

## UNIVERSITY OF OKLAHOMA

### CONSORTIUM AGREEMENT

THIS AGREEMENT, made and entered into on this 8th day of August 2002, by and between the Board of Regents of the University of Oklahoma (hereinafter called "University") and "Your Company Name" (hereinafter referred to as "Sponsor");

WITNESSETH THAT:

WHEREAS, the intent of this agreement is to provide for the operation of a program of research at the University to be called "Experimental Rock Physics Consortium" (hereinafter called the "Program"), and

WHEREAS, it is the intent of University to invite sponsors for the Program, and

WHEREAS, Program is of mutual interest and benefit to University, to Sponsor individually and Sponsors severally, and

WHEREAS, Sponsor wishes to join with other Sponsors in support of the Program under the terms and conditions hereinafter set forth,

NOW, THEREFORE, the parties hereto mutually covenant and agree as follows:

1. This agreement shall consist of this Consortium Agreement and the Technical Program described in Annex A, both of which by this reference are made parts hereof for all purposes.
2. The period of performance of this Agreement is specified as a period of one year effective January 1, 2002, ending December 31, 2002, unless sooner terminated in accordance with the provisions herein.
3. University will provide Dr. Chandra S. Rai and Dr. Carl H. Sondergeld as its principal

investigators for the Program. Unless terminated by the University, Dr. Chandra S. Rai or Dr. Carl H. Sondergeld shall not be removed or replaced without the prior consent of a majority of Sponsors. Should both of the principal investigators leave the University, a suitable replacement(s) shall be agreed upon by the parties or the Consortium shall be terminated.

4. University principal investigators will prepare written annual reports on the progress of the Program and distribute two copies of each report to each Sponsor. These reports shall contain all significant results of the work to date. These reports shall hereinafter be referred to as "Program Information".
5. All capital equipment, which is defined as any equipment item having a purchase price of Five Hundred Dollars (\$500) or more and a useful life of two (2) years or more, purchased for use in connection with the research Program described herein, shall become the property of University and title thereto shall vest therein. Title to equipment furnished by a Sponsor to University, if any, shall remain with the Sponsor.
6. Program Sponsors
  - a. The commencement date for the first year of the Program shall be January 1, 2001. This Program will be subject to yearly membership renewal. For the purposes of determining the cost of the Program to a Sponsor, each Sponsor will be considered either a *Founding Sponsor or a Late Sponsor*. A Founding Sponsor is one which executes an Agreement between January 1, 2001 and December 31, 2002. A Late Sponsor is a party which enters into an Agreement after December 31, 2002.
  - b. Each Sponsor will pay the University annually a membership fee of twenty-five thousand dollars (\$25,000) for participation in the Program. *Late Sponsors shall pay an additional one-time fee of twenty five thousand dollars (\$25,000).*
  - c. Membership fees will be due and payable within 30 days of the yearly starting date. University shall invoice Sponsor prior to the start date.
7. This Agreement is contingent upon University, prior to June 1, 2001, obtaining a minimum of four (4) Sponsors, which is determined to be the minimum number to adequately support the Program described in Annex A. Should this not occur, University

shall terminate this Agreement and return all uncommitted funds to Sponsors as provided for herein.

8. University reserves the right to execute agreements similar to this Agreement with additional Sponsors of the Program. Such agreements may be made for the purpose of providing Program funding, replacing a Sponsor which has terminated its agreement, or to enhance the Program by obtaining additional funding. All Sponsors shall have the same right to reports, licenses and other Program materials, except as otherwise provided for herein.
9. Sponsor shall be provided with a list of all Sponsors.
10. A Project Advisory Committee consisting of Sponsor-appointed Project Technical Representatives shall be formed. This committee shall meet annually during the period of performance of this Agreement at the University or a mutually agreed location at mutually agreeable times to consult with the principal investigators, review project progress, and make recommendations. Sponsors are responsible for expenses incurred in attending this meeting.
11. Sponsor may appoint a Project Technical Representative to serve on the Project Advisory Committee as provided for in Annex A.
12. Sponsor Confidential Information

