



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

SEP 21 1979

George Robertson, Colonel
Corps of Engineers
U.S. Department of the Army
Executive Director of Civil Works
DAEN-CWE-S
Washington, DC 20314

Gentlemen:

Subject: Interagency Agreement No. NRC-03-79-167

Pursuant to the authority contained in the Economy Act of 1932, as amended, 31 USC 686, the U.S. Nuclear Regulatory Commission (NRC) and the U.S. Army Corps of Engineers (Corps) desire to enter into a cooperative agreement whereby the Corps will assist the NRC in the review and evaluation of PSAR's and FSAR's submitted by utilities.

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

I. Period of Performance

The period of performance is September 24, 1979 through March 31, 1981.

II. Statement of Work

Work performed under this Agreement shall be in accordance with Attachment I which is attached and made a part hereof.

III. Estimate of Cost

The estimated cost of the effort described in paragraph II above is \$300,000.00. The Corps shall provide within 30 days of the date of this agreement, a detailed cost estimate for the work described in Article II, above, which may result in a reduction in the total estimated cost of the agreement.

IV. Obligation of Funds

The amount presently obligated hereunder for the effort described is \$44,000 chargeable to the following B&R and FIN No.:

B&R: 20-19-01-04-1 FIN: B-6826

Additional obligations to cover the remainder of costs will be provided through unilateral modification to this agreement, subject to the availability of funds, until such obligations equal the estimated cost in III. above.

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V. Billing Instructions

The Corps, to receive reimbursement for costs incurred, shall submit invoices in accordance with Attachment II, Billing Instructions which is attached and made a part hereof.

VI. Advance Notification

Whenever the Corps has reason to believe that the total cost of the work under this agreement will be substantially greater or less than the presently estimated cost of the work or whenever the Corps expects to incur costs in excess of the funds presently obligated, the Corps shall promptly notify NRC in writing. When the costs incurred equal 100% of such estimated total costs, the Corps shall not incur costs in excess of the estimated cost.

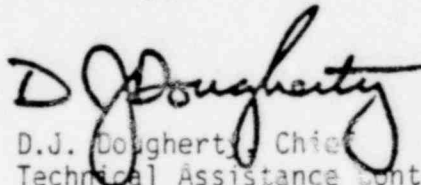
VII. NRC Contacts

Technical Contact: The NRC technical contact for the work hereunder is Dr. Robert Jackson, Division of Systems Safety, telephone number (301) 492-7972.

Contracts Contact: The NRC contact is Mr. William B. Menczer, telephone number (301) 427-4480.

If this agreement is acceptable to the Corps, please so indicate by signing in the space below and returning three (3) copies to me. The fourth signed copy is for your records.

Sincerely,

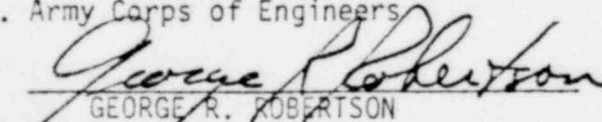


D.J. Dougherty, Chief
Technical Assistance Contracts Branch
Division of Contracts
Office of Administration

ACCEPTED: Subject to insertion of the following words in second sentence of Section III after "estimate" add "and manpower requirements,"

U.S. Army Corps of Engineers

BY:



GEORGE R. ROBERTSON

TITLE: Executive Director of Civil Works

DATE: 25 SEP 79

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STATEMENT OF WORK

TITLE: Geotechnical Engineering Case Reviews

FIN: B-6826

B&R NUMBER: FY-79 20-19 01-04-1; FY-80 20-19-05-05

TECHNICAL MONITOR: See Task Level Statement

COGNIZANT BRANCH CHIEF: R. E. Jackson (FTS 492-7972)

Background Information

Applicants seeking to construct and operate a nuclear power plant must submit to NRC for review and evaluation documentation consisting of a Preliminary Safety Analysis Report (PSAR), and a Final Safety Analysis Report (FSAR).

The safety review and evaluation process is conducted in two phases (1) at the PSAR stage the applicant described his design approach. On completion of the review, evaluation and approval of the PSAR, the applicant receives a Construction Permit (CP) which enables him to start plant construction; (2) at the FSAR stage, the applicant describes in detail the implementation of the design for safe plant shutdown under all conditions of operation including design basis earthquake, and how these systems meet the NRC criteria. On completion of the FSAR review, evaluation and approval the applicant receives an Operating License (OL) for commercial plant operation.

The information submitted in the PSAR and FSAR should be adequate to allow the reviewer to conduct an independent assessment of the safety to the Geotechnical Engineering features of the plant.

Objective

The objective of this Interