer. Replies to such notices may be made in the form of an addendum to the solicitation.

1.1.3 Interpretation or Representations. UNAVCO assumes no responsibility for any interpretation or representations made by any of its officers or agents unless interpretations or representations are incorporated into a formal written addendum to the solicitation.

1.1.4 Acknowledgment of Addendum. If the IFB is amended, then all terms and conditions which are not modified remain unchanged. It is the bidder’s responsibility to keep informed of any changes to the solicitation. Bidders must sign and return with their bid an Acknowledgment of Addendum for any addendum issued. Bids that fail to include an Acknowledgment of Addendum may be considered nonresponsive.

1.1.5 Extension of Prices. In the case of error in the extension of prices in the bid, the unit price will govern. In a lot bid, the lot price will govern.

1.1.6 Bid Preparation Costs. The costs for developing and delivering responses to this IFB are entirely the responsibility of the bidder. UNAVCO is not liable for any expense incurred by the bidder in the preparation and presentation of their bid or any other costs incurred by the bidder prior to execution of a Purchase Order or Contract.

1.2 BID SUBMISSION

1.2.1 Bids Must Be Sealed and Labeled. Bids must be sealed and labeled on the outside of the package to clearly indicate that they are in response to IFB 201053. Bids must be received at the receptionist’s desk of UNAVCO Procurement Services, 6350 Nautilus Drive, Boulder, CO 80301 prior to 2 p.m., Mountain Time on the date specified on the coversheet. All prices and notations must be printed in ink or typewritten. Errors should be crossed out, corrections entered, and initialed by the person signing the bid.
1.2.2 Late Bids. **Regardless of cause, late bids will not be accepted and will automatically be disqualified from further consideration.** It shall be the bidder’s sole risk to assure delivery at the receptionist's desk at the designated office by the designated time. Late bids will not be opened and may be returned to the bidder at the expense of the bidder or destroyed if requested.

1.2.3 **Bidder’s Signature.** The solicitation must be signed in ink by an individual authorized to legally bind the business submitting the bid. The bidder’s signature on a bid in response to this IFB guarantees that the offer has been established without collusion and without effort to preclude UNAVCO from obtaining the best possible supply or service.

1.2.4 **Alternate Bids.** Vendors may submit alternate bids (a bid on supplies other than specified). Alternate bids are considered only if the vendor is the lowest responsible vendor on their primary bid. Bids must be clearly identified as "Primary" and "Alternate."

1.3 **CHANGE OR WITHDRAWAL OF BIDS**

1.3.1 **Change or Withdrawal PRIOR to Bid Opening.** Should any bidder desire to change or withdraw a bid prior to the scheduled opening, the bidder may do so by making such request in writing to the Procurement Officer listed in Section 1.1.1 above. This communication must be received prior to the date and hour of the bid opening by a request in writing or facsimile to the procurement officer (e-mail notices containing prices are not allowed and will be disqualified).

1.3.2 **Change AFTER Bid Opening But Prior to Bid Award.** After bids are opened, they may not be changed except to correct patently obvious mistakes and minor variations. The bidder shall submit verification of the correct bid to UNAVCO prior to the final award by UNAVCO.

1.4 **BID AWARDS**

1.4.1 **Basis for Award.** Bid award, if made, will be to the responsive and responsible bidder who offers the lowest cost to UNAVCO in accordance with the specifications set forth in the invitation for bid. The Bid award will also be chosen on the listed criteria: (all the below is referring to drilling during the PBO BSM construction phase)

- The bidders previous work experience with UNAVCO
- The bidders past history with UNAVCO
- Past performance while completing projects with UNAVCO
- Knowledge of the job to be completed
- Availability. Bidder needs to be able to work within the Project schedule.
- Preference will be given to contractors using a Dual Rotary type drill rig capable of casing hammering type operations e.g. Dr-24

1.4.2 **Rejection of Bids.** While UNAVCO has every intention to award a contract as a result of this IFB, issuance of the IFB in no way constitutes a commitment by UNAVCO to award and execute a contract. Upon a determination such actions would be in its best interest, UNAVCO, in its sole discretion, reserves the right to:

- Cancel or terminate this IFB
- Waive any undesirable, inconsequential, or inconsistent provisions of this IFB which would not have significant impact on any bid; or
- If awarded, terminate any contract if UNAVCO determines adequate funds are not available
SECTION 2: SPECIFICATIONS AND PRICING SCHEDULE

2.0 EQUIVALENT PRODUCTS

Requirements designated in this bid must be satisfied, or a functional equivalent bid submitted, which is acceptable to UNAVCO. Bidders who do not meet this criterion may be disqualified from further consideration. A Bidder must state if they are unable or unwilling to meet any requirement. Inability or unwillingness to meet any requirement, in part or total, may be cause for disqualification of the entire response. Any exceptions taken by the Bidder must be clearly identified on the bid forms.

2.1 PRICES

2.1.1 Taxes, Shipping, and Invoicing. The prices herein specified, unless otherwise expressly stated, shall exclude all taxes and duties of any kind which either party is required to pay with respect to the sale of products covered by this IFB, but shall include all charges and expenses in connection with the packing of the products and their carriage to the place of delivery to UNAVCO unless specifically excluded. Bid prices shall include any and all transportation costs. The Contractor shall be paid, except as otherwise stated in this IFB, upon submission of a proper invoice, the prices stipulated herein for products, and/or services delivered to and accepted at the specified UNAVCO location(s).

UNAVCO, Inc.
6350 Nautilus Drive, Boulder CO 80301
Phone: 303-381-7500
Deliveries accepted:
Monday thru Friday 8:00 am to 12:00 pm & 1:00 pm to 4:00 pm

2.1.2 Fixed Price Contract. All prices are fixed for the duration of the Contract and are not subject to escalation for any cause. Payment of the total fixed bid price shall constitute full payment for performance of the work and covers all costs of whatever nature incurred by the Contractor in accomplishing the work in accordance with the provisions of the Contract.

2.2 ALL-OR-NONE AWARD

Awards will be made on an all-or-none basis. Failure of a bidder to provide prices for all line items listed on the Schedule may be cause for rejection of the entire bid. A bidder may enter “No Cost” in the unit price and extended amount columns to indicate that the item is being offered at “No Cost.” If the bidder is not bidding on an item a bidder should enter “No Bid”.

2.3 SPECIFICATIONS AND PRICING SCHEDULE

These items must be included with the bid submittal: Bidder must respond to each requirement. If Bidder is proposing products/services that meet the requirement then Bidder must initial on the line next to the requirement. If Bidder cannot meet any requirements, please detail exceptions. Although bidders that cannot meet all requirements will be deemed non-responsive and not eligible for award, this information may be considered for future bids.

2.3.1 Scope of Work

UNAVCO Plate Boundary Observatory (PBO) is soliciting bids for drilling one or more borehole in the Anza Region of California. For scheduling purposes it is assumed that a single hole takes one to two weeks to drill (including downtime and scheduled non-work time). Early completion is desired.

The site is located on private property, and will be chosen from the below map. This map is for planning purposes only, final coordinates and land use permits will be supplied by UNAVCO with award of contract.

Initial work will commence no later than 06/01/2010 and will finish no later than 10/31/2010.

The borehole will be used for installation of a strainmeter and deformation monitoring equipment. The main instrument is a sensitive strainmeter which is designed to be installed into bedrock at depths of 450-800 ft. The strainmeter needs an 8 to 12 foot section of competent unfractured bedrock at depth. In addition to the rock
property requirements, the instruments must be installed at an inclination of < 5 degrees from vertical which requires drilling a borehole to no more than 5 degrees from vertical.

For construction of the borehole, PBO wants the driller to drill down to the 200-600 ft depth using the most cost efficient method, set & cement casing, and then rotary drill with a tricone bit to open hole below the casing to depths of 600-800 ft. This open section below the casing will be used to locate suitable sections for installation of the strainmeter. The borehole is cased with standard 6” steel casing to protect the upper unconsolidated section of the borehole during installation of the instruments. The casing can be either 0.125 or 0.250 inch walled casing. The amount of casing per hole can vary depending on the stability of the rock encountered. It is anticipated that 200 to 500 feet of casing will be used. The Contractor will provide a standard 8 bolt light duty wellhead flange.

PBO will be installing the instrument into the borehole; the installation will most likely be immediately after completion of the drilling of the borehole, but in the case the installation is delayed the casing will ensure access to the target zones. In some situations, it may be possible to install the instruments with the drill rig over the borehole. In this event compensation to the drilling company would be on an hourly Standby-Ready rate for using the drill crew & equipment. For these scenarios the driller(s) will assist the PBO representative with all aspects of the installation to include, but not limited to, the deployment of all downhole instrumentation, construction of the surface pad, the installation of the enclosure and trenching for electrical conduits for communications and power. It is anticipated that it will take 3 contractor personnel and one PBO person to complete the installation process over a two to three day period.

