



UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

DCD

MAY 6 1994

Energy Research, Inc.
ATTN: Mohsen Khatib-Rahbar
P.O. Box 2034
Rockville, MD 20847

Dear Mr. Khatib Rahbar:

SUBJECT: TASK ORDER NO. 2, ENTITLED "INDIVIDUAL PLANT EXAMINATION OF EXTERNAL EVENTS (IPEEE) SEISMIC SCOPE REVISIT" UNDER CONTRACT NO. NRC-04-94-050

In accordance with Section G.4(c) of the subject contract, entitled "Task Order Procedures," this letter definitizes the subject task order. This effort shall be performed in accordance with the enclosed Statement of Work and the Contractor's proposal dated April 22, 1994. A verbal was given, by Jeanne Cucura of my staff, to commence work on May 2, 1994.

Task Order No. 2 shall be in effect from May 2, 1994 through November 2, 1994, with a cost ceiling of \$78,083.54. The amount of \$75,080.33 represents the total estimated reimbursable costs, the amount of \$3,003.21 represents the fixed fee.

The accounting data for the subject task order is as follows:

B&R No.:	460-19-20-23-00
Job Code No.:	L-2194
Appropriation No.:	31X0200.460
BOC No.:	252A
Obligated Amount:	\$78,083.54
RES Unique Identifier:	RES-C94-123

The following individual is considered to be essential to the successful performance of the work hereunder: Dr. R. Sewell, Dr. R. Budnitz, Dr. M. Khatib-Rahbar and Mr. A. Kuritzky.

The Contractor agrees that such personnel shall not be removed from the effort under the task order without compliance with Contract Clause H.1, Key Personnel.

Your contacts during the course of this task order are:

Technical Matters:	John T. Chen Project Officer (301) 492-3919
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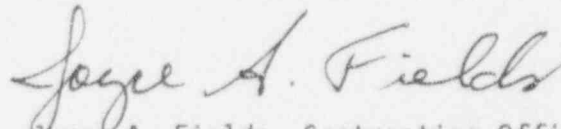
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Contractual Matters: Jeanne Cucura
Contract Administrator
(301) 492-8296

The issuance of this task order does not amend any terms or conditions of the subject contract.

Please indicate your acceptance of this task order by having an official, authorized to bind your organization, execute three (3) copies of this document in the space provided and return two (2) copies to the U.S. Nuclear Regulatory Commission, ATTN: Jeanne Cucura, Division of Contracts and Property Management, P-902, ADM/DCPM/CAB3, Washington, D.C. 20555. You should retain the third copy for your records.

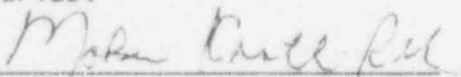
Sincerely,



Joyce A. Fields, Contracting Officer
Contract Administration Branch No. 3
Division of Contracts and
Property Management
Office of Administration

Enclosure:
As stated

ACCEPTED:


Name Mohsen Khatib-Rahbar
President

Title _____

May 16, 1994
Date _____

STATEMENT OF WORK
TASK ORDER - ERI - 2
OFFICE OF NUCLEAR REGULATORY RESEARCH
DIVISION OF SAFETY ISSUE RESOLUTION

TITLE: INDIVIDUAL PLANT EXAMINATION OF
EXTERNAL EVENTS (IPEEE) SEISMIC SCOPE REVISIT

FIN NO: NRC-04-94-050

A. Background

Because of the large inherent uncertainties in the probabilistic estimation of seismic hazard, the staff has consistently used relative hazard as a means of making decisions for nuclear power plants. In keeping with this principle the staff developed a relative grouping approach to define the scope (i.e., full, focused or reduced) and level (i.e., seismic PRA, 0.5g or 0.3g) of seismic examination for the seismic IPEEE. According to the relative grouping, plants which consistently fell into the top high hazard group using different hazard estimates (LLNL 5, LLNL 4, and EPRI) and different statistical measures (mean, median, and 85%) were placed into the full-scope category. Similarly, plants which consistently fell into the low hazard group (using the same statistical measures) were placed into the reduced-scope program. The remaining plants were assigned to the focused-scope category. Finally, a seismological review was made to assure that grouping was consistent with our tectonic knowledge.

The new 1993 LLNL hazard results are considerably lower than the '89 results and the mean results are within a factor of 2 to 3 of the EPRI mean results. However, LLNL and EPRI results indicate different hazard curve slope characteristics at higher levels for some sites. As a result, the Nuclear Energy Institute (NEI) has developed an industry "white paper". As we understand, this paper is to provide an acceptable seismic hazard level definition in an "absolute" or "threshold" sense to support licensees in any requests for changing their IPEEE seismic program.

The staff has initiated studies of rebinning the plant using 1993 LLNL hazard results. The preliminary results indicates that "rebinning" the plants in a relative sense (using the original method), including the use of the 1993 LLNL hazard estimates, may not change the original binning results. An alternate scheme, considering various absolute criterion, is also being pursued for plant rebinning. The alternate scheme will need to account for the inherent

uncertainties in the seismic hazard and the differences in how the different initiators are quantified. The staff will evaluate the alternate binning criteria to determine if restructuring of the IPEEE seismic scope in various categories to meet the IPEEE objectives is warranted. The contractor assistance will be used to review past and recent PRAs to examine the sensitivity of the probability of core damage given a level of seismic hazard probability, to develop the basis for the alternate criteria and also to provide a peer review. A draft position with the technical basis and discussion on how the revised program still fulfills the original objectives will be prepared and issued for public comment. As part of the public comment process, a workshop will be organized to discuss the proposed approach. The final position will be developed after the public comments are received and resolved.