Except as may be required by law, any and all knowledge, know-how, practices, processes, or other information (hereinafter referred to as "Sponsor Confidential Information") disclosed or submitted in writing or in other tangible form which is clearly and conspicuously marked "Confidential Information" by Sponsor(s) to University shall be submitted to the University Principal Investigators named above and for a period of three (3) years from the date of disclosure, maintained by University in strict confidence and shall not be disclosed to any party outside the Consortium except as may be required by law. University may disclose Sponsor Confidential Information to employees requiring access for the purpose of this Agreement; provided however, that prior to making any such disclosure, the employee shall be apprised of the duty to maintain Confidential Information in confidence and not to use such information for any purpose other than in accordance with the terms and conditions of this Agreement.

Nothing contained herein will in any way restrict or impair either party's right to use, disclose, or otherwise deal with any part of Sponsor Confidential Information which at the time of its receipt:

- a. is generally available to the public, or thereafter becomes available to the public through no act of the University;
- b. is documented to be independently known by University prior to receipt thereof, or made available to the University as a matter of lawful right by a third party; or
- c. is independently developed by an employee or student of the University who does not have access to this research Program.
- d. is required to be disclosed by law.

13. Program Information

- a. Except as provided in this paragraph and as may be required by law, both University and Sponsor agree to hold Program Information that the University has clearly and conspicuously marked as "Confidential" during a Program Year in confidence and shall not disclose such information to third parties (parties other than University or one of the Sponsors for a period of three (3) years from the date of disclosure). Provided, however, the previous sentence notwithstanding, the University, by and through its students and employees, may publish scholarly materials containing Program Information at any time. Copies of such publications shall be provided to Sponsors for their review and comment at least thirty (30) days prior to publication. Publications by Sponsors utilizing data from the consortium database must be properly acknowledged and are subject to the approval of the Program principal investigators. Should Sponsor notify the University that such publication contains patentable subject matter or Sponsor Confidential Information, the publication of such materials will be delayed for up to sixty (60) days, to allow the protection of patentable subject matter or to remove Sponsor Confidential Information. Sponsors shall have twenty (20) days from the date of receipt of such publication within which to submit written suggestions for patenting and/or objections for removal of Sponsor Confidential Information or Program Information from the proposed publication and to request the above-mentioned delay in publication for up to sixty (60) days. There shall be no obligations of confidentiality hereunder with respect to information which is, or becomes through no fault of a party hereto, a part of the public knowledge or

literature, or information previously known to a party, or information which becomes known to a party legitimately and lawfully from a third party (a party other than the University and any one of the Sponsors), or is independently developed by an employee, consultant, agent or student of a party who does not have access to this research program.

- b. Each Sponsor has the right to freely use and copy Program Information relating to results of the Program, subject to the obligation of confidentiality above for its internal purposes. Such information may not be shared with third party vendors. Sponsors may not incorporate or have incorporated any software developed through the Program in third party vendor products.
- c. Each Sponsor may disclose and extend the right to use Program Information to its Affiliates who have agreed to keep such information confidential as provided herein. "Affiliate" means the parent company of a Sponsor and any companies of which the Sponsor or its parent company now [or hereafter] owns or controls directly or indirectly fifty percent (25%) or more of the shares entitled to vote for or appoint directors.
- d. Participation in the Program does not convey the rights to commercialization of any inventions, software, data or information to Sponsors.
- e. Each Sponsor and its Affiliates who have received Program Information may disclose, provide copies of and extend the right to use such Program Information to:
  - (1) their consultants and contractors that agree to keep Program Information confidential as provided herein and to use Program Information only as directed by such Sponsor or Affiliate; and
  - (2) to government authorities, as required by law and in support of permits.

#### 14. Intellectual Property Rights

- a. For the purposes of this Agreement, "Intellectual Property" means (i) Patent Rights, i.e. the rights to file for patent protection for and any patents which may be granted on, inventions disclosed in Program Information; (ii) Copyrights in Program Information; and (iii) during the confidentiality period provided herein,

the know-how and data disclosed in the Program Information. Title to Intellectual Property shall remain with the University which will license Intellectual Property, to all interested parties on a nonexclusive basis under terms and conditions to be negotiated in good faith at the time of licensing. The University retains the right to issue an exclusive (to the extent possible) license should only one Consortium Sponsor (or only one third party licensee) pursue a license to Program Information.

