

ORDER FOR SUPPLIES OR SERVICES

IMPORTANT: Mark all packages and papers with contract and/or order numbers.

BPA NO.

| | | | | | | | | |
|---------------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. DATE OF ORDER SEP 26 2006 | | 2. CONTRACT NO. (if any) | | 6. SHIP TO: | | | | |
| 3. ORDER NO. DR-04-06-095 | | MODIFICATION NO. | | a. NAME OF CCNSIGNEE U.S. Nuclear Regulatory Commission | | | | |
| 4. REQUISITION/REFERENCE NO. RES-06-095 | | 5. ISSUING OFFICE (Address correspondence to) U.S. Nuclear Regulatory Commission Div. of Contracts Attn: Adelis M Rodriguez Mail Stop T-7-I-2 Washington, DC 20555 | | b. STREET ADDRESS MS T7-I 2 Attn: Adelis M Rodriguez | | c. CITY Washington | d. STATE DC | e. ZIP CODE 20555 |
| 7. TO: | | a. NAME OF CONTRACTOR PENNSYLVANIA STATE UNIVERSITY, THE | | f. SHIP VIA | | | | |
| b. COMPANY NAME | | c. STREET ADDRESS 408 OLD MAIN | | 8. TYPE OF ORDER <input checked="" type="checkbox"/> a. PURCHASE <input type="checkbox"/> b. DELIVERY | | Reference your _____ Please furnish the following on the terms and conditions specified on both sides of this order and on the attached sheet, if any, including delivery as indicated. | | Except for billing instructions on the reverse, this delivery/task order is subject to instructions contained on this side only of this form and is issued subject to the terms and conditions of the above-numbered contract. |
| d. CITY UNIVERSITY PARK | | e. STATE PA | f. ZIP CODE 168021505 | 9. ACCOUNTING AND APPROPRIATION DATA B&R: 66015111205 Job: N6333 BOC: 252A Appr.: 31X0200.660 Obligate: \$28,800.00 DUNS: 003403953 FFS: RES-C06-639 | | 10. REQUISITIONING OFFICE RES RES/DFERR | | 12. F.O.B. POINT N/A |
| 11. BUSINESS CLASSIFICATION (Check appropriate box(es)) | | 13. PLACE OF | | 14. GOVERNMENT B/L NO. | | 15. DELIVER TO F.O.B. POINT ON OR BEFORE (Date) | | 16. DISCOUNT TERMS N/A |
| <input type="checkbox"/> a. SMALL | <input checked="" type="checkbox"/> b. OTHER THAN SMALL | <input type="checkbox"/> c. DISADVANTAGED | <input type="checkbox"/> d. WOMEN-OWNED | <input type="checkbox"/> e. HUBZone | <input type="checkbox"/> f. EMERGING SMALL BUSINESS | <input type="checkbox"/> g. SERVICE-DISABLED VETERAN-OWNED | | |
| a. INSPECTION destination | | b. ACCEPTANCE destination | | | | | | |

17. SCHEDULE (See reverse for Rejections)

| ITEM NO. (A) | SUPPLIES OR SERVICES (B) | QUANTITY ORDERED (C) | UNIT (D) | UNIT PRICE (E) | AMOUNT (F) | QUANTITY ACCEPTED (G) |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-------------|-------------------|---------------|--------------------------|
| | The US NRC intends to award a fixed price purchase order to Pennsylvania State University. The university shall provide research supervision, materials and equipment related to [REDACTED] research about the temperature and strain rate dependence of the ductility and fracture behavior of hydrided Zircaloy during plane-strain testing. The proposed research supervision shall be conducted by [REDACTED] from Penn State Department of Mechanical and Nuclear Engineering. | | | | | |
| | First year | | | | \$14,300.00 | |
| | Second year | | | | \$14,500.00 | |
| | NRC Project Officer: Harold Scott Ph: (301)415-6771 | | | | | |

