

**ORDER FOR SUPPLIES OR SERVICES**

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

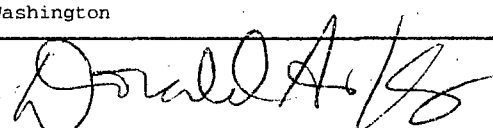
BPA NO.

1. DATE OF ORDER <b>SEP 12 2006</b>		2. CONTRACT NO. (If any) NRC-04-04-062		6. SHIP TO:	
3. ORDER NO. TASK ORDER 006		MODIFICATION NO.		4. REQUISITION/REFERENCE NO. RES-04-062 RES-C06-652	
5. ISSUING OFFICE (Address correspondence to) U.S. Nuclear Regulatory Commission Div. of Contracts Attn: Jeffrey R. Mitchell, 301-415-6465 Mail Stop T-7-I-2 Washington, DC 20555				a. NAME OF CONSIGNEE U.S. Nuclear Regulatory Commission Attn: Ronald Emrit	
				b. STREET ADDRESS Mail Stop: T10-K44 11555 Rockville Pike	
				c. CITY Rockville	d. STATE MD
				e. ZIP CODE 20852	
7. TO:				f. SHIP VIA	
a. NAME OF CONTRACTOR INFORMATION SYSTEMS LABORATORIES, INC				8. TYPE OF ORDER	
b. COMPANY NAME ATTN: DR. JAMES F. MEYER				<input type="checkbox"/> a. PURCHASE	<input checked="" type="checkbox"/> b. DELIVERY
c. STREET ADDRESS 11140 ROCKVILLE PIKE, SUITE 500				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.	
d. CITY ROCKVILLE				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.	
e. STATE MD					
f. ZIP CODE 20852					
9. ACCOUNTING AND APPROPRIATION DATA 66015113277 N6353 252A 31x0200.660 Obligate: \$146,157.00.00 Contractors DUNS: 107928806				10. REQUISITIONING OFFICE RES	
11. BUSINESS CLASSIFICATION (Check appropriate box(es))				12. F.O.B. POINT Destination	
<input type="checkbox"/> a. SMALL	<input checked="" type="checkbox"/> b. OTHER THAN SMALL	<input type="checkbox"/> c. DISADVANTAGED	<input type="checkbox"/> g. SERVICE-DISABLED VETERAN-OWNED		
<input type="checkbox"/> d. WOMEN-OWNED	<input type="checkbox"/> e. HUBZone	<input type="checkbox"/> f. EMERGING SMALL BUSINESS			
13. PLACE OF		14. GOVERNMENT B/L NO.	15. DELIVER TO F.O.B. POINT ON OR BEFORE (Date)	16. DISCOUNT TERMS	
a. INSPECTION	b. ACCEPTANCE		N/A	Net 30	

17. SCHEDULE (See reverse for Rejections)

See CONTINUATION Page

ITEM NO. (A)	SUPPLIES OR SERVICES (B)	QUANTITY ORDERED (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)	QUANTITY ACCEPTED (G)
	<p>Task Order No. 6 Entitled "UPDATE NUREG/CR-6728 and Regulatory Guides 1.37, 1.68, and 1.112"</p> <p>This confirms the verbal authorization provided to ISL on August 18, 2006 to begin work under the subject task order, effective August 18, 2006 with a temporary ceiling of \$40,000.00.</p> <p>In accordance with Section G.3 entitled "Task Order Procedures" of the subject contract, this order definitizes Task Order No. 6. This effort shall be performed in accordance with the enclosed Statement of Work.</p> <p>Task Order No. 6 shall be effective August 18, 2006 through March 31, 2007 with a total cost ceiling of \$146,157.00. The amount of \$137,761.00 represents the reimbursable costs the amount of \$8,396.00 represents the fixed fee.</p>					

18. SHIPPING POINT		19. GROSS SHIPPING WEIGHT		20. INVOICE NO.	
21. MAIL INVOICE TO:					
a. NAME U.S. Nuclear Regulatory Commission Payment Team, Mail Stop T-7-I-2					
b. STREET ADDRESS (or P.O. Box) Attn: (NRC-04-04-062-006)					
c. CITY Washington		d. STATE DC	e. ZIP CODE 20555		
22. UNITED STATES OF AMERICA BY (Signature) 				23. NAME (Typed) Donald A. King Contracting Officer TITLE: CONTRACTING/ORDERING OFFICER	

SEE BILLING INSTRUCTIONS ON REVERSE

17(h)  
TOTAL  
(Cont. pages)