- b. Each Sponsor and its Affiliates shall have a nonexclusive, nontransferable, royalty-free, license under the Intellectual Property Rights to use all of the know-how and data disclosed in the Program Information for its own internal purposes.
  - c. University shall notify all Consortium members of any intellectual property disclosures that are received by the Office of Technology Development. Should Consortium members exercise their option to take a license to any such inventions, the costs of protecting the intellectual property shall be borne by those Sponsors on a prorated basis.
15. This Agreement may be terminated by either party under the following conditions.
- a. Sponsor may terminate this Agreement by giving University at least sixty (60) days advance written notice. In the event of such termination, Sponsor agrees to forfeit its rights to receive reports on the progress of the Program, licenses to computer programs and/or other copyrighted or patented materials produced by the Program after the termination date, and the unspent portion of any funds invested in the Program. In the event of such termination, Sponsor shall have no further obligations to University except to make any payments which may have become due under Paragraph 6b above prior to termination.
  - b. University may terminate this Agreement upon sixty (60) days written notice to Sponsor in the event that Sponsor fails to make any payment in accordance with the schedule in Paragraph 6b above, in which case Sponsor agrees to forfeit its rights to Program materials and licenses. A Sponsor may make payment within the sixty (60) day period, in which case the University may not terminate this agreement.
  - c. Termination or cancellation of this Agreement shall not affect the rights and obligations of the parties accrued prior to termination.

16. This contract may be extended, renewed, or otherwise amended at any time by the mutual written consent of the parties hereto, and upon written notice to the other Sponsors, so long as any such extension, renewal, or other amendment does not infringe upon nor abrogate the rights of other Program Sponsors under their several contracts.
17. This contract shall be governed by and construed in accordance with the laws of the State of Oklahoma.
18. Notices, invoices, communications and payments shall be submitted to the offices identified below. Contractual notices and communications hereunder shall be deemed made as of the date of mailing if given by overnight courier service or by registered or certified envelope, postage prepaid, and addressed to the party to receive such notice or communication at the address given below, or such other address as may hereafter be designated by notice in writing.

If to Sponsor (Business/Invoices):

Name:

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Address:

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Phone/E-mail:

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If to Sponsor (Technical):

Name:

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Address:

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Phone/E-mail:

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If to University (Business/Payment):

Name:

Linda Holt, Associate Director

Address:

Project Support & Compliance Assurance

600 Parrington Oval, Rm. 324 Evans Hall

Norman, OK 73019

Phone/E-mail:

405-325-4982 lholt@ou.edu

If to University (Business/Contract Terms):

Name:

Gayle Parker

Address:

Sponsored Programs Coordinator

1000 Asp Avenue, Rm. 314 Buchanan Hall

Norman, OK 73019

Phone/E-mail:

405-325-6061 kellis@ou.edu

If to University (Technical):

Name:

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Address:

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Phone/E-mail:

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19. Should the parties to this contract be unable to resolve between themselves any dispute arising from any of the provisions within this contract, each party shall have recourse under the law.
20. In the conduct of the research Program under this Agreement, University is acting in the capacity of an independent contractor, and no party shall by reason of this Agreement be obligated to defend, assume the cost of defense, hold harmless, or indemnify any other from any liability to third parties for loss of or damage to property, death, or bodily injury arising out of or connected with the research under this Agreement.
21. No party to this Agreement may use the name of any other in news releases, publicity, advertising, or product promotion without the prior written permission of the other.
22. This contract constitutes the entire agreement between the parties and supersedes all previous agreements and understandings relating to the work to be performed.

IN WITNESS WHEREOF, the parties hereto have executed this contract as of the day and year first above written.