| | | | | | | | | |
|-------------------------------------|--|----------------------------------------------------------------------------------|----------------------|-----------------|--|----------------------------------|--|---------------------------|
| 18. SHIPPING POINT | | 19. GROSS SHIPPING WEIGHT | | 20. INVOICE NO. | | | | |
| SEE BILLING INSTRUCTIONS ON REVERSE | | 21. MAIL INVOICE TO: | | | | | | 17(h) TOTAL (Cont. pages) |
| | | a. NAME U.S. Nuclear Regulatory Commission Payment Team, Mail Stop T-9-H-4 | | | | | | |
| | | b. STREET ADDRESS (or P.O. Box) Attn: DR-04-06-095 | | | | | | |
| c. CITY Washington | | d. STATE DC | e. ZIP CODE 20555 | | | 17(i) GRAND TOTAL \$28,800.00 | | |

| | | | |
|------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------------------|--|
| 22. UNITED STATES OF AMERICA BY (Signature) <i>Phyllis Bower</i> | | 23. NAME (Typed) Phyllis Bower Contracting Officer TITLE: CONTRACTING/ORDERING OFFICER | |
|------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------------------|--|

ADDITIONAL SIMPLIFIED ACQUISITION TERMS AND CONDITIONS

A.1 NOTICE LISTING CLAUSES INCORPORATED BY REFERENCE

The following clauses are hereby incorporated by reference (by Citation Number, Title, and Date) in accordance with the clause at FAR "52.252-2 CLAUSES INCORPORATED BY REFERENCE" contained in this document. FAR 52.252-2 contains the internet address for electronic access to the full text of a clause.

| NUMBER | TITLE | DATE |
|-----------|-----------------------------------------------------------------------------------------------------------------|----------|
| 52.222-42 | FEDERAL ACQUISITION REGULATION (48 CFR Chapter 1) STATEMENT OF EQUIVALENT RATES FOR FEDERAL HIRES | MAY 1989 |
| 52.222-35 | EQUAL OPPORTUNITY FOR SPECIAL DISABLED VETERANS, OF THE VIETNAM ERA, AND OTHER ELIGIBLE VETERANS | DEC 2001 |
| 52.222-37 | EMPLOYMENT REPORTS ON SPECIAL DISABLED VETERANS, VETERANS OF THE VIETNAM ERA, AND OTHER ELIGIBLE VETERANS | DEC 2001 |
| 52.233-4 | APPLICABLE LAW FOR BREACH OF CONTRACT CLAIM | OCT 2004 |

A.2 52.213-2 INVOICES (APR 1984)

The Contractor's invoices must be submitted before payment can be made. The Contractor will be paid on the basis of the invoice, which must state (a) the starting and ending dates of the subscription delivery, and (b) either that orders have been placed in effect for the addressees required, or that the orders will be placed in effect upon receipt of payment.

A.3 52.213-4 TERMS AND CONDITIONS - SIMPLIFIED ACQUISITIONS (OTHER THAN COMMERCIAL ITEMS) (FEB 2006)

(a) The Contractor shall comply with the following Federal Acquisition Regulation (FAR) clauses that are incorporated by reference:

(1) The clauses listed below implement provisions of law or Executive order:

(i) 52.222-3, Convict Labor (June 2003) (E.O. 11755).

(ii) 52.222-21, Prohibition of Segregated Facilities (Feb 1999) (E.O. 11246).

(iii) 52.222-26, Equal Opportunity (Apr 2002) (E.O. 11246).

(iv) 52.225-13, Restrictions on Certain Foreign Purchases (FEB 2006) (E.o.s, proclamations, and statutes administered by the Office of Foreign Assets Control of the Department of the Treasury).

(v) 52.233-3, Protest After Award (Aug 1996) (31 U.S.C. 3553).

(vi) 52.233-4, Applicable Law for Breach of Contract Claim (OCT 2004) (Pub. L. 108-77, 108-78).

(2) Listed below are additional clauses that apply:

(i) 52.232-1, Payments (Apr 1984).