B. OBJECTIVE

The objective of this task is to obtain technical support: (1) to determine the impact of the new LLNL seismic hazard curves on the scope of the seismic IPEEE program, (2) if it is feasible to develop an alternate set of criteria for regrouping plants into various categories, and (3) to develop and exercise the regrouping criteria. The objectives of the IPEEE, as stated in the Generic Letter 88-20, Supplement 4, remain the same and should not be altered. These objectives are for each licensee to develop an appreciation of severe accident behavior, to understand the most likely severe accident sequences, to identify plant-specific vulnerabilities, and if necessary, to reduce the overall likelihood of core damage with cost-effective improvements.

C. WORK REQUIREMENTS AND SCHEDULE

Under this task contract, the contractor shall perform the following:

Subtask 1 Review Relevant Seismic IPEEE Information (Revisit Seismic IPEEE Binning) and NUREG-1488 (May 16, 1994)

The contractor shall review the new LLNL seismic hazard curves (NUREG/CR-1488), available seismic PRAs, and the NEI developed "white paper" to examine the sensitivity of the probability of core damage given a level of seismic hazard probability, to develop the basis for the alternate binning criteria.

Subtask 2 NRC Meeting (May 17, 1994)

The contractor shall attend a meeting to be held in May 1994 at the NRC's Rockville office to discuss the NEI's "white paper" and the alternate binning criteria to be evaluated for this project.

Subtask 3 Reporting Criterion Development (June 14, 1994)

The contractor shall: (1) evaluate the feasibility of alternate schemes (considering various options) for plant binning for the seismic margins approach, and (2) develop the criteria for the recommended scheme (per NRC staff approval). The feasibility should determine if an option of using only a single set of seismic hazard curves for seismic PRA is sufficient. In

In addition, the feasibility should consider an option of using an "absolute" hazard criterion taking into account inherent uncertainties in the seismic hazard and the differences in how the different initiators are quantified. The staff will evaluate these alternate criteria to determine if restructuring of the IPEEE seismic scope in various categories is warranted. I.e., the IPEEE objectives will be met with new criterion.

Subtask 4 Initial Draft Position (June 28, 1994)

The contractor shall prepare a technical basis paper and discussion on how the revised program will fulfill the IPEEE objectives. The staff will issue the revised position for public comment.

Subtask 5 Workshop (TBD)

As part of the public comment process, a public workshop will be organized to discuss the proposed approach. The contractor shall attend the workshop to assist the NRC in addressing the public comments. The contractor shall also review the resolutions to public comments (both written responses received and comments obtained at the workshop), as appropriate after the workshop, for the staff use in developing the final position on seismic IPEEE.

D. REPORT REQUIREMENTS

Technical Reports

The contractor will submit to the NRC technical monitor two copies of the Draft Technical Report six weeks after the initiation of this contract. Copies will include one hard copy and one 3.5" computer diskette version using Wordperfect 5.1. The draft report shall summarize all findings, results, and conclusions in the areas examined.

Two weeks after the public workshop, the contractor will submit to the NRC technical monitor two copies of the review of the comment-resolution reports. Copies will include one hard copy and one computer diskette version (Wordperfect 5.1) to be given to the NRC technical monitor.

Business Letter Report

The contractor shall provide monthly progress reports in accordance with the requirements of the basic contract.

E. Meetings and Travel

Two trips are required and authorized for each member of the evaluation team (up to four members). One is to NRC Headquarters to present and discuss the review findings, and the other is to attend the public workshop to assist NRC addressing the public comments.

F. ESTIMATED LEVEL OF EFFORT

For this task, the estimated level of effort is listed below:

- Subtask 1 - 140 contractor hours
- Subtask 2 - 80 contractor hours
- Subtask 3 - 80 contractor hours
- Subtask 4 - 80 contractor hours
- Subtask 5 - 80 contractor hours

It shall be the responsibility of the contractor to assign technical staff employees, and subcontractors who have the required educational background, experience, or combination thereof, to meet both the technical and regulatory objectives of the work specified in this SOW. The NRC will rely on representation made by the contractor concerning the qualifications of the personnel proposed for assignment to this task order including assurance that all information contained in the technical and cost proposals, including resumes and conflict qualifications of the personnel proposed for assignment to this task order including assurance that all information contained in the technical and cost proposals, including resumes and conflict of interest disclosures, is accurate and truthful.

G. NRC FURNISHED MATERIAL

- 1. NUREG-1488
- 2. NEI "White Paper"

H. Technical Direction:

The NRC Project Manager is:

John T. Chen
 Severe Accident Issues Branch
 Division of Safety Issue Resolution
 USNRC, Mail Stop NLS 324
 Washington, D. C. 20555

H. Period of Performance

The period of performance shall be in effect from May 2, 1994 through November 2, 1994.