

1. CONTRACT (Proc. Inst. Ident.) NO. NRC-03-80-143	2. EFFECTIVE DATE AUG 28 1980	3. REQUISITION/PURCHASE REQUEST/PROJECT NO. RFPA NRR-80-143	4. CLASSIFIED FOR NATIONAL DEFENSE UNDER DODS REG. 2 AND/OR DMS REG. 1. RATING.
5. ISSUED BY US Nuclear Regulatory Commission Division of Contracts, SPS Washington, DC 20555		6. ADMINISTERED BY (If other than block 5)	7. DELIVERY FOB DESTINATION <input type="checkbox"/> NATION <input type="checkbox"/> OTHER (See below)

8. CONTRACTOR NAME AND ADDRESS Dr. Enrique Luco Department of Applied Mathematics and Engineering Sciences 6210 Urey Hall University of California at San Diego La Jolla, CA 92037	9. DISCOUNT FOR PROMPT PAYMENT NA
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11. SHIP TO/MARK FOR US Nuclear Regulatory Commission ATTN: Dr. Robert Jackson NRR, Division of Engineering Washington, DC 20555	12. PAYMENT WILL BE MADE BY US Nuclear Regulatory Commission Office of the Controller Washington, DC 20555
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13. THIS PROCUREMENT WAS ADVERTISED, NEGOTIATED, PURSUANT TO:
 10 U.S.C. 2304 (a)(1) 41 U.S.C. 252 (c)(3)

14. ACCOUNTING AND APPROPRIATION DATA
 B&R No. 20-19-05-05 FIN No.: B-6898-0 Appropriation: 31X0200.200 - \$5,000.00

15. ITEM NO.	16. SUPPLIES/SERVICES	17. QUANTITY	18. UNIT	19. UNIT PRICE	20. AMOUNT
	Follow-on to Simulation of Earthquake Ground Motions for San Onofre Nuclear Generating Station				\$5,000.00

21. TOTAL AMOUNT OF CONTRACT \$ 5,000.00

CONTRACTING OFFICER WILL COMPLETE BLOCK 22 OR 26 AS APPLICABLE

22. <input checked="" type="checkbox"/> CONTRACTOR'S NEGOTIATED AGREEMENT (Contractor is required to sign this document and return 3 copies to issuing office.) Contractor agrees to furnish and deliver all items or perform all the services set forth or otherwise identified above and on any continuation sheets for the consideration stated herein. The rights and obligations of the parties to this contract shall be subject to and governed by the following documents: (a) this award/contract, (b) the solicitation, if any, and (c) such provisions, representations, certifications, and specifications, as are attached or incorporated by reference herein. (Attachments are listed herein.)	26. <input type="checkbox"/> AWARD (Contractor is not required to sign this document.) Your offer on Solicitation Number _____, including the additions or changes made by you which additions or changes are set forth in full above, is hereby accepted as to the items listed above and on any continuation sheets. This award consummates the contract which consists of the following documents: (a) the Government's solicitation and your offer, and (b) this award/contract. No further contractual document is necessary.
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23. NAME OF CONTRACTOR BY Juan Enrique Luco (Signature of person authorized to sign)	27. UNITED STATES OF AMERICA BY Joyce Perlman (Signature of Contracting Officer)		
24. NAME AND TITLE OF SIGNER (Type or print) JUAN ENRIQUE LUOCO	25. DATE SIGNED 8/22/80	28. NAME OF CONTRACTING OFFICER (Type or print) JOYCE PERLMAN	29. DATE SIGNED 8/27/80

ARTICLE I - BACKGROUND

In order to determine the proper level of earthquake ground motion (response spectrum) to be used in the seismic evaluation of the San Onofre Generating Station, Southern California Edison has carried out a series of state-of-the-art studies that numerically estimate this ground motion from a rupturing fault near the site. A panel reviewed these reports for the NRC and made recommendations as to their general validity and usefulness in specifying the appropriate ground motion. Subsequent to the writing of these reports, the October 1979 Imperial Valley Earthquake occurred and yielded the most extensive set of data yet recorded in the near field of a magnitude 6.5 to 7.0 event. Southern California Edison was asked to conduct a series of studies that would attempt to further validate their numerical model and ground motion estimates by testing this model with respect to the Imperial Valley data.

ARTICLE II - SCOPE OF WORK

Task 1. Review of Report

Review the applicant's study of the 1979 Imperial Valley Earthquake with respect to general validity, validity of assumed earthquake ground motion model, and impact upon previous evaluations of ground motion studies. Prepare and submit a technical evaluation of the study.

Task 2. Follow-on Review

Upon completion of Task 1, review and evaluate additional information submitted by the applicant in response to questions raised in the technical evaluation performed under Task 1. Prepare and submit technical evaluations of additional information submitted.

Task 3. Participation in Meetings and Hearings

Attend four meetings to discuss the specified ground motion level. Prepare necessary testimony or discussion material for these meetings. These meetings will be with the applicant, the NRC staff, and the Advisory Committee on Reactor Safeguards (ACRS). Participation in the Atomic Safety Licensing Board (ASLB) will be required to testify on related contentions.

ARTICLE III - PERIOD OF PERFORMANCE

The period of performance will commence on or before the effective date of this contract, and all effort shall be completed within fourteen months.