(ii) 52.232-8, Discounts for Prompt Payment (Feb 2002).

(iii) 52.232-11, Extras (Apr 1984).

(iv) 52.232-25, Prompt Payment (Oct 2003).

(v) 52.233-1, Disputes (Jul 2002).

(vi) 52.244-6, Subcontracts for Commercial Items (FEB 2006).

(vii) 52.253-1, Computer Generated Forms (Jan 1991).

(b) The Contractor shall comply with the following FAR clauses, incorporated by reference, unless the circumstances do not apply:

(1) The clauses listed below implement provisions of law or Executive order:

(i) 52.222-19, Child Labor--Cooperation with Authorities and Remedies (JAN 2006) (E.O. 13126). (Applies to contracts for supplies exceeding the micro-purchase threshold.)

(ii) 52.222-20, Walsh-Healey Public Contracts Act (Dec 1996) (41 U.S.C. 35-45) (Applies to supply contracts over \$10,000 in the United States, Puerto Rico, or the U.S. Virgin Islands).

(iii) 52.222-35, Equal Opportunity for Special Disabled Veterans, Veterans of the Vietnam Era, and Other Eligible Veterans (DEC 2001) (38 U.S.C. 4212) (Applies to contracts of \$25,000 or more).

(iv) 52.222-36, Affirmative Action for Workers with Disabilities (June 1998) (29 U.S.C. 793). (Applies to contracts over \$10,000, unless the work is to be performed outside the United States by employees recruited outside the United States.) (For purposes of this clause, United States includes the 50 States, the District of Columbia, Puerto Rico, the Northern Mariana Islands, American Samoa, Guam, the U.S. Virgin Islands, and Wake Island.)

(v) 52.222-37, Employment Reports on Special Disabled Veterans, Veterans of the Vietnam Era, and Other Eligible Veterans (DEC 2001) (38 U.S.C. 4212) (Applies to contracts of \$25,000 or more).

(vi) 52.222-41, Service Contract Act of 1965, As Amended (JUL 2005) (41 U.S.C. 351, et seq.) (Applies to service contracts over \$2,500 that are subject to the Service Contract Act and will be performed in the United States, District of Columbia, Puerto Rico, the Northern Mariana Islands, American Samoa, Guam, the U.S. Virgin Islands, Johnston Island, Wake Island, or the outer continental shelf lands).

(vii) 52.223-5, Pollution Prevention and Right-to-Know Information (AUG 2003) (E.O. 13148) (Applies to services performed on Federal facilities).

(viii) 52.225-1, Buy American Act--Supplies (June 2003) (41 U.S.C. 10a-10d) (Applies to contracts for supplies, and to contracts for services involving the furnishing of supplies, for use in the United States or its outlying areas, if the value of the supply contract or supply portion of a service contract exceeds the micro-purchase threshold and the acquisition--

(A) Is set aside for small business concerns; or

(B) Cannot be set aside for small business concerns (see 19.502-2), and does not exceed \$25,000.)

(ix) 52.232-33, Payment by Electronic Funds Transfer--Central Contractor Registration (OCT 2003). (Applies when the payment will be made by electronic funds transfer (EFT) and the payment office uses the Central Contractor Registration (CCR) database as its source of EFT information.)

(x) 52.232-34, Payment by Electronic Funds Transfer--Other than Central Contractor Registration (May 1999). (Applies when the payment will be made by EFT and the payment office does not use the CCR database as its source of EFT information.)

(xi) 52.247-64, Preference for Privately Owned U.S.-Flag Commercial Vessels (FEB 2006) (46 U.S.C. Appx 1241). (Applies to supplies transported by ocean vessels (except for the types of subcontracts listed at 47.504(d).)

(2) Listed below are additional clauses that may apply:

(i) 52.209-6, Protecting the Government's Interest When Subcontracting with Contractors Debarred, Suspended, or Proposed for Debarment (JAN 2005) (Applies to contracts over \$25,000).