If the drill rig is used for the installation process the rig needs a suitable sand line of about 1,000ft in length, as outlined in Appendix B, capable of deploying the “dumpbailer”, which when full of grout weights approximately 500lbs. PBO will provide any non standard tools necessary for completing the installation of the downhole sensors. The Drilling Contractor should provide a standard grout pump for cementing the instrumentations downhole as well as materials such as cement, Bentonite and sand, which will be covered under a cost plus agreement. PBO personnel will train the drill crew on the proper procedures for handling and installing the downhole instruments and will provide the set grout used for the deployment of the strainmeter.
The Anza Project plan is to drill and install the borehole prior to October. Attached are requirements and specifications for bidding on drilling of the UNAVCO strainmeter boreholes. Please contact us for clarification or questions about this project.

### 2.3.2 Services/Pricing Schedule

UNAVCO, Inc. has a requirement to drill, case and drill holes at sites in Southern California. All work is to be finished in accordance with Statement of Work.

Please complete unit price, extended price, and total below:

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<thead>
<tr>
<th>Item #</th>
<th>Description</th>
<th>Quantity</th>
<th>Unit of Measure</th>
<th>Unit Price</th>
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<tbody>
<tr>
<td>1</td>
<td>Mobilization</td>
<td>1</td>
<td>Each</td>
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<td>2</td>
<td>Demobilization</td>
<td>1</td>
<td>Each</td>
<td>$</td>
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<tr>
<td>3</td>
<td>Drill &amp; case</td>
<td>1</td>
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<td>$</td>
<td>$</td>
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<td>4</td>
<td>Drill &amp; set conductor casing</td>
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<td>5</td>
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<td>6</td>
<td>Drill uncased hole for 6” casing</td>
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<td>7</td>
<td>Set &amp; cement 6” casing</td>
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<td>Drill uncased hole below 6” casing</td>
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**Total:** $
3.0 DRILLING REQUIREMENTS

2.0.1 Work Plan

The Contractor shall provide all personnel, equipment, materials, supporting services and supplies to successfully complete the holes as described in Section 4, OPERATION SCHEDULE of this Specification by performing the following:

**METHOD – drill, set casing, & drill below casing**

- Move in, rig up, haul water, mix mud (if necessary)
- Drill & set conductor casing
- Drill to Casing TARGET depth (> 400 ft & < 600 ft) or as directed by UNAVCO’s site representative
- Run 6” casing and cement
- Wait on cement and drill out cement and/or plugs
- Drill Open hole (5.825”-6.125”) below casing 450 – 800 ft (rotary tricone, no hammering allowed)
- Clean, as prescribed by UNAVCO, and flush casing & hole with air and/or water
- Rig down, restore site and move.

**STRAINMETER DRILLING SEQUENCE**

![Diagram of drilling sequence]

1. Set Conductor Casing, if required
2. Drill (8-10 inch) Rotary/Air 400-500 ft to competent rock
3. Set & Cement 6 5/8 inch steel casing
4. Drill 8 inch Hole 450-800 ft past casing with tricone bit (no hammering)

The purpose of the STRAINMETER DRILLING PROGRAM is to construct a well for the installation of a strainmeters by drilling, casing, and drilling as directed at each site.
Technical direction of the drilling operations will be furnished by UNAVCO’s site representative or his designated representative, who will monitor the rig operations and coordinate activities between UNAVCO, Inc. and the Contractor.

3.0.2 Mobilization & Demobilization

(a) The Contractor shall mobilize his equipment and mobilize any subcontractor’s equipment. Mobilization shall be considered complete when all equipment is on location. Rigging equipment is not considered part of mobilization.

(b) On completion of the work and, release of the rig by UNAVCO’s site representative, the Contractor shall remove all of his equipment, rubbish and debris from the last drill site within five calendar days. The Contractor will be responsible for restoring the work site and filling any pit(s).

3.0.3 Drill Rig Requirements

(a) The Contractor shall furnish all drill equipment, drill maintenance tools, materials, support services and supplies which are normal components for a drill rig.

(b) If, at any time, the Contractor’s derrick becomes misaligned over the hole, the Contractor will be required to commence realignment operations within 8 hours of the misalignment. If such
misalignment occurs as the result of fault or negligence on the part of the Contractor, the Contractor shall receive no additional compensation for the time or cost spent in realignment.

(c) The Contractor shall be liable at all times for damage to or destruction of the Contractor’s surface equipment including all drilling tools, machinery and appliances for use above the surface and for any other type of equipment including in-hole equipment when such in-hole equipment is above the surface, regardless of when or how such damage or destruction occurs.

(d) If it becomes necessary to shut down the Contractor’s rig for repairs while performing work on an hourly rate basis (standby-ready), the Contractor shall be allowed compensation for such repair time at the applicable hourly rate. The number of hours devoted to repair work for which the Contractor may be compensated shall be limited to an accumulated total of 4 hours for each 30 days of active drilling.

(e) The Contractor shall furnish qualified personnel to maintain a minimum 8-12 hour day, 5 day per week operation. The work hours shall be subject to mutually agreement between the parties as part of the bidding process or as required by landowners. The rig will be operated by the following personnel at all times except as stated in Section 3.0.4, HOLE DESIGN & OPERATION.

1 - Toolpusher/Lead Driller
1 or 2 - Roustabouts/Roughnecks/Helpers

(f) The Contractor will provide all transportation, lodging and per diem for the crew and be fully responsible for all such costs.

(g) The Contractor will maintain a clean and safe working environment at all times by providing a wash pump to clean the rig and equipment, plus trash barrels or containers for refuse, empty mud sacks and chemical containers. Trash, refuse, garbage and debris shall be hauled to the nearest approved disposal site. If UNAVCO’s site representative determines that the Contractor has failed to exercise good housekeeping practices, the UNAVCO site representative will immediately notify the Contractor. The Contractor will have twenty-four (24) hours to take corrective action, after which the UNAVCO site representative shall direct the Contractor to secure the rig and drilling operation. The Contractor will not be compensated during such secured time. In addition the Contract will comply with the applicable UNAVCO Safety Plan.

(h) The Contractor shall cover all exposed ground areas under all stationary prime movers, gearboxes, oil and fuel tanks, etc., with a non-porous (plastic sheeting) minimum 4 ml thick material to prevent surface absorption of oils and/or chemicals. The Contractor shall provide means to pick up oil and/or chemical spills and provide transportation to an approved disposal site. Oil or any non-soluble liquids or materials shall not be drained onto or left at the drilling site.

(i) The Contractor shall provide pit(s) and/or steel tanks to store discharged drill cuttings and fluid.

3.0.4 Hole Design and Operation

The Contractor will recognize the OPERATION SCHEDULE set forth in Section 4 of this Specification for drilling and completion of the strainmeter holes.

(a) Rotary Drilling. Operations under this category shall include, but are not limited to: drilling, running and setting conductor casing, casing hammering, running and setting surface casing, fishing, or any other operation as directed by the Contractor’s Toolpusher/Lead Driller or authorized representative while working in accordance with the OPERATION SCHEDULE set forth in Section 4 of this Specification.

(b) Standby-ready. When directed by UNAVCO the Contractor shall cease all operations and standby in a ready condition. A full operational complement of personnel and equipment shall be maintained at the work site ready to resume operations immediately. Operations under this category shall include wait on cement (WOC) time, displacing drilling fluid and flushing the hole with water when performed at the direction of UNAVCO.

(c) Standby-secured. If UNAVCO elects to suspend rig operations for 1 or more days, UNAVCO will direct the Contractor to cease all operations. If desired by the Contractor or directed by UNAVCO all equipment may be secured and personnel (except the Contractor’s Toolpusher, if required by the Contractor) need not be in attendance on site, but the equipment shall remain over the hole.
Standby—secured rates will continue until normal operations are resumed. Normal operations shall begin not more than 24 hours after receipt of notice from UNAVCO to resume operations.

(d) The Contractor will provide all water from the nearest water source to the site by hauling using their own equipment and personnel or subcontract such effort as needed. An adequate supply of water for drilling operations must be maintained on site at all times.