17(i).  
GRAND TOTAL

\$146,157.00

TEMPLATE - ADM001

**SUNSI REVIEW COMPLETE**

ADM004

**ORDER FOR SUPPLIES OR SERVICES  
SCHEDULE - CONTINUATION**

PAGE NO.  
2

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

DATE OF ORDER	CONTRACT NO. NRC-04-04-062	ORDER NO. TASK ORDER 006
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ITEM NO. (A)	SUPPLIES OR SERVICES (B)	QUANTITY ORDERED (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)	QUANTITY ACCEPTED (G)
	<p>The issuance of this task order does not amend any other terms or conditions of the subject contract.</p> <p>Please indicate your acceptance of this Task Order No. 6. Accepted</p> <p>Name <u><i>Ann Newby</i></u></p> <p>Title <u>VP</u></p> <p>Date <u>9/14/06</u></p>					

TOTAL CARRIED FORWARD TO 1ST PAGE (ITEM 17(H))



**TASK ORDER TERMS AND CONDITIONS**

NOT SPECIFIED IN THE CONTRACT

**A.1 NRC Acquisition Clauses - (NRCAR) 48 CFR Ch. 20**

**A.2 Other Applicable Clauses**

See Addendum for the following in full text (if checked)

52.216-18, Ordering

52.216-19, Order Limitations

52.216-22, Indefinite Quantity

52.217-6, Option for Increased Quantity

52.217-7, Option for Increased Quantity Separately Priced Line Item

52.217-8, Option to Extend Services

52.217-9, Option to Extend the Term of the Contract

**A.3 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.

**United States Nuclear Regulatory Commission  
Office of Nuclear Regulatory Research  
Statement of Work**

**Task Order #6**

**TITLE: UPDATE NUREG/CR-6728 and Regulatory Guides 1.37, 1.68, and 1.112**

**I. INTRODUCTION**

NUREG/CR-6728, "Technical Basis for Revision of Regulatory Guidance on Design Ground Motions: Hazard- and Risk-consistent Ground Motion Spectra Guidelines," defines the recommended procedures for developing design ground motions in terms of databases (spectral shapes and time histories) and recommended methods of analysis (deaggregation and scaling of hazard results to achieve risk-consistency, scaling of spectral shapes, spectral matching, and soil dynamic analysis).

Using these procedures, the U.S. Nuclear Regulatory Commission (NRC) staff can calculate design ground motion spectra that reflect up-to-date spectral shapes, both for the Western United States (WUS) and Central and Eastern United States (CEUS). The motion spectra are approximately risk-consistent across frequency and for different seismic events. The staff can derive time histories of motion that is consistent with the spectral shapes for dynamic analysis and derive time histories for soil sites using a procedure consistent with that for rock sites. None of these features are available in current methods of developing design ground motions.

In addition, Regulatory Guides 1.37, "Quality Assurance Requirements for Cleaning of Fluid Systems and Associated Components of Water-Cooled Nuclear Power Plants," 1.68, "Initial Test Programs for Water Cooled Nuclear Power plants," and 1.112, "Calculation of Releases of Radioactive Materials in Gaseous and Liquid Effluents from Light-water Cooled Power Reactors," are to be updated.

**II. BACKGROUND**

The regulatory guidance for the determination of seismic design basis ground motion at nuclear power plant sites emphasizes the essential need for the design ground motion spectrum to be a broad-band, smooth spectrum that has adequate energy in all frequencies represented by a plant's structures, systems and components. For this and economic considerations, licensees generally have opted for nuclear power plants to be designed for a site-independent standard broad-band spectrum. Licensees have the option of following the recommendations in Regulatory Guide 1.60, "Design Response Spectra for Seismic Design of Nuclear Power Plants," scaled to a site-specific peak ground acceleration value and Regulatory Guide 1.165, "Identification and Characterization of Seismic Sources and Determination of Safe Shutdown Earthquake Ground Motion," which provides a hazard-consistent approach for determining the seismic design basis ground motion spectrum at a site.

Unfortunately, the staff identified several technical issues associated with the aforementioned Regulatory Guides that needed to be addressed:

The Regulatory Guide 1.60 spectrum was derived from a limited set of strong motion recordings primarily at deep alluvial sites in California, beyond 20 km from moderate to large magnitude earthquakes. The data set resulted in relatively high spectral amplification in the frequency range of interest. Studies indicate that the broad-band nature of the Regulatory Guide 1.60 spectral shape is generally incompatible with the softer soils.