(ii) 52.211-17, Delivery of Excess Quantities (SEPT 1989) (Applies to fixed-price supplies).

(iii) 52.247-29, F.o.b. Origin (FEB 2006) (Applies to supplies if delivery is f.o.b. origin).

(iv) 52.247-34, F.o.b. Destination (NOV 1991) (Applies to supplies if delivery is f.o.b. destination).

(c) FAR 52.252-2, Clauses Incorporated by Reference (FEB 1998). This contract incorporates one or more clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. Also, the full text of a clause may be accessed electronically at this/these address(es):

<http://www.arnet.gov/far>

(d) Inspection/Acceptance. The Contractor shall tender for acceptance only those items that conform to the requirements of this contract. The Government reserves the right to inspect or test any supplies or services that have been tendered for acceptance. The Government may require repair or replacement of nonconforming supplies or reperformance of nonconforming services at no increase in contract price. The Government must exercise its postacceptance rights--

(1) Within a reasonable period of time after the defect was discovered or should have been discovered; and

(2) Before any substantial change occurs in the condition of the item, unless the change is due to the defect in the item.

(e) Excusable delays. The Contractor shall be liable for default unless nonperformance is caused by an occurrence beyond the reasonable control of the Contractor and without its fault or negligence, such as acts of God or the public enemy, acts of the Government in either its sovereign or contractual capacity, fires, floods, epidemics, quarantine restrictions, strikes, unusually severe weather, and delays of common carriers. The Contractor shall notify the Contracting Officer in writing as soon as it is reasonably possible after the commencement of any excusable delay, setting forth the full particulars in connection therewith, shall remedy such occurrence with all reasonable dispatch, and shall promptly give written notice to the Contracting Officer of the cessation of such occurrence.

(f) Termination for the Government's convenience. The Government reserves the right to terminate this contract, or any part hereof, for its sole convenience. In the event of such termination, the Contractor shall immediately stop all work hereunder and shall immediately cause any and all of its suppliers and subcontractors to cease work. Subject to the terms of this contract, the Contractor shall be paid a percentage of the contract price reflecting the percentage of the work performed prior to the notice of termination, plus reasonable charges that the Contractor can demonstrate to the satisfaction of the Government, using its standard record keeping system, have resulted from the termination. The Contractor shall not be required to comply with the cost accounting standards or contract cost principles for this purpose. This paragraph does not give the Government any right to audit the Contractor's records. The Contractor shall not be paid for any work performed or costs incurred that reasonably could have been avoided.

(g) Termination for cause. The Government may terminate this contract, or any part hereof, for cause in the event of any default by the Contractor, or if the Contractor fails to comply with any contract terms and conditions, or fails to provide the Government, upon request, with adequate assurances of future performance. In the event of termination for cause, the Government shall not be liable to the Contractor for any amount for supplies or services not accepted, and the Contractor shall be liable to the Government for any and all rights and remedies provided by law. If it is determined that the Government improperly terminated this contract for default, such termination shall be deemed a termination for convenience.

(h) Warranty. The Contractor warrants and implies that the items delivered hereunder are merchantable and fit for use for the particular purpose described in this contract.

A.4 NRC Acquisition Clauses - (NRCAR) 48 CFR Ch. 20

A.5 SEAT BELTS

Contractors, subcontractors, and grantees, are encouraged to adopt and enforce on-the-job seat belt policies and programs for their employees when operating company-owned, rented, or personally owned vehicles.

Enclosure 1

STATEMENT OF WORK TO INVESTIGATE THE TEMPERATURE AND STRAIN RATE DEPENDENCE OF THE DUCTILITY AND FRACTURE BEHAVIOR OF HYDRIDED ZIRCALOY DURING PLANE -STRAIN TESTING OFFICE OF NUCLEAR REGULATORY RESEARCH US NUCLEAR REGULATORY COMMISSION

1.0 BACKGROUND

The Pennsylvania State University submitted a proposal dated April 28, 2006 to the NRC to investigate the temperature and strain rate dependence of the ductility and fracture behavior of hydrided zircaloy during plane -strain testing, which will be of great value to measure Pressurized Water Reactors (PWR) performance.