(e) **Lost Circulation While Rotary Mud Drilling.** In the event of lost circulation above the TARGET depth, the Contractor shall immediately institute standard industry practices to regain drilling fluid loss. The Contractor as a minimum shall mix four 10 bbl lost circulation pills and/or spot cement across the thief zone during the first eight hours. If circulation loss is not regained after eight hours the Contractor shall immediately notify the UNAVCO site representative or his designated representative. If UNAVCO elects to continue lost circulation procedures the Contractor shall be compensated for all time in excess of eight hours under Services/Prices Schedule, Section 2.3.2, Item 09: Standby-ready, until normal drilling operations can be resumed. UNAVCO must elect each 8 hour period going forward for compensation.

### 3.0.5 Blowout Prevention Equipment

May be required per SOW.

### 3.0.6 Directional Requirement

All holes are to be drilled straight with the following drift limitation:

- Maximum dogleg severity 5°/100’
- A 30 ft dump baler with an OD of 5.25 in must be able to freely move through the hole
- Maximum deviation from vertical is 5°.
- Directional surveys will, at a minimum, be taken by the contractor at 200’ intervals below 100’ or as needed to insure <5° deviation.
- The directional requirement of <5° will require the use of drill collar and centralizers. A minimum of 8 ft of 5” collar plus bit size centralizer shall be used above the drill bit and an additional bit size centralizer placed above the first drill rod.

*NOTE: Any hole not meeting the requirements of Section 3.0.6, Directional Requirements, shall not be acceptable to UNAVCO which will result in no payment to the contractor for all effort and cost incurred by the Contract to drill the hole and to abandon the hole per section 3.0.10, Abandonment. Furthermore if the Contractor elects to attempt to rectify the hole by any means, cost incurred for rectification is the responsibility of the Contractor unless mutually agreed upon terms is arranged in advance.*

### 3.0.7 Loss of Hole

A hole shall be termed “lost” if UNAVCO’s site representative or his designated representative determines that the condition of the hole will prevent its successful completion, or if for any reason, deems it impractical to continue drilling. If UNAVCO determines that a hole has been lost before target depth has been attained, and that further attempts to complete it will be impractical, UNAVCO shall order work on the hole stopped. The UNAVCO’s site representative may, at his option, order the commencement of work at an alternate location. The Contractor shall be compensated for all work performed under SCOPE OF WORK, Section 2.3.1. The Contractor shall plug and abandon the well under the technical direction of UNAVCO’s site representative or his designated representative in accordance with all applicable Federal, state or local regulations. Payment for plugging and abandonment shall be provided for under, Services/Prices Schedule, Section 2.3.2, Item 09: Standby-ready, plus the cost of materials used for the abandonment.

### 3.0.8 Loss of Tools in the Hole

**Rotary Drilling.** When it is necessary to fish for tools or other objects in the hole, the Contractor shall initiate such action as is directed by the Contractor’s Toolpusher or the Contractor’s authorized
representative to commence fishing operations as soon as practicable. Contractor is responsible for cost of recovery and cost of lost tools.

3.0.9 Records

The Contractor will be liable for the preparation and maintenance of the following Records.

(a) A Daily Drilling Report shall be kept by the Contractor which has been approved by UNAVCO’s site representative. The UNAVCO site representative and the Contractor will agree on quantities taken from the Daily Drilling Report for the purpose of determining invoice items. The Daily Drilling Report shall contain an accurate record of hole conditions, sizes, footage, depths in and out, estimated rotary speed, weight, and dates used, work performed, and time required for all work to the nearest quarter—hour. The original and one copy of the Daily Drilling Report shall be submitted to, approved and signed by both UNAVCO’s site representative or his authorized representative and the Contractor’s Toolpusher or authorized representative. Electronic submission is preferred.

(b) Accurate Pipe Tallies shall be the Contractor’s responsibility and shall be available at the drill site for inspection at all times. Copies of all UNAVCO approved steel tape measurements of drill pipe, casing or drill rods shall be furnished by the Contractor. These measurements, including adjustment for the length of any in use drilling assembly, shall provide the basis for payment under Services/Prices Schedule, Section 2.3.2.

3.0.10 Abandonment

(a) If an immediate hole abandonment is necessary prior to well completion, the Contractor will perform the abandonment operation under the technical direction of UNAVCO’s site representative or designated representative. Payment for abandonment shall be provided for under, Services/Prices Schedule, Section 2.3.2, Item 09: Standby-ready.

(b) The term “abandonment” as used in this section shall mean abandonment to suit the convenience of UNAVCO, Inc. and the requirements of Federal, state and local regulatory agencies, under conditions which do not come within the scope of section 3.0.7 LOSS OF HOLE of these specifications.

3.0.11 Regulatory and Equipment Requirements and Standards

(a) All materials and services provided by the Contractor will meet all local, state and federal codes, standards and regulations having jurisdiction in the area.

(b) The Contractor shall be responsible for obtaining well drilling permits from local or State regulatory agencies. The Contractor will submit any required drillers logs or reports as required by the regulatory agencies. The Contractor will supply copies of these permits to UNAVCO.

3.0.12 Contractor Furnished Materials

(a) The Contractor shall be reimbursed under, Schedule of Items and Prices, Item 06, Misc. Materials for drilling mud, foamers, chemicals and additives, cement, casing guide shoes, cement plugs, casing centralizers and/or other expendables as approved for use by UNAVCO’s site representative. Rental or leased well control equipment, if required by governing agencies, will be reimbursable under this section of the Contract.

(b) The Contractor WILL NOT be reimbursed for: drill bits, fuel, conductor casing, surface casing, lubricants and pipe dope.

(c) Rental tools if required by UNAVCO’s site representative will be reimbursed under this section of the Contract.

(d) UNAVCO shall reimburse the Contractor, not to exceed the fair market value, for such acquired items up to the NTE amount listed under, Schedule of Items and Prices, Item 06, Misc. Materials at the Contractor’s cost provided that prior approval by UNAVCO’s site representative is given and the Contractor provides receipts for all supplies furnished. A separate handling charge on
Contractor furnished materials will not be paid. UNAVCO shall not pay the Contractor for lost time while waiting for supplies ordered by the Contractor.

(e) The minimum drilling related expendables to be kept on hand by the Contractor at all times as required to continue performance uninterrupted shall include but not be limited to the following:

- 10 Gals of liquid polymer viscosifier, EZ-Mud or equal
- 2 Gals of drilling mud lubricant, EP Mudlube or equal
- 5 Bags of oil absorbent or 25 oil absorbent pads

All fluid additives must be biodegradable and/or approved by local regulatory agency requirements.
SECTION 4: OPERATION SCHEDULE

4.0 OPERATION SCHEDULE FOR PBO STRAINMETER DRILLING PROGRAM

4.0.1 PAYMENT SCHEDULE AND DRILLING PROGRAM
Payment under, Schedule of Items and Prices for each hole is as follows:

a) **Mobilization.** First Hole
   All equipment on-site.

b) **Standby-ready.** Mobilization to All Subsequent Holes
   Movement, after de-rigging and cleaning up site, from site to site. Does not include rigging up,
   loading or unloading.

c) **Drill & set Conductor** casing, if required

d) **Drill & install 8 or 10” casing with Dual Rotary type rig (casing hammering operations)**
   Rotary drill to encounter bedrock as directed by UNAVCO’s site representative. Any rotary drilling
   technique is acceptable for this portion of the hole. Review 4.0.4 of the OPERATION SCHEDULE
   for the minimum acceptable DRILLING FLUIDS PROGRAM. Section 4.0.8 of the OPERATION
   SCHEDULE for the minimum acceptable SAMPLE AND CORE COLLECTING REQUIREMENTS.

e) **Drill Uncased Hole & set 6” casing.** Rotary drill (8") to casing depth (400-600) ft or as directed
   by UNAVCO’s site representative. Any rotary drilling technique is acceptable for this portion of the
   hole. Review 4.0.4 of the OPERATION SCHEDULE for the minimum acceptable DRILLING FLUIDS PROGRAM. Review 4.0.8 of the OPERATION SCHEDULE for the minimum acceptable SAMPLE AND CORE COLLECTING REQUIREMENTS. Set and cement 6 5/8” steel casing, Review 4.0.2 CASING PROGRAM.

f) **Drill Uncased Hole below casing.** Rotary drill below casing to open hole for identification of
   strainmeter installation site. Drilling will be with tricone type bit, no hammering is allowed for this
   portion of the hole unless directed otherwise by the UNAVCO onsite representative. Hole diameter
   5.875” – 6.125”. DRILLING FLUIDS PROGRAM. Review. 4.0.8 of the OPERATION SCHEDULE
   for the minimum acceptable SAMPLE AND CORE COLLECTING REQUIREMENTS

g) **Standby-ready.**
   Running geophysical logs into holes during normal operation times.
   - Wait on cement, drill out cement, guide shoe and plugs.
   - Cement and drill out unstable hole below casing as directed by UNAVCO’s site
     representative.
   - Displace all drilling fluid in the surface casing with air and/or clean water as directed by
     UNAVCO’s site representative.
   - Circulate hole CLEAN.
   - **Demobilization.** Last Hole
     Demobilize rig and equipment.