In Regulatory Guide 1.165, several issues were not addressed: the spectral shapes to be used for dominant events are not documented, the ground motion time histories for use in dynamic analysis are not described, and the issue of soil response is not addressed in detail in terms of an acceptable procedure. Also, methods for modifying hazard-consistent spectra to achieve risk-consistent spectra are not addressed. These shortcomings were planned to be addressed in a planned revision of Regulatory Guide 1.60.

NUREG/CR-6728 was developed to address those issues, update the standardized design response spectra, assemble a database of strong motion records, provide recommendations for conducting site response analysis, for scaling of ground motion records, and derive seismic design spectra.

However, as a result of several recent WUS earthquakes, which form the technical basis for the revised NRC WUS shapes, the staff requests an update of the NUREG/CR-6728 ground motion database to incorporate the new earthquake data. Additionally for the CEUS, several new attenuation models have become available and are being used by the U.S. Geological Survey (USGS) in the National Hazard maps subsequent to NUREG/CR-6728. In view of the additional recent intermediate and large magnitude earthquakes, it is appropriate to update the time history library.

### III. OBJECTIVE

There are two objectives of this contract. The first objective is to update NUREG/CR-6728 to reflect the new earthquake data, and the time histories for the WUS and CEUS tectonic environments. The new earthquake data forms the basis for the spectral shapes, whereas, the time history library provides applicants and staff a suite of appropriate time histories for analyses of structures, systems, and components. The second objective is to make Regulatory Guides 1.37, 1.68, and 1.112 for use by advanced reactor applicants.

#### IV. WORK SCOPE

##### Task 1. Collect information —

- A. The contractor shall collect new time history recordings of the recent intermediate and large magnitude earthquakes. Work is currently ongoing elsewhere which needs to be completed before this work can start. Thus, this work is only to start upon receipt of authorization from the NRC Project Manager.
- B. The contractor is also to review propose revisions to Regulatory Guides 1.37, 1.68, and 1.112.

Estimated level of effort: 2 staff-months

##### Task 2. Update the spectral shapes over applicable magnitude and distance ranges — Utilizing the new time histories, the contractor shall update spectral shapes.

Estimated level of effort: 2.5 staff-months

##### Task 3. Populate time history database and document — The contractor shall develop a time history library based on recent intermediate and large magnitude earthquakes.

Estimated level of effort: 1 staff-month

##### Task 4. Proposed updated Regulatory Guides — The contractor is to provide proposed revisions to Regulatory Guides 1.37, 1.68, and 1.112 in the style and format of the current Regulatory Guides.

Estimated level of effort: 1 staff-months

##### Task 5. Support Meetings and Revise Regulatory Guides — Support ACRS/CRGR meetings and revise Regulatory Guides 1.37, 1.68, and 1.112, as needed.

Estimated level of effort: 0.5 staff-month

#### V. REPORTING REQUIREMENTS

The contractor shall prepare a NUREG/CR report for tasks 1A, 2, and 3, relating to the update of the NUREG/CR. The contractor shall prepare a letter report for each Regulatory Guide.

NRC staff review of report: To be completed within 3 weeks of receipt.

VI. DELIVERABLES AND DELIVERY SCHEDULE

The NUREG/CR report update should be submitted to the NRC Project Manager, Vaughn Thomas, six months after the contract has been awarded, with copies provided to the following:

Mark Cunningham, Division Director, Mail Stop T-10D20  
Sandra Nesmith, Management Analyst, Mail Stop T-10D20  
Deputy Division Director, Michele G. Evans, Mail Stop T-10D20  
Branch Chief, Anthony Hsia, Mail Stop T-10D20  
Division of Contracts, Office of Administration, T-7I2.

Draft Regulatory Guides 1.37, 1.68, and 1.112 should be submitted no later than September 28, 2006, and final Regulatory Guides no later than January 2, 2007, to the NRC Project Manager, John N. Ridgely, with copies provided to the following:

Farouk Eltawila, Division Director, Mail Stop T-10E33  
Janine Dehn, Program Analyst, Mail Stop T-10E50  
Deputy Division Director, John Monninger, Mail Stop T-10E50  
Branch Chief, Jimi Yerokun, Mail Stop T-10E50  
Division of Contracts, Office of Administration, T-7I2

VII. MEETINGS AND TRAVEL

The contractor project manager shall plan to meet with NRC staff approximately 4 times in 6 months to discuss with the NRC ongoing work and intermediate results. In addition, the contractor project manager should arrange frequent conference calls with the NRC.

VIII. PERIOD OF PERFORMANCE

This contract covers a period from August 18, 2006 through March 31, 2007.