**BOARD OF REGENTS OF THE  
UNIVERSITY OF OKLAHOMA**

**SPONSOR:  
(Your Company Name)**

\_\_\_\_\_  
**Name:** \_\_\_\_\_  
**Title:** \_\_\_\_\_  
**Date:** \_\_\_\_\_

\_\_\_\_\_  
**Name:** \_\_\_\_\_  
**Title:** \_\_\_\_\_  
**Date:** \_\_\_\_\_

**AGREED:**

\_\_\_\_\_  
**Chandra S. Rai** **Date**

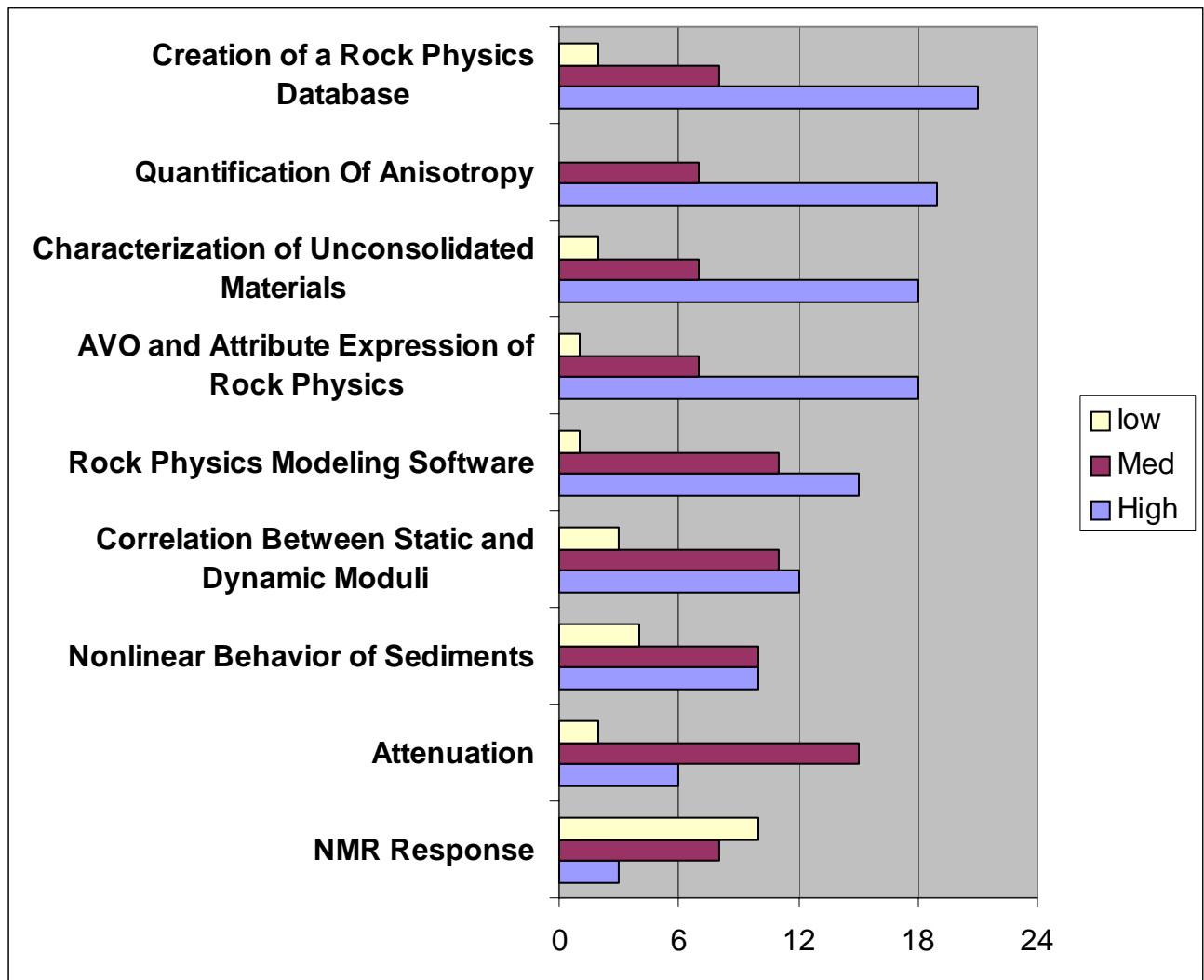
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**Carl H. Sondergeld** **Date**

**Experimental Rock Physics Consortium: Annex A**

### Introduction:

We are sending this technical proposal for your review and consideration for support. This proposal is based on feedback surveys, our SEG meeting and company site visits.