4.0.2 CASING PROGRAM
The actual depth where each surface casing string is set will be determined, after consultation with the
Contractor’s Toolpusher/Lead Driller, by UNAVCO’s site representative or his authorized
representative.

a) **Conductor Casing.** Install Contractor furnished conductor casing to protect the surface
portion of the hole in accordance with the Contractor’s standard operating practice and
regulatory requirements.

For sites which will have GPS antennas mounted to the top of the surface casing, the
conductor casing will be permanently installed. The conductor will be installed 17-20 ft below
the surface and the upper 6-8ft of annulus between the conductor and the surface casing will
be not be cement for isolation purposes. Minimum conductor casing size is 10 ¾”OD, PVC or
steel is acceptable as approved by UNAVCO’s site representative. Top of conductor casing
will be 6” above ground surface. Sites without GPS do not require permanent conductor
casing. All conductors casing will satisfy local regulatory agency requirements and regulations.

b) **Surface Casing.** Run Contractor furnished steel 6 5/8” (0.18 to 0.25” wall) or other casing with similar physical characteristics as approved by the UNAVCO’s site representative. Install centralizers as required, and run to total depth using Contractor furnished handling tools, alignment, and welding equipment. Minimum ID of any surface casing is 6.125 inches. Top of surfacing casing will be 12-18” above ground surface and will be terminated with a weld on 8-bolt flange.

### 4.0.3 CEMENTING PROGRAM

The Contractor will provide or subcontract mixing and pumping equipment for casing cementing operations.

a) **Conducting Casing.** Surface seal per Contractors standard operating practice or as required by local regulatory agency.

b) **Surface Casing.** The Contractor may choose the method used to cement the surface casing provided such method is acceptable to UNAVCO’s site representative and local regulatory agencies. If the Contractor elects to cement the surface casing using a tremie pipe, the Contractor shall furnish the tremie pipe and handling tools plus bear the cost of running and removing the tremie pipe. If the Contractor elects to cement the surface casing using the plug and displace method the Contractor shall furnish a cementing head for the top of the surface casing acceptable to UNAVCO’s site representative.

All cement mixes used to seal the annulus of the surface casing must be approved by UNAVCO’s site representative and local regulatory agencies. The Contractor may use neat cement, neat cement with 5% dry bentonite by weight of cement, or a pre-approved cement blend. Contractor furnished cement pumping equipment shall consist of positive displacement duplex or triplex piston pumps or other acceptable equipment as approved by UNAVCO’s site representative.

### 4.0.4 DRILLING FLUIDS PROGRAM

Drilling fluids will be either air or fresh water with foammers, bentonite, and/or chemicals. All chemicals must be environmental approved by local regulatory agencies. Soda ash can be used to control pH.

a) **Surface to Top of Installation Interval.** Suggested mud properties are as follows:
- Density, lb/gal: 8.5—9.0
- Funnel Viscosity, sec: 34-50
- pH: 8.5—10

b) **Instrumental Interval.** Suggested mud properties are as follows:
- WATER or AIR—NO CHEMICALS, ADDITIVES or GEL

### 4.0.5 BLOWOUT PREVENTION EQUIPMENT (BOPE)

Not required unless SOW states otherwise.

### 4.0.6 DIRECTIONAL REQUIREMENTS

Single shot directional survey equipment will be provided by the Contractor. Surveys will be taken at 100’ intervals below 100’ or as directed by UNAVCO’s site representative or his authorized representative. Payment for surveys shall be provided for under, Services/Prices Schedule, Section 2.3.2, Item 09: Standby-ready.

All holes are to be drilled straight with the following drift limitation:

- Maximum dogleg severity 5°/100’
- A 30 ft dump baler with an OD of 5.25 in must be able to freely move through the hole
• Maximum deviation from vertical is 5°.
• Directional surveys will, at a minimum, be taken by the contactor at 200' intervals below 100' or as needed to insure <5° deviation.
• The directional requirement of <5° will require the use of drill collar and centralizers. A minimum of 8 ft of 5” collar plus bit size centralizer shall be used above the drill bit and an additional bit size centralizer placed above the first drill rod.

4.0.7 UNAVCO OPEN HOLE LOGGING

Geophysical logs or measurements will be conducted by UNAVCO or a UNAVCO subcontractor. All equipment will be furnished by UNAVCO or subcontractor, or their representative. Payment for standby time during surveys shall be provided for under, Services/Prices Schedule, Section 2.3.2, Item 09: Standby-ready.

4.0.8 SAMPLE AND CORE COLLECTING REQUIREMENTS

The Contractor will take cutting samples from the rotary portion of the hole at 10’ intervals. The samples will be labeled and bagged in sample sacks provided by UNAVCO.

4.0.9 DRILLING ASSEMBLIES

Various drilling assemblies will be required for the rotary of the holes.

Rotary Drilling. The rotary assembly should consist of: drill bit (rotary or down-the-hole hammer), X-oversub, drill collar, centralizers (2), and drill pipe.
5.0 MINIMUM CONTRACTOR FURNISHED EQUIPMENT FOR PBO STRAINMETER DRILLING PROGRAM

The following Contractor designated items are the MINIMUM acceptable requirements for the Contractor’s drilling equipment and plant. This is not intended to be a complete list of items to be furnished by the Contractor. The Contractor is required to furnish all drilling maintenance tools, materials, bits, casing and equipment not herein designated, but which are normal components for a complete drill rig required for the drilling and coring operations described in these specifications. The Contractor shall list any additional items that will be supplied as part of this Contract.

5.0.1 Truck or Skid Mounted Drill/Core Rig. Typical Rotary Models: Foremost DR-24, UDR 1500, GEFCO SD300, Ingersol-Rand TH60

- Mast
  - Minimum clear working height, 25 ft
  - Minimum hook load capacity, 25 ton
- Substructure
  - Optional
- Drawworks
  - Minimum single line pull, 7.5 ton
- Drawworks
  - Minimum Power Input 175 hp
- Rotary Table
  - Minimum diameter 8 1/2"
- Drilling Line
  - Minimum diameter 5/8"
- Crown Block
  - Minimum 25 ton
- Traveling
  - Minimum 25 ton
- Power Swivel
  - Minimum 20 ton

5.0.2 Drill Pipe
Minimum 800 4 1/2” with IF tool joints

5.0.3 Subs
As required to hook up all drilling and coring assemblies

5.0.4 Handling Tools
Slips, lifting subs, X-oversubs, hoisting plugs, elevators, bit breakers, pipe tongs etc for all Contractor owned or operated drilling and casing assemblies

5.0.5 Centralizers, drill collars, etc to enable drilling a vertical hole
(see 6.0 Directional Requirements)

5.0.6 Fuel and Lubricants.
Fuel and lubricants provided by the Contractor

5.0.7 Portable Water Pump
Minimum 100 gpm with 40’ of hoses

5.0.8 Thread Lubricant
Minimum CAL 210 or equivalent
5.0.9  Water Truck
      Minimum   Truck mounted 1500 gal

5.0.10 Rotary Bits
       All bits used to drill

5.0.11 Drilling Air
       Minimum   900 cfm x 250 psi Compressor

5.0.12 Down-the-Hole
       Minimum   6” OD Hammer

5.0.13 Sand Line
       Minimum   1000’ of 3/16”

5.0.14 Grout pump
       Progressive cavity type pump with minimum 8 GPM @ 175 psi

5.0.15 Wellhead Flange
       8 Bolt, Light Duty, #150
6.0 UNAVCO FURNISHED EQUIPMENT FOR PBO STRAINMETER DRILLING PROGRAM

1) Provide all access permits and easements to locations

2) List of sites with landowners, lat/long, Township & Range coordinates, and maps to site locations

3) Sample bags

4) Geophysical open hole logging service
SECTION 7: REPRESENTATIONS AND CERTIFICATIONS

DEFINITIONS:

- The terms “offeror” or “bidder” as used herein include the Subcontractor.
- The term “buyer” includes UNAVCO, Inc.
- The term “offer” includes bid.
- The term “contract” includes subcontract.

The Following Representations Are Required for All Procurements

7.0 PERSONNEL QUALIFICATIONS

The offeror responsible for this performance shall employ only qualified personnel for the execution of this work. All such work shall be performed under the direct supervision of a qualified driller who is satisfactory to UNAVCO.