ARTICLE IV - CONSIDERATION

In full consideration of the Contractor's performance hereunder, the NRC shall pay the Contractor at the rate of \$182.00 per day, estimated to be twenty-five (25) mandays. The Contractor will be reimbursed an amount not to exceed \$1600.00

for all travel as described below, incurred directly and specifically in the performance of this contract, claimed by the Contractor and accepted by the Contracting Officer.

Domestic travel expenses incurred by the Contractor in direct performance provided such travel is necessary for the performance of this contract and not exceeding:

- a. Cost of air travel by most direct route. "Air Coach" or "Air Tourist" accommodations on prop or jet aircraft constitutes the normal class of air travel which shall be utilized. First-class accommodations may be used if (1) less than first-class is not available providing reservation was requested within 24 hours after the traveler had knowledge of the trip; (2) less than first-class requires circuitous routing, (3) less than first-class requires travel to begin or end at unreasonable hours (i.e., if scheduled flight time is before 8:00 AM and scheduled arrival is after 9:00 PM); (4) less than first class would result in additional direct costs which offset the transportation savings; or (5) less than first-class will not make connections with other flights or transportation for continuation of the journey which greatly increases the duration of the flight; or (6) less than first-class would offer accommodations which are not reasonably adequate for the physical or medical needs of the traveler.
- b. Cost of rail travel by most direct route; first-class with lower berth or nearest equivalent.
- c. Travel by motor vehicle including rented automobile shall be reimbursed on a reasonable actual expense basis, or at the Contractor's option on a mileage basis at a rate of 20¢ per mile plus any toll or ferry charges.
- d. Private vehicle mileage shall be reimbursed at 20¢ per mile.
- e. Per diem shall be reimbursed at a daily rate not to exceed \$50.00 per day.
- f. Receipts are required for common carrier transportation, lodging, and miscellaneous for any one item in excess of \$15.00.

ARTICLE V - OBLIGATIONS

The amount presently obligated by the NRC with respect to this contract is \$5,000.00. Additional funds in the amount of \$3,000.00 for the second fiscal year will be obligated, subject to the availability of funds, by a unilateral modification to the contract.

ARTICLE VI - PAYMENT

Payment shall be made in accordance with Clause 2 of the General Provisions entitled "Payment" as soon as practicable after completion of all the work and acceptance by the Project Officer of the final report, upon submission by the Contractor of voucher(s) in a form satisfactory to the Contracting Officer; provided, however, that said payment(s) shall not be deemed to

prejudice any rights which the Government may have by law or under other provisions of this contract. Partial payments are authorized upon completion of each Task and acceptance by the Project Officer.

ARTICLE VII - REPORTING REQUIREMENTS

Upon completion of Tasks 1 and 2, the Contractor will submit his technical evaluations in letter report form to Dr. Leon Reiter, Division of Engineering, Nuclear Reactor Regulation, NRC, with copies to Dr. Robert Jackson and Mr. James P. Knight, also of the Division of Engineering, Nuclear Reactor Regulation, NRC.

ARTICLE VIII - GOVERNMENT-FURNISHED MATERIALS

A copy of the applicant's study will be provided under separate cover.

ARTICLE IX - SPECIAL PROVISIONS

IX.1 PROJECT OFFICER

Performance of the work hereunder shall be subject to the technical instructions issued by the US Nuclear Regulatory Commission. The technical instructions shall be signed by the Project Officer.

The Project Officer is responsible for:

1. monitoring the Contractor's technical progress, including the surveillance and assessment of performance and recommending to the Contracting Officer changes in requirement;
2. interpreting the statement of work;
3. performing technical evaluation as required;
4. performing the technical inspections and acceptances required by this contract; and
5. assisting the Contractor in the resolution of technical problems encountered during performance.

Within the purview of this authority, the Project Officer is authorized to approve payment vouchers for supplies/services required under the contract. The Contracting Officer is responsible for directing or negotiating any changes in terms, conditions, or amounts cited in the contract.

For guidance from the Project Officer to the Contractor to be valid, it must:

1. be consistent with the description of work set forth in this contract;
2. not constitute new assignment of work or change of the expressed terms, conditions, or specifications incorporated into this contract;

3. not constitute a basis for an extension to the period of performance or contract delivery schedule; and
4. not constitute a basis for any increase in the contract price.

If the Contractor receives guidance from the Project Officer which the Contractor feels is not valid under the criteria cited above, the Contractor shall immediately notify the Project Officer. If the Project Officer and the Contractor are not able to resolve the questions within five days, the Contractor shall notify the Contracting Officer.

IX.2 INSPECTION AND ACCEPTANCE

Acceptance of the services and reports to be delivered herein will be made by the Project Officer.

IX.3 DISSEMINATION OF CONTRACT INFORMATION

The Contractor shall not publish, permit to be published, or distribute for public consumption any information, oral or written, concerning the results or conclusions made pursuant to the performance of this contract without the prior written consent of the Contracting Officer. (Two copies of any material proposed to be published or distributed shall be submitted to the Contracting Officer.)

ARTICLE X - GENERAL PROVISIONS

The contract is subject to the Fixed Price Research and Development Contracts under \$10,000.00, dated November 14, 1977, which incorporates the FPR Changes and Additions and NRC Additions, attached hereto and made a part hereof.

Clause 14 entitled "Patent Rights" is deleted in its entirety.