



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

National Bureau of Standards
Structures Division
Building 226, Room B146
Washington, DC 20324
ATTN: Dr. Emil Simiu

Subject: Interagency Agreement No. NRC-03-82-133 Entitled, "Review of Probabilistic Risk Assessments of Tornado Missile Damage"

Dear Mr. Simiu:

Pursuant to the Economy Act of 1932, as amended by 31 U.S.C. 686, the U.S. Nuclear Regulatory Commission (NRC) desires to enter into an agreement whereby the National Bureau of Standards (NBS) would provide services for the project entitled, "Review of Probabilistic Risk Assessments of Tornado Missile Damage."

Accordingly, the parties hereto mutually agree to the following terms of this agreement:

Article I - Statement of Work

The National Bureau of Standards will provide services to the Nuclear Regulatory Commission as set forth in Attachment 1, Statement of Work.

Article II - Period of Performance and Level of Effort

The agreement shall become effective on the date of acceptance by the National Bureau of Standards and shall continue for seven (7) months thereafter. The estimated level of effort is .4 staff years, over the seven (7) month period.

Article III - Estimate of Cost and Obligation of Funds

- A. The estimated cost to NRC of the work to be performed under this agreement is \$55,000.00.
- B. The amount presently obligated by the NRC for the performance of work under this agreement is \$30,000.00 chargeable to the following accounting data:

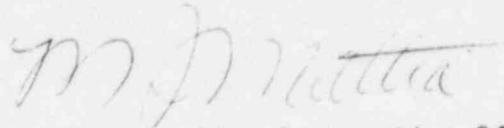
B&R No.: 20-19-40-41-3
FIN No.: B8624

- C. Additional obligations to cover the remainder of costs will be provided through unilateral modifications to this agreement by the NRC Contracting Officer, subject to the availability of FY 1983 funds.

Article IV - Technical Direction and Authorized Representatives

The Project Officer for this requirement is Mr. Jared Wermiel (telephone: 301/492-9468). All technical instructions to the contractor shall be issued through the Project Officer. As used herein, technical instructions are instructions to the contractor which provide details, suggest possible lines of inquiry, or otherwise complete the general scope of work set forth herein. Technical instructions shall not constitute new assignments of work or changes of such a nature as to justify an adjustment in cost or performance schedule.

Sincerely,

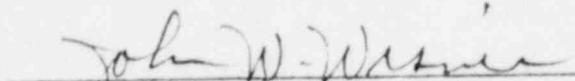


Mary Jo Mattia, Contracting Officer
U.S. Nuclear Regulatory Commission

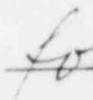
ACCEPTED:

NATIONAL BUREAU OF STANDARDS

BY:


(Signature)

David B. Shreve, Comptroller


(Typed Name)

TITLE: _____

DATE: _____

8-31-82

ATTACHMENT 1

CONTRACT FOR REVIEW OF TORNADO
MISSILE PROBABILISTIC RISK ASSESSMENTS

I. BACKGROUND

Two applicants (Arizona Public Service (APS) and Consumers Power (CP) have used probabilistic risk assessments (PRA) concerning tornado missile damage that might occur to certain essential plant components. The complexity of these studies requires assistance from outside experts to review the licensee submittals and provide a basis for the staff to resolve items affecting the Palo Verde and Midland licensing reviews. While this contract involves an evaluation of the APS risk assessment specific to the Palo Verde Plant, the contractor is also being requested to review the risk assessment model developed by EPRI as CP will utilize the EPRI model for Midland.

II. OBJECTIVE

To review the licensee submissions and provide an independent assessment of the models and methodology used by the licensee, and the results obtained.

III. SCOPE OF WORK, TASKS

COMPLETION DATE

A. The contractor shall review the document entitled, "Palo Verde Nuclear Generating Station, Probabilistic Risk Assessment of Tornado Missile Damage to the Station Ultimate Heat Sink, Bechtel Study Number 13-NS-108." The contractor shall prepare an evaluation of the validity and conservatism of the mathematical approach, assumptions and data employed in assessing the probability of tornado damage to the spray pond components. Include an assessment of the correctness of the results obtained.

3 months after
contract award

B. The contractor shall review the document entitled, "Tornado Missile Simulation and Design Methodology, EPRI NP-2005." The contractor shall prepare an evaluation of the validity and assumptions of the mathematical approach and provide an assessment of the applicability of this model for use in assessing tornado missile effects. Compare this approach with that used by the Palo Verde applicant (Task A above) and provide comments on the critical comparison of the two approaches. Also provide recommendations on the best aspects of the two approaches.