A copy of the driller’s license will be maintained on site during the performance of the work. A representative of UNAVCO will be present during all site activities. UNAVCO requires that at least one licensed driller, and one helper be present at the site at all times during the performance of this work.

7.1 TAXPAYER IDENTIFICATION (FAR 52.204-3) (OCT 1998) (Modified)

(a) Definitions.

"Common parent", as used in this 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 Internal Revenue Service (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 must 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, 6041A, and 6050M, and implementing regulations issued by the IRS. If the resulting subcontract is subject to the payment reporting requirements described in Federal acquisition regulation (FAR) 4.904, the failure or refusal by the offeror to furnish the information may result in a 31 percent reduction of payments otherwise due under the subcontract.

(c) The TIN may be used by the buyer to collect and report on any delinquent amounts arising out of the offeror’s relationship with the buyer (31 U.S.C. 7701(c)(3)). If the resulting 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.
[ ] Other. State basis ____________________________________________.

(e) Type of Organization.

[ ] Sole proprietorship.
(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 ________________________________________________________

(g) The offeror should supply the Data Universal Numbering System (DUNS) Number applicable to its name and address. If the offeror does not have a DUNS Number, it may obtain one from any Dun and Bradstreet Branch Office.

DUNS NO.: _________________________

(End of Provision)

7.2 PREVIOUS CONTRACTS AND COMPLIANCE REPORTS (FAR 52.222-22) (FEB 99)

The offeror represents that it has:

(a) [ ] participated [ ] not participated

In a previous contract or subcontract subject to the Equal Opportunity clause of this solicitation;

(b) [ ] filed [ ] not filed

all required compliance reports; and

(c) representations indicating submission of required compliance reports, signed by proposed subcontractors, will be obtained before subcontract awards.

(End of Provision)

7.3 AFFIRMATIVE ACTION COMPLIANCE (FAR 52.222-25) (APR 1984)

The offeror represents that it:

(a) [ ] has developed and has on file,

[ ] has not developed and does not have on file,

At each establishment, affirmative action programs required by the rules and regulations of the Secretary of Labor (41 CFR 60-1 and 60-2), or

(b) [ ] has not previously had contracts subject to the written affirmative action programs requirements of the rules and regulations of the Secretary of Labor.

(End of Provision)

7.4 SMALL BUSINESS PROGRAM REPRESENTATIONS (FAR 52.219-1) (MAY 2004)

(a) (1) The North American Industry Classification System (NAICS) code for this acquisition is 562910.

(2) The small business size standard is. $14M.
(3) The small business size standard for a concern which submits an offer in its own name, other than on a construction or service contract, but which proposes to furnish a product which it did not itself manufacture, is 500 employees.

(b) Representations.
(1) The offeror represents as part of its offer that it

[ ] is a small business concern.
[ ] is not a small business concern.

(2) [Complete only if offeror represented itself as a small business concern in paragraph (b) (1) of this provision.] The offeror represents, for general statistical purposes, that it

[ ] is a small disadvantaged business concern as defined in 13 CFR 124.1002.
[ ] is not a small disadvantaged business concern as defined in 13 CFR 124.1002.

(3) [Complete only if the offeror represented itself as a small business concern in paragraph (b) (1) of this provision.] The offeror represents as part of its offer that it

[ ] is a women-owned small business concern.
[ ] is not a women-owned small business concern.

(4) [Complete only if the offeror represented itself as a small business concern in paragraph (b) (1) of this provision.] The offeror represents as part of its offer that it

[ ] is a veteran-owned small business concern.
[ ] is not a veteran-owned small business concern.

(5) [Complete only if the offeror represented itself as a veteran-owned small business concern in paragraph (b) (4) of this provision.] The offeror represents as part of its offer that it

[ ] is a service-disabled veteran-owned small business concern.
[ ] is not a service-disabled veteran-owned small business concern.

(6) [Complete only if the offeror represented itself as a small business concern in paragraph (b) (1) of this provision]. The offeror represents, as part of its offer, that it

(i) [ ] is a HUB Zone small business concern listed, on the date of this representation, on the List of Qualified HUB Zone Small Business Concerns maintained by the Small Business Administration, and no material change in ownership and control, principal office, or HUB Zone employee percentage has occurred since it was certified by the Small Business Administration in accordance with 13 CFR part 126; and

[ ] is not a HUB Zone small business concern.

(ii) [ ] is a joint venture that complies with the requirements of 13 CFR part 126, and the representation in paragraph (b) (6) (i) of this provision is accurate for the HUB Zone small business concern or concerns that are participating in the joint venture. [The offeror shall enter the name or names of the HUB Zone small business concern or concerns that are participating in the joint venture: _________________.] Each HUB Zone small business concern participating in the joint venture shall submit a separate signed copy of the HUB Zone representation.

[ ] is not a joint venture.

(c) Definitions. As used in this provision -

"Service-disabled veteran-owned small business concern"

(1) Means a small business concern:

(i) Not less than 51 percent of which is owned by one or more service-disabled veterans or, in the case of any publicly owned business, not less than 51 percent of the stock of which is owned by one or more service-disabled veterans, and
(ii) The management and daily business operations of which are controlled by one or more
service-disabled veterans, or in the case of a service-disabled veteran with permanent and severe
disability, the spouse or permanent caregiver of such veteran.
(2) Services-disabled veteran means a veteran, as defined in 38 U.S.C. 101(2), with a disability that is
service-connected, as defined in 38 U.S.C. 101(16).

"Small business concern" means a concern, including its affiliates that is independently owned and
operated, not dominant in the field of operation in which it is bidding on government contracts, and qualified as
a small business under the criteria in 13 CFR Part 121 and the size standard in paragraph (a) of this provision.

"Veteran-owned small business concern" means a small business concern:

(1) Not less than 51 percent of which is owned by one or more veterans (as defined in 38 U.S.C.
101(2)) or, in the case of any publicly owned business, not less than 51 percent of the stock of which is owned
by one or more veterans, and

(2) The management and daily business operations of which are controlled by one or more veterans.

"Women-owned small business concern" means a small business concern:

(1) That is at least 51 percent owned by one or more women or, in the case of any publicly owned
business, at least 51 percent of the stock of which is owned by one or more women, and

(2) Whose management and daily business operations are controlled by one or more women.

(d) Notice. (1) If a solicitation is for supplies and has been set aside, in whole or in part, for small business
concerns, then the clause in the solicitation providing notice of the set-aside contains restrictions on the source
of the end items to be furnished.

(2) Under 15 U.S.C. 645(d), any person who misrepresents a firm's status as a small, HUB Zone
small, small disadvantaged, or women-owned small business concern in order to obtain a contract to be
awarded under the preference programs established pursuant to section 8(a), 8(d), 9, or 15 of the Small
Business Act or any other provision of Federal law that specifically references section 8(d) for a definition of
program eligibility, shall:

(i) Be punished by imposition of a fine, imprisonment, or both;
(ii) Be subject to administrative remedies, including suspension and debarment; and
(iii) Be ineligible for participation in programs conducted under the authority of the Act.

(End of Provision)

(7) [Complete if offeror represented itself as disadvantaged in paragraph (b) (2) of this provision]. The
offeror shall check the category in which its ownership falls:

_____ Black American
_____ Hispanic American
_____ Native American (American Indians, Eskimos, Aleuts, or Native Hawaiians).
_____ Asian-Pacific American (persons with origins from Burma, Thailand, Malaysia, Indonesia, Singapore,
Brunei, Japan, China, Taiwan, Laos, Cambodia (Kampuchea), Vietnam, Korea, The Philippines, U.S.
Trust Territory of the Pacific Islands (Republic of Palau), Republic of the Marshall Islands, Federated
States of Micronesia, The Commonwealth of the Northern Mariana Islands, Guam, Samoa, Macao, Hon
Kong, Fiji, Tonga, Kiribati, Tuvalu, or Nauru).
_____ Subcontinent Asian (Asian-Indian) American (persons with origins from India, Pakistan, Bangladesh, Sri
Lanka, Bhutan, the Maldives Islands, or Nepal).
_____ Individual/concern, other than one of the preceding.

(End of Provision)
7.4 SMALL BUSINESS CONCERN REPRESENTATION FOR THE SMALL BUSINESS COMPETITIVENESS DEMONSTRATION PROGRAM (FAR 52.219-19) (OCT 2000)

(a) Definition. "Emerging small business" as used in this solicitation, means a small business concern whose size is no greater than 50 percent of the numerical size standard applicable to the North American Industry Classification System (NAICS) code assigned to a contracting opportunity.

(b) [Complete only if offeror has certified itself under the provision at FAR 52.219-1 as a small business concern under the size standards of this solicitation]. The offeror

[ ] is an emerging small business.
[ ] is not an emerging small business.