We have a rather complete and extensive laboratory testing capability at our disposal to solve fundamental rock physics and petrophysical problems of interest to the industry. Please visit our web page for additional information regarding our capabilities ([www.ou.edu/mewbourneschool/cfrp/ic3/cfrp.htm](http://www.ou.edu/mewbourneschool/cfrp/ic3/cfrp.htm)). Of the nine proposed topics, (see the enclosed bar chart), we have rank ordered the topics. The three highest-ranking projects are: (1) the creation of rock properties database; (2) characterization and understanding of anisotropy and (3) the characterization of unconsolidated materials. We see these as themes that we are well equipped and qualified to address. We are fundamentally interested in researching these areas and we sense that progress in these areas will have immediate impact on investments.



We propose therefore to initially limit the scope of the consortium efforts to these three project areas. Our preliminary plan for the first year is to (1) create a rock properties database comprised of measurements made on core samples; (2) pursue a measurement program on the anisotropy of shales and (3) to perform laboratory studies on analogs of unconsolidated materials.

***Database:***

The spectrum of measurements to be included in the proposed database will contain compressional and shear velocities as a function of effective pressure, bulk and grain densities, quantitative mineralogy, porosity, permeability, thin section and SEM photographs, NMR estimates of porosity, free and bound water as well as T2 distributions, Mercury Injection Capillary pressure curves, thin section descriptions, grains size analysis, pore volume compressibility, anisotropic elastic constants, resistivity and static moduli. We have two strategies for the population of the database: (1) use samples supplied by consortium members and (2) use internally available samples. We currently have access to some 1200 samples (a mixture of sands, shales and carbonates) for this purpose. Concurrently we will develop the database infrastructure and software to host and access via the internet. The exact form of the user interface will be based on solicited member input. Members should realize that not every sample is suitable for the complete measurement suite we proposed and that success of this effort depends strongly on their participation. We feel strongly that the current lab capacity will allow us to create a statistically significant database population in a very short period of time. Our goals for the first year are (1) to create software support for the database population and query and (2) to create a population of 400 samples.

***Anisotropy:***

Research efforts in anisotropy will focus on three areas: (1) creating a database of anisotropic elastic constants; (2) development of quantitative understanding of the cause of anisotropy and their characterization and (3) refining existing experimental techniques to measure anisotropy. We propose with the support and cooperation of members to carry out an extensive measurement program on fresh shale samples and to apply optical, x-ray, FTIR, TOC, techniques to quantify the textural and compositional dependencies of these measurements. We will develop, refine and calibrate new approaches to core based measurements of anisotropy. These will include using an existing bench top tomography system for whole core which eliminates the restriction of assuming a prior knowledge of the symmetry of the anisotropy. This approach has a major advantage over the conventional three-plug approach which falls victim to the large errors caused by the small error in plug orientations. Members will benefit from (1) new measurements of anisotropic elastic constants and (2) access to new more accurate techniques to measure anisotropy.

***Unconsolidated Sediments:***

Research will focus on controls of seismic behavior of unconsolidated materials. Using natural and synthetic materials, we will carry out measurements of velocity, compressibility and permeability while controlling and characterizing mineralogical, grain size, cementation and compaction. These experiments will serve as analogs for in-situ expectations once we establish the sensitivities and the appropriate requirements for characterization.

***Annual Meeting:***

Annual meeting will be held in Tulsa to review consortium progress and accomplishments and seek feedback from sponsors. A summary report will be distributed at the meeting. Sponsors will be responsible for their travel and hotel accommodations. No additional fee will be requested from sponsors; consortium funds will be used to cover costs associated with hosting this meeting including but not limited to meeting room rental fees, audio-visual equipment rental fees, and food costs.