2.0 PERFORMANCE REQUIREMENTS

Under this purchase order Penn State will provide:

1. Research supervision through Professors Motta and Koss for Michelle Flanagan's research activities, including obtaining the appropriate peer review for her final technical report and related publications.
2. Test fixtures
3. Materials
4. Supplies
5. Scanning electron microscope,
6. Mechanical testing facility
7. Hydrogen charging equipment
8. Any other equipment necessary for the proposed research project conducted by Ms. Flannagan.

2.1 Deliverables

The contractor shall also provide technical and programmatic updates to the NRC project manager via its Monthly Status Reports. The monthly status report shall be divided into two parts: the technical part and the financial part. At least three copies must be provided. The report must include at a minimum:

- The report period
- The title of the project,
- Contract number

The technical part must include at a minimum:

- A listing of the efforts completed during the period, and milestones reached or, if missed, an explanation provided
- Any problems or delays encountered or anticipated and recommendations for resolution. If the recommended resolution involves a contract order modification, e.g., change in work requirements, level of effort (cost) or schedule delay, the contractor shall submit a separate letter to the Project Officer (PO) identifying the required change and estimated cost impact
- A summary of progress to date; and
- Plans for the next reporting period.

The financial part must include at a minimum:

- Total estimated contract amounts.
- Total funds obligated to date.
- Total costs incurred this reporting period.
- Total costs incurred to date.
- Detail of all direct and indirect costs incurred during the reporting period for the entire contract.
- Balance of obligations remaining.
- Balance of funds required to complete the contract.

3.1.1 Format Instructions

The contractor shall compile the documents using WordPerfect 10, Microsoft Office Word or as otherwise specified by the NRC. The contractor shall deliver the **draft** documents in electronic format via email, on 3.5" floppy diskette or CD-ROM. The contractor shall deliver the **final** documents in electronic format via email or on 3.5" floppy diskette or CD-ROM.

3.1.2 Acceptance Criteria for the deliverables

All report deliverables should provide sufficient detail to ensure completeness, consistency, correctness, and accuracy of the work performed. All deliverable products shall be grammatically correct according to industry standard rules and contain correct spelling. All technical and financial terms shall be clearly defined to be understood by all readers cognizant of research being performed. All final deliverable products will be approved by the Project Officer.

1.1.3 Schedule of Deliverables:

| Deliverable | Delivery date |
|------------------------------------|-------------------------|
| Monthly status reports (All tasks) | Every month after award |

4.0 MEETINGS AND ADMINISTRATION

4.1 Place of work

The work will be performed at the Contractors site, using e-mail, telephone, conference calls, and similar means to accomplish routine contacts with NRC staff.

4.2 Period of Performance

The period of performance for this contract is 2 years.

Enclosure 2

**BILLING INSTRUCTIONS FOR
FIXED PRICE CONTRACTS (October 2003)**

General: The contractor is responsible during performance and through final payment of this contract for the accuracy and completeness of the data within the Central Contractor Registration (CCR) database, and for any liability resulting from the Government's reliance on inaccurate or incomplete CCR data. The contractor shall prepare vouchers or invoices as prescribed herein. **FAILURE TO SUBMIT VOUCHERS/INVOICES IN ACCORDANCE WITH THESE INSTRUCTIONS WILL RESULT IN REJECTION OF THE VOUCHER/INVOICES AS IMPROPER.**

Form: Claims shall be submitted on the payee's letterhead, voucher/invoices, or on the Government's Standard Form 1034, "Public Voucher for Purchases and Services Other than Personal," and Standard Form 1035, "Public Voucher for Purchases Other than Personal-- Continuation Sheet." These forms are available from the U.S. Government Printing Office, 710 North Capitol Street, Washington, DC 20401.