(c) [Complete only if the offeror is a small business or an emerging small business, indicating its size range]. Offeror's number of employees for the past 12 months [check this column if size standard stated in solicitation is expressed in terms of number of employees] or offeror's average annual gross revenue for the last 3 fiscal years [check this column if size standard stated in solicitation is expressed in terms of annual receipts]. [Check one of the following.]

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<thead>
<tr>
<th>No. of Employees</th>
<th>Avg. Annual Gross Revenues</th>
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</thead>
<tbody>
<tr>
<td>50 or fewer</td>
<td>$1 million or less</td>
</tr>
<tr>
<td>51 - 100</td>
<td>$1,000,001 - $2 million</td>
</tr>
<tr>
<td>101 - 250</td>
<td>$2,000,001 - $3.5 million</td>
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<td>251 - 500</td>
<td>$3,500,001 - $5 million</td>
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<td>501 - 750</td>
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</tr>
<tr>
<td>751 - 1,000</td>
<td>$10,000,001 - $17 million</td>
</tr>
<tr>
<td>Over 1,000</td>
<td>Over $17 million</td>
</tr>
</tbody>
</table>

(End of Provision)

7.5 NOTICE OF EMERGING SMALL BUSINESS SET-ASIDE (FAR 52.219-20) (JAN 1991)

Offers or quotations under this acquisition are solicited from emerging small business concerns only. Offers that are not from an emerging small business shall not be considered and shall be rejected.

(End of Provision)

7.6 SMALL BUSINESS SIZE REPRESENTATION FOR TARGETED INDUSTRY CATEGORIES UNDER THE SMALL BUSINESS COMPETITIVENESS DEMONSTRATION PROGRAM (FAR 52.219-21) (MAY 1999)

[Complete only if the offeror has certified itself under the provision at FAR 52.219-1 as a small business concern under the size standards of this solicitation].

Offeror's number of employees for the past 12 months [check this column if size standard stated in solicitation is expressed in terms of number of employees] or offeror's average annual gross revenue for the last 3 fiscal years [check this column if size standard stated in solicitation is expressed in terms of annual receipts]. [Check one of the following.]

<table>
<thead>
<tr>
<th>No. of Employees</th>
<th>Avg. Annual Gross Revenues</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 or fewer</td>
<td>$1 million or less</td>
</tr>
<tr>
<td>51 - 100</td>
<td>$1,000,001 - $2 million</td>
</tr>
<tr>
<td>101 - 250</td>
<td>$2,000,001 - $3.5 million</td>
</tr>
<tr>
<td>251 - 500</td>
<td>$3,500,001 - $5 million</td>
</tr>
<tr>
<td>501 - 750</td>
<td>$5,000,001 - $10 million</td>
</tr>
<tr>
<td>751 - 1,000</td>
<td>$10,000,001 - $17 million</td>
</tr>
<tr>
<td>Over 1,000</td>
<td>Over $17 million</td>
</tr>
</tbody>
</table>

(End of Provision)
7.7 SMALL DISADVANTAGED BUSINESS STATUS (FAR 52.219-22) (OCT 1999)

(a) General. This provision is used to assess an offeror's small disadvantaged business status for the purpose of obtaining a benefit on this solicitation. Status as a small business and status as a small disadvantaged business for general statistical purposes is covered by the provision at FAR 52.219-1, Small Business Program Representation.

(b) Representations.

(1) General. The offeror represents, as part of its offer, that it is a small business under the size standard applicable to this acquisition; and either:

[ ] (i) It has received certification by the Small Business Administration as a small disadvantaged business concern consistent with 13 CFR 124, Subpart B; and

(A) No material change in disadvantaged ownership and control has occurred since its certification;
(B) Where the concern is owned by one or more disadvantaged individuals, the net worth of each individual upon whom the certification is based does not exceed $750,000 after taking into account the applicable exclusions set forth in 13 CFR 124.104(c)(2); and
(C) It is identified, on the date of its representation, as a certified small disadvantaged business concern in the database maintained by the Small Business Administration (PRO-Net); or

[ ] (ii) It has submitted a completed application to the Small Business Administration or a Private Certifier to be certified as a small disadvantaged business concern in accordance with 13 CFR 124, Subpart B, and a decision on that application is pending, and that no material change in disadvantaged ownership and control has occurred since its application was submitted.

(2) For Joint Ventures. The offeror represents, as part of its offer, that it is a joint venture that complies with the requirements at 13 CFR 124.1002(f) and that the representation in paragraph (b)(1) of this provision is accurate for the small disadvantaged business concern that is participating in the joint venture.

[ ] is a joint venture. [The offeror shall enter the name of the small disadvantaged business concern that is participating in the joint venture: __________________________.]

(c) Penalties and Remedies. Anyone who misrepresents any aspects of the disadvantaged status of a concern for the purposes of securing a contract or subcontract shall:

(1) Be punished by imposition of a fine, imprisonment, or both;
(2) Be subject to administrative remedies, including suspension and debarment; and
(3) Be ineligible for participation in programs conducted under the authority of the Small Business Act.

(End of Provision)

7.8 RECOVERED MATERIAL CERTIFICATION (FAR 52.223-4) (MAY 2008)

As required by the Resource Conservation and Recovery Act of 1976 (42 U.S.C. 6962(c) (3) (A) (i)), the offeror certifies, by signing this offer, that the percentage of recovered materials content for EPA designated items to be delivered or used in the performance of the subcontract will be at least the amount required by the applicable subcontract specifications or other contractual requirements.

(End of Provision)

7.9 BUY AMERICAN ACT CERTIFICATE (FAR 52.225-2) (JUN 2003)

(a) The offeror certifies that each end product, except those listed in paragraph (b) of this provision, is a domestic end product and that the offeror has considered components of unknown origin to have been mined, produced, or manufactured outside the United States. The offeror shall list as foreign end products those end products manufactured in the United States that do not qualify as domestic end products. The terms
"component," "domestic end product," "end product," "foreign end product," and "United States" are defined in the clause of this solicitation entitled "Buy American Act- Supplies."

(b) Foreign End Products:

<table>
<thead>
<tr>
<th>Line Item No</th>
<th>Country of Origin</th>
</tr>
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<tbody>
<tr>
<td></td>
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(List as necessary)

(c) The buyer will evaluate offers in accordance with the policies and procedures of Part 25 of the Federal acquisition Regulation.

(End of Provision)

7.10 CERTIFICATION AND AGREEMENT

By signing below the offeror certifies that all the above representations and certifications are accurate, current and complete.

FIRM: ____________________________________________________________

ADDRESS: _________________________________________________________

SIGNATURE: _______________________________________________________

DATE: ____________________________________________________________

NOTE: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.
8.0 COMPLIANCE WITH WORKERS’ COMPENSATION ACT

The offeror is required to comply with the provisions of the California Workers' Compensation Act while performing work for UNAVCO in accordance with CA codes (Labor Section: 110-139.6). Proof of compliance must be in the form of Workers’ Compensation insurance, an independent contractor exemption, or documentation of corporate officer status. Neither the offeror nor its employees are employees of UNAVCO. This insurance/exemption must be valid for the entire term of the Contract. A renewal document must be sent to UNAVCO Procurement Services, 6350 Nautilus Drive, Boulder, CO 80301 upon expiration.

8.1 CONTRACT TERMINATION

7.1.1 Termination for Cause. UNAVCO may, by written notice to the Contractor, terminate this Contract in whole or in part at any time the Contractor fails to perform this Contract.

AND

7.1.2 Reduction of Funding. UNAVCO, at its sole discretion, may terminate or reduce the scope of this Contract if available funding is reduced for any reason.

8.2 SITE HEALTH AND SAFETY

The offeror is fully responsible for the implementation and maintenance of an adequate Site Health and Safety Plan (SHSP) through the development of its own plan, providing that the requirements described below are followed. The offeror shall provide it to UNAVCO for review within five days after award of this Subcontract, or at least five days prior to commencement of operations at the job site.

All offeror employees involved with on-site work shall be required to read and understand the requirements in the SHSP and sign the acknowledgement form contained in it. The offeror assumes all liabilities associated with the implementation of the SHSP.

8.2.1 Health and Safety Plans. The offeror will develop and implement its own SHSP prior to work on the Site. UNAVCO will supply a copy of its SHSP to the offeror and the offeror may use UNAVCO’s SHSP as a guide to outline the minimum requirements of the offeror’s SHSP. In doing so, UNAVCO does not represent or warrant that its SHSP is an adequate or complete guide for the offeror’s work and the offeror remains fully responsible for the adequacy and completeness of its own SHSP.

