

1. AMENDMENT/MODIFICATION NO. 2	2. EFFECTIVE DATE 4/2/81	3. REQUISITION/PURCHASE REQUEST NO. RES-80-192	4. PROJECT NO. (If applicable)
5. ISSUED BY U. S. Nuclear Regulatory Commission Division of Contracts Washington, DC 20555		6. ADMINISTERED BY (If other than block 5) CODE	

7. CONTRACTOR NAME AND ADDRESS Woodward-Clyde Consultants Three Embarcadero Center, Suite 700 San Francisco, CA 94111	8. AMENDMENT OF SOLICITATION NO. <input type="checkbox"/>	8. MODIFICATION OF CONTRACT/ORDER NO. <input checked="" type="checkbox"/> NRC-04-80-192
9. DATED _____ (See block 9)	9. DATED 9/30/80 (See block 11)	

9. BLOCK APPLIES ONLY TO AMENDMENTS OF SOLICITATIONS

The above numbered solicitation is amended as set forth in block 12. The hour and date specified for receipt of offers is extended, is not extended. Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation, or as amended, by one of the following methods:

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

10. ACCOUNTING AND APPROPRIATION DATA (If required)

B&R No. 60-19-01-30 FIN No. B6620 \$70,000.00

11. THIS BLOCK APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS

(a) This Change Order is issued pursuant to _____
The Changes set forth in block 12 are made to the above numbered contract/order.

(b) The above numbered contract/order is modified to reflect the administrative changes (such as changes in paying office, appropriation data, etc.) set forth in block 12.

(c) This Supplemental Agreement is entered into pursuant to authority of **mutual agreement of both parties**
It modifies the above numbered contract as set forth in block 12.

12. DESCRIPTION OF AMENDMENT/MODIFICATION

Under ARTICLE I - STATEMENT OF WORK, Paragraph E., Delineation of Contractor Tasks, is revised to include the following new Task IV:

" Task 1 - Acquisition of Down-Hole Strong Earthquake Motion Data and Relevant Earthquake Source, Earth Structure and Subsurface Site Information

Because there exists no downhole earthquake data with surface accelerations larger than 0.10 g in the U. S., it is anticipated that the downhole strong earthquake motion data required for the study will be identified and obtained from Japan. A preliminary study on recorded strong earthquakes in Japan shows that at least 30 surface accelerations with amplitudes larger than 0.10 g were recorded near the stations for observing downhole earthquake motions. This study result provides the strong belief that there exists in Japan downhole strong earthquake data with surface accelerations larger than

Except as provided herein, all terms and conditions of the document referenced in block 8, as heretofore changed, remain unchanged and in full force and effect.

13. CONTRACTOR/OFFEROR IS NOT REQUIRED TO SIGN THIS DOCUMENT CONTRACTOR/OFFEROR IS REQUIRED TO SIGN THIS DOCUMENT AND RETURN **4** COPIES TO ISSUING OFFICE

14. NAME OF CONTRACTOR/OFFEROR S. M. Adams BY _____ (Signature of person authorized to sign)	17. UNITED STATES OF AMERICA BY _____ (Signature of Contracting Officer)		
15. NAME AND TITLE OF SIGNER (Type or print) B107300309 B10707 PDR CONTR NRC-04-80-192 PDR	16. DATE SIGNED 6/27/81	18. NAME OF CONTRACTING OFFICER (Type or print) Kellogg V. Morton	19. DATE SIGNED

0.10 g. Recent telephone conversations with one Japanese authority on recorded Japanese earthquake motions further confirmed the existence of such data.

In order to facilitate the acquisition of the available subject data, a trip to Japan is necessary. The activities of the trip include:

- 0 Visit organizations and institutions which are responsible for the observation of downhole earthquake motions in Japan. These organizations can be grouped as follows:
 - 0 Universities
Hokkaido, Waseda, Fuku: Tokyo, etc.
 - 0 Government Agencies
Ministry of Construction, Ministry of Transport, National Research Center for Disaster Prevention, etc.
 - 0 Private Organizations
Kajima Corporation, Takenaka Corporation, Taisei Corporation, Shimizu Construction Co., etc.
- 0 Preliminary examination of above available data. The items which will be included in the preliminary examination are:
 - 0 Earthquake origin time, epicenter, depth, magnitude; arrival time information for earthquake relocation; first motion data for fault plane solution; information to determine the extent of the fault plane.
 - 0 Duration of recorded earthquake
 - 0 Site characteristics of recording stations
 - 0 Instrumentation
 - 0 Information on digitizing earthquake records including instrument corrections
 - 0 Types of earthquake records - maximum accelerations, velocities and displacement and time histories
 - 0 Forms of available earthquake records - traces, reports, decks and magnetic tapes
- 0 Acquire and catalog the above available earthquake source and data information
- 0 Prepare report on acquired down-hole earthquake data and define future work.

The above task descriptions can be grouped into the following sub-tasks:

<u>Sub-Task</u>	<u>Description</u>
1.1	Organization of trip to Japan
1.2	Acquisition of Down-Hole Strong Earthquake Data and Relevant Geological Information
1.3	Preliminary Examination and Selection of Acquired Data for Possible Future Work
1.4	Report Preparation and Definition of Possible Future Work to the U. S. Nuclear Regulatory Commission."

In accordance with Appendix A, General Provisions, provision no. 5.1-3, "Limitation of Funds," additional funds in the amount of \$70,000.00 are allotted to the contract as set forth below in ARTICLE III.

" A.2. ESTIMATED COST AND OBLIGATION

A. Estimated Cost and Obligation

2. Total funds currently available for payment and allotted to this contract are hereby increased by \$70,000.00 from \$275,000.00 to \$345,000.00."