Number of Copies: An original and three copies shall be submitted. Failure to submit all the required copies will result in rejection of the voucher/invoice as improper.

Designated Agency Billing Office: Vouchers/Invoices shall be submitted to the following address:

U.S. Nuclear Regulatory Commission
Division of Contracts - T-7-I-2
Washington, DC 20555-0001

A copy of any invoice which includes a purchase of property valued at the time of purchase at \$5000 or more, shall additionally be sent to:

NRC Property Management Officer
Administrative Services Center
Mail Stop -O-2G-112
Washington, DC 20555-0001

HAND-DELIVERY OF VOUCHERS/INVOICES IS DISCOURAGED AND WILL NOT EXPEDITE PROCESSING BY THE NRC. However, should you choose to deliver vouchers/invoices by hand, including delivery by any express mail service or special delivery service which uses a courier or other person to deliver the vouchers/invoices in person to the NRC, such vouchers/invoices must be addressed to the above Designated Agency Billing Office and will only be accepted at the following location:

U.S. Nuclear Regulatory Commission
One White Flint North - Mail Room
11555 Rockville Pike
Rockville, MD 20852

HAND-CARRIED SUBMISSIONS WILL NOT BE ACCEPTED AT OTHER THAN THE ABOVE ADDRESS

Note that the official receipt date for hand-delivered vouchers/invoices will be the date it is received by the official agency billing office in the Division of Contracts.

Agency Payment Office: Payment will continue to be made by the office designated in the contract in Block 12 of the Standard Form 26 or Block 25 of the Standard Form 33, whichever is applicable.

Frequency: The contractor shall submit a voucher or invoice only after the NRC's final acceptance of services rendered or products delivered in performance of the contract unless otherwise specified in the contract.

Preparation and Itemization of the Voucher/Invoice: The voucher/invoice shall be prepared in ink or by typewriter (without strike-overs). Corrections or erasures must be initialed. To be considered a proper voucher/invoice, all of the following elements must be included:

1. Contractor's Data Universal Number (DUNS) or DUNS+4 number that identifies the contractor's name and address. The DUNS+4 number is the DUNS number plus a 4-character suffix that may be assigned at the discretion of the contractor to identify alternative Electronic Funds Transfer (EFT) accounts for the same parent concern.
2. Contract number.
3. Sequential voucher/invoice number.
4. Date of voucher/invoice.
5. Payee's name and address. Show the name of the Payee as it appears in the contract and its correct address. If the Payee assigns the proceeds of this contract as provided for in the assignment of claims terms of this contract, the Payee shall require as a condition of any such assignment, that the assignee shall register separately in the Central Contractor Registration (CCR) database at <http://www.ccr.gov> and shall be paid by EFT in accordance with the terms of this contract. See Federal Acquisition Regulation 52.232-33(g) Payment by Electronic Funds Transfer - Central Contractor Registration (October 2003).
6. Description of articles or services, quantity, unit price, and total amount.
7. For contractor acquired property list each item purchased costing \$50,000 or more and having a life expectancy of more than 1 year and provide: (1) an item description, (2) manufacturer, (3) model number, (4) serial number, (5) acquisition cost, (6) date of purchase, and (7) a copy of the purchasing document.
8. Weight and zone of shipment, if shipped by parcel post.
9. Charges for freight or express shipments. Attach prepaid bill if shipped by freight or express.
10. Instructions to consignee to notify the Contracting Officer of receipt of shipment.
11. For Indefinite Delivery contracts or contracts under which progress payments are authorized, the final voucher/invoice shall be marked "FINAL VOUCHER" OR "FINAL INVOICE."

Currency: Billings may be expressed in the currency normally used by the contractor in maintaining his accounting records and payments will be made in that currency. However, the U.S. dollar equivalent for all vouchers/invoices paid under the contract may not exceed the total U.S. dollars authorized in the contract.

Supersession: These instructions supersede any previous billing instructions.