Offeror’s SHSP shall be consistent with the following requirements:

By submitting a response to this Invitation for Bid (IFB) or Request for Proposal (RFP), or acceptance of a contract, the vendor agrees to acceptance of the following,STANDARD TERMS AND CONDITIONS, and any other provisions that are specific to this solicitation or contract.

**DEFINITIONS.** As used in this contractual agreement, the below terms shall have the following meanings: (a) “Contractor”, “Buyer” or “UNAVCO” means the legal entity purchasing the supplies/services; (b) “Subcontractor,” “Seller,” “Supplier,” or “Vendor” means the legal entity that has entered into this agreement with the Buyer; (c) “Contract,” “Subcontract,” “Purchase Order,” “Agreement,” and “Order” (whether capitalized or not) are used interchangeably and refer to this contractual instrument; (d) “Government” means the Government of the United States; and (e) “Prime Contract” means the Government contract, grant or cooperative agreement under which this order is issued.

**ACCEPTANCE/REJECTION OF BIDS, PROPOSALS, OR LIMITED SOLICITATION RESPONSES:** UNAVCO reserves the right to accept or reject any or all bids, proposals, or limited solicitation responses, wholly or in part, to make awards in any manner deemed in the best interest of UNAVCO. Bids, proposals, and limited solicitations will be firm for thirty (30) days, unless stated otherwise in the text of the invitation for bid, request for proposal, or limited solicitation.

**INTERPRETATION OF ORDER:** This Order and any documents incorporated by reference or attached constitute the parties' complete agreement. No prior representations or agreements, either written or oral, shall be considered to change, add to, or contradict it. Any ambiguity, conflict, or inconsistency in this Order shall be resolved by applying the most reasonable interpretation under the circumstances, giving full consideration to the parties’ intentions at the time of contracting.

**ACCEPTANCE OF ORDER:** This Order supercedes all previous written or oral representations and agreements between the parties with respect to the subject matter hereof and becomes a binding agreement, subject to the specific terms and conditions stated herein, upon Seller's acceptance by acknowledgement or commencement of work. This Order contains the entire agreement of the parties and expressly limits acceptance to the terms and conditions stated. Any terms or conditions proposed by Seller inconsistent with or in addition to the terms and conditions hereof are objected to and void unless agreed to in writing by the Buyer.

**FINANCIAL RECORDS AND AUDIT:** The contractor shall preserve and make available its accounting records and documents for examination and audit by the cognizant U.S. Government agency and the Comptroller General of the United States, UNAVCO, Inc. or their authorized representatives: (1) until the expiration of three years from the date of termination of the Agreement; (2) for such longer period, if any, as is required to complete an audit to resolve all questions concerning expenditures unless written approval has been obtained from the U.S. Government (“USG”) grant officer to dispose of the records (USG follows generally accepted accounting practices in determining that there has been proper accounting and use of funds); the Agreement Holder agrees to make available any further information requested by the cognizant U.S. Government agency with respect to any questions arising as a result of the audit; and (3) if any litigation, claim, or audit is started before the expiration of the three year period, the records shall be retained until all litigation, claims or audit findings involving the records have been resolved.

**ALTERATION OF SOLICITATION DOCUMENT:** In the event of inconsistencies or contradictions between language contained in UNAVCO's solicitation document and a vendor's response, the language contained in UNAVCO's original solicitation document will prevail.

Intentional manipulation and/or alteration of solicitation document language will result in the vendor's disqualification and possible debarment.

**ASSIGNMENT, TRANSFER AND SUBCONTRACTOR:** The contractor shall not assign, transfer or subcontract any portion of the contract without the express written consent of UNAVCO. This Order shall inure to the benefit of and be binding upon each party hereto and their respective successors and assigns. This Order may not be assigned in whole or part by either party without the prior written consent of the other party, except upon merger, consolidation, sale or other transfer of all or substantially all of the assets of either party. Notwithstanding, the Buyer at the direction of the National Science Foundation may assign this Order to the NSF or to the U. S. Government. Seller shall be given prior written notice of such directed assignment of this Order. In no circumstance shall this Order be construed as binding on the U. S. Government or the National Science Foundation or to imply that U. S. Government or the National Science Foundation are a party to this Order, except to the extent this Agreement is assigned in accordance with this clause.

**APPLICABLE LAW:** This Order shall be governed by and construed in accordance with the laws of the State of Colorado.

**SETOFF:** Buyer shall have the right at all times to set off any amount due or payable to Seller hereunder against any claim or charge Buyer may have against Seller.

**TAXES.** The price of the supplies/services procured hereunder includes all applicable federal, state, and local taxes and duties unless otherwise stated in this Order.

**WORK ON BUYER'S OR BUYER'S CUSTOMER'S PREMISES:** If this Order requires Seller to perform work on Buyer's or Buyer's customer's premises, Seller shall take all reasonable and necessary precautions to prevent any injury to persons or damage to property during the progress of such work. Except to the extent that any injury to persons or damage to property is due to Buyer's or its customer's fault or negligence, Seller agrees to indemnify Buyer and its customer against all loss or liability resulting from any negligent acts or omissions of Seller, its employees, agents, or subcontractors.

**COMPLIANCE WITH LAWS:** Seller shall comply with all applicable federal, state, and local laws, rules, regulations and orders in effect on the date of this order, including, but not limited to the following, as amended: (a) the Fair Labor Standards Act of 1938; (b) the Federal Occupational Safety and Health Act of 1970 (OSHA); (c) the Toxic Substances Control Act of 1976; (d) the Walsh-Healey Public Contracts Act; and (e) any other federal law concerning labor relations, non-discrimination in employment, minimum wages, overtime compensation, and hours of employment. Seller agrees to indemnify and hold Buyer harmless against any loss or liability due to Seller's violation or non-compliance with such regulations. Upon Buyer's request, Seller shall furnish evidence demonstrating such compliance.

**CONFORMANCE WITH CONTRACT:** No alteration of the terms, conditions, delivery, price, quality, quantities, or specifications of the contract shall be granted without prior written consent of UNAVCO. Supplies delivered which do not conform to the contract terms, conditions, and specifications may be rejected and returned at the contractor's expense.
DEBARMENT: The contractor certifies that by submitting this bid or proposal neither it nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction (contract) by any governmental department or agency. If the contractor cannot certify this statement, attach a written explanation for review by UNAVCO.

DISABILITY ACCOMMODATIONS: The State of California does not discriminate on the basis of disability in admission to, access to, or operations of its programs, services, or activities. Individuals who need aids, alternative document formats, or services for effective communications or other disability-related accommodations in the programs and services offered, are invited to make their needs and preferences known to this office. Interested parties should provide as much advance notice as possible.

FAILURE TO HONOR BID/PROPOSAL: If a bidder/offeror to whom a contract is awarded refuses to accept the award (PO/contract) or fails to deliver in accordance with the contract terms and conditions, UNAVCO may, in its discretion, suspend the bidder/offeror for a period of time from entering into any contracts with UNAVCO.

PRICE WARRANTY: Seller warrants that the price(s) charged for the supplies/services specified in this order do not exceed the selling price(s) Seller charges its most favored customer for the same or substantially similar items, whether sold to the Government or to any other purchaser, taking into account the quantity purchased and terms and conditions of sale. Seller further agrees that in the event of an announced price reduction prior to complete shipment of supplies or performance of services, said price reduction shall be passed on to Buyer for supplies remaining to be shipped or services still to be performed.

FORCE MAJEURE: Neither party shall be responsible for failure to fulfill its obligations due to causes beyond its reasonable control, including without limitation, acts or omissions of government or military authority, acts of God, materials shortages, transportation delays, fires, floods, labor disturbances, riots, wars, terrorist acts, or any other causes, directly or indirectly beyond the reasonable control of the non-performing party, so long as such party is using its best efforts to remedy such failure or delays.

HOLD HARMLESS/INDEMNIFICATION: The contractor agrees to protect, defend, and save UNAVCO, it’s elected and appointed officials, agents, and employees, while acting within the scope of their duties as such, harmless from and against all claims, demands, causes of action of any kind or character, including the cost of defense thereof, arising in favor of the contractor’s employees or third parties on account of bodily or personal injuries, death, or damage to property arising out of services performed or omissions of services or in any way resulting from the acts or omissions of the contractor and/or its agents, employees, representatives, assigns, subcontractors, except the sole negligence of UNAVCO, under this Agreement.

LATE BIDS AND PROPOSALS: Regardless of cause, late bids and proposals will not be accepted and will automatically be disqualified from further consideration. It shall be solely the vendor’s risk to ensure delivery by the designated time. Late bids and proposals will not be opened and may be returned to the vendor at the expense of the vendor or destroyed if requested.