7 months after
contract award

IV. REPORT REQUIREMENTS, TECHNICAL EVALUATION REPORT

The contractor shall prepare a Technical Evaluation Report (TER) describing the results of the review of the above documents. Ten copies of each TER should be provided to the NRC Project Officer with copies to R. Abbey, Office of Nuclear Regulatory Research.

V. BUSINESS LETTER REPORTS

A monthly business letter report will be submitted by the 15th of the month and after completion of each task to the Project Officer with copies provided to the Contracting Officer, the Director, Division of Systems Integration, ATTN: S. Boyd and L. Rubenstein, DSI, and Mr. B. L. Grenier, NRR. These reports will identify the title of the project, the FIN, the contract number, the Principal Investigator, the period of performance, and the reporting period and will contain 2 sections as follows:

PROJECT STATUS SECTION

1. A listing of the efforts completed during the period; milestones reached, or if missed, an explanation provided.
2. Any problems or delays encountered or anticipated and recommendations for resolution.^{1/}
3. A summary of progress to date.
4. Plans for the next reporting period.

FINANCIAL STATUS SECTION

1. Provide the total cost (value) of the Tasks as stated in the contract and the total amount of funds obligated to date.
2. Provide the total amount of funds expended (costed) during the period and cumulative to date as follows:

	<u>PERIOD</u>	<u>CUMULATIVE</u>
a. Direct labor		
b. Overhead		

^{1/} If the recommended resolution involves a contract modification, e.g., change in work requirements, level of effort (costs), or period of performance, a separate letter should be prepared and submitted to the Contracting Officer, DC, with copies provided to the Director, Division of Systems Integration, ATTN: S. Boyd and B. L. Grenier, NRR.

PERIOD

CUMULATIVE

- c. ADP Support
- d. Travel
- e. Subcontracts
- f. Equipment and Materials

TOTAL

(%)2/3/

3. Provide the total amount of funds expended during the period (costed) and cumulative to date for each task, i.e., each plant.

VI. MEETINGS AND TRAVEL

Frequency of meetings will be mutually determined after discussion with the National Bureau of Standards. Some local travel is anticipated between Gaithersburg and Bethesda, Maryland.

VII. Provision for Additional Work

Upon completion of the work described above, if it is determined that there is a requirement for additional effort, this agreement may be modified by mutual agreement of the parties as to the scope, resources, and period of performance of such additional work.

VIII. LEVEL OF EFFORT AND PERIOD OF PERFORMANCE

The level of effort is estimated at .4 staff-years over a seven-month period.

IX. NRC FURNISHED MATERIALS

The documents identified in the work requirements will be furnished upon project initiation.

X. KEY PERSONNEL

Because of previous experience with NRC projects and his technical expertise on tornado missile probabilities and damage, it is required that Dr. Emil Simiu be the principal investigator.

2/ Provide percentage against total funds obligated to date.

3/ Cost of licensing nuclear power must be kept by NRC under the Licensee Fee Program for the purpose of billing the utility for processing the application.

Attachment 2

Billing Instructions for NRC/NBS
Interagency Agreement

1. In order for NBS to receive advance payment of FY 1982 funds in the amount of \$30,000.00, NBS shall forward a completed Standard Form 1081 in an original and four (4) copies to the following address:

U.S. Nuclear Regulatory Commission
Office of Resource Management
Division of Accounting and Finance
ATTN: GOV/COM ACCOUNTS
Washington, DC 20555

2. Two (2) additional copies of Standard Form 1081 shall be submitted simultaneously with the above copies to the following address:

U.S. Nuclear Regulatory Commission
ATTN: E.L. Halman, Director
Division of Contracts
Washington, DC 20555

3. FY 1982 funds transferred to NBS pursuant to paragraph 1 above, shall be brought forward and carried over to FY 1983 for purposes of continuing work under this agreement.
4. In order for NBS to receive advance payment of FY 1983 funds in the amount of \$25,000.00, NBS shall forward a completed Standard Form 1081 as indicated in Paragraphs 1 and 2 above upon the receipt of a unilaterally issued modification by the NRC providing the additional funds to complete the project.
5. Any questions of a financial nature should be directed to Ms. Cindy Fleenor, Contract Administrator, (301) 492-4294.