PAYMENT TERMS: All payment terms will be computed from the date of delivery of supplies or services OR receipt of a properly executed invoice, whichever is later. Unless otherwise noted, in the solicitation document UNAVCO is allowed 30 days to pay such invoices. Terms of payment are “Net 30 days.” If a discount for prompt payment of Seller’s invoice is allowed, payment shall be made within the allowable period to qualify for such discount. The time allowable for payment shall begin after both: (a) Buyer's receipt of Seller's invoice, and (b) delivery of acceptable supplies or performance of satisfactory services.

REFERENCE TO CONTRACT: The contract or purchase order number MUST appear on all invoices, packing lists, packages and correspondence pertaining to the contract.

ORDER OF PRECEDENCE: The following descending order of precedence shall apply in the event of an ambiguity, discrepancy, or conflict in the documents comprising this Order: (a) the Purchase Order Document, (b) the statement of work, (c) the technical specifications and drawings, (d) these terms and conditions, and (e) any other documents referenced or appended to the Order. However, in the event of an ambiguity, discrepancy, or conflict in any of the technical requirements or drawings, Seller shall immediately consult Buyer for a resolution.

SEPARABILITY CLAUSE: A declaration by any court, or any binding legal source, that any provision of the contract is illegal and void shall not affect the legality and enforceability of any other provision of the contract, unless the provisions are mutually dependant.

SOLICITATION DOCUMENT EXAMINATION: Vendors shall promptly notify UNAVCO Purchasing Department of any ambiguity, inconsistency, or error, which they may discover upon examination of a solicitation document.

PERMITS, FEES AND LICENSES: Except as may be otherwise provided in this order, Seller shall obtain and pay for all drilling permits, fees, and licenses required for the work at no additional charge to Buyer. Buyer shall be responsible for the needed land permitting for the location.

INSURANCE: Seller shall maintain insurance in at least the following amounts: (a) Commercial General Liability: $250,000 minimum per person and $500,000 minimum per accident for bodily injury, and $100,000 property damage; (b) Automobile Insurance: $250,000 per person and $500,000 per accident for bodily injury and $100,000 per accident for property damage; (c) Standard Workmen's Compensation and Employer's Liability Insurance: in the minimum amount of $100,000, or such greater amount as may be proper under applicable state or federal statutes. Seller shall, if so requested, furnish Buyer certificates of such insurance prior to commencement of work. Upon Seller’s failure thereof, Buyer may obtain, at Seller’s expense, the insurance coverage required for such compliance. Seller also agrees to provide insurance for all Buyers’ property in Seller’s possession against loss or damage resulting from fire or theft, including extended coverage, malicious mischief and vandalism. Buyer shall be given at least ten (10) days advance written notice of cancellation of any such insurance. Seller agrees to list Buyer as an additional insured under the Seller's construction contractor’s liability insurance policies.

TERMINATION OF CONTRACT: Unless otherwise stated, UNAVCO may, by written notice to the contractor, terminate the contract in whole or in part at any time the contractor fails to perform the contract.

CESSATION OF PRODUCTION: If Seller plans to permanently discontinue production of any of the supplies, parts, support services, etc. provided to Buyer hereunder at any time during the useful life of the equipment, Seller shall give Buyer at least six (6) months advance written notification of such discontinuance and, during this time, agrees to accept Buyer’s orders for such items.

UNAVAILABILITY OF FUNDING: UNAVCO, at its sole discretion, may terminate or reduce the scope of the contract if available funding is reduced for any reason.

U.S. FUNDS: All prices and payments must be made in U.S. dollars.

NOTICE OF LABOR DISPUTES: When an actual or potential labor dispute or other condition delays or threatens to delay the timely performance of this order, Seller shall immediately notify Buyer in writing. Such notice shall include all relevant information regarding such dispute or other condition. Seller shall insert the essence of this provision in all lower tier procurements issued hereunder.
WARRANTIES: Seller warrants that all material and equipment furnished under this Agreement will be new unless otherwise specified, of good quality, in conformance with the requirements of this Agreement, and free from defective workmanship. Warranties shall commence on the date of substantial completion of the Work or designated portion. Seller agrees to correct all construction performed under this Agreement which proves to be defective in workmanship or materials within a period of one year for the date of Substantial Completion, provided Seller has been provided prompt written notice of such defect. THE WARRANTIES CONTAINED IN THIS ARTICLE ARE IN LIEU OF ALL OTHER WARRANTIES EITHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Notwithstanding anything to the contrary, Seller's responsibility is limited to services specifically performed by Seller for Buyer. Seller will not be responsible for acts of omissions of Buyer, its officers, directors, employees or agents, or any third parties not under the direct control of Buyer. Seller does not warrant any specific results on any kind.

CHANGES: Changes in the terms and conditions of this Order may be made only by written agreement of the parties.

PATENT, COPYRIGHT AND TRADEMARK INDEMNITY: Seller agrees to indemnify, defend, and hold harmless Buyer, its customer, and those for whom Buyer may act as agent, from any costs, expenses, damages, or liability that Buyer may incur as a result of any proceedings charging infringement of any patent, copyright, or trademark by reason of sale or use of any supplies/services/data furnished by Seller. Seller shall have no liability regarding alleged patent infringement for supplies furnished to Buyer in accordance with Buyer's design specifications.

NO EXTRA CHARGES: The total price payable to Seller hereunder for supplies/services furnished in accordance with the procurement requirements shall be stated in this Order. The price shall not be increased to cover any future seller price increases.

INSOLVENCY: If Seller ceases to conduct normal business operations (including inability to meet its obligations), or if any proceedings under bankruptcy or insolvency laws is brought by or against Seller, or a receiver for Seller is appointed or applied for, or Seller makes an assignment for the benefit of creditors, Buyer may terminate this order, without liability, except for deliveries previously made and for supplies completed and subsequently delivered in accordance with the terms of the order. In the event of Seller's insolvency, Buyer shall have the right to procure the balance of this order from others without liability.

FAILURE TO COMPLY: If Seller fails to comply with any Order requirements, Buyer may exercise its option to terminate the order for default or invoke applicable warranties for non-conformance. In lieu of this, however, Buyer may waive the Seller deficiency. In return therefore, Seller agrees to negotiate an equitable reduction in the Order price in such instance.

TERMINATION FOR CONVENIENCE: Buyer reserves the right, at any time, in its own best interest, and without liability, to terminate this order in whole or in part, by written notice of termination for convenience to Seller. If the order is so terminated, then, within thirty (30) days following Seller's receipt of the termination notice, Seller shall submit a claim for equitable adjustment. If the termination involves only services, Buyer shall be obligated to pay only for services performed before the termination date, and such costs as reasonable to reimburse Seller for demolitions, terminations of subcontracts and purchase orders, normal site clean-up and closure, etc. Seller shall provide Buyer any supporting information necessary to document the reasonableness of Seller's termination for convenience claim.

TERMINATION FOR DEFAULT: Buyer may, without liability, and in addition to any other rights or remedies provided herein or by law, terminate this order in whole or in part by written notice of default if Seller: (a) fails to deliver the supplies or perform the services within the time specified; (b) fails to make sufficient progress with the work, thereby endangering completion of performance within the time specified; or (c) fails to comply with any of the other instructions, terms, or conditions. Buyer’s right to terminate for default may be exercised if Seller does not cure the failure within ten (10) days after receiving Buyer's written notice of such failure. If Buyer terminates this order in whole or in part, Buyer may purchase similar supplies or services from others and Seller shall be liable for any additional costs above the original price for the terminated supplies/services. In the event of a partial termination, Seller shall continue the work not terminated. Seller shall not be liable for any additional costs if failure to perform arises from causes beyond Seller's or Seller's subcontractor's control and without fault or negligence of either of them; provided, however, that the supplies/services to be furnished by Seller's subcontractor (at any tier) were not obtainable from others in time for the Seller to meet the order delivery requirements. Buyer shall pay Seller the order price for any completed supplies/services delivered and accepted. Buyer and Seller shall agree on the amount of payment for manufacturing materials (parts, tools, dies, jigs, planes, drawings, etc.) delivered and accepted by Buyer. Buyer may withhold from any payments due Seller, any sum necessary to protect Buyer against any liability or expenses due to the termination for default. Seller shall provide Buyer any supporting information necessary to document the reasonableness of Seller's termination for default claim.

INFORMATION DISCLOSED TO BUYER: Any information or knowledge Seller discloses to Buyer regarding this Order shall not be deemed confidential or proprietary unless expressly agreed upon by the parties in writing. Any such unpatented information or knowledge shall be acquired by Buyer free of any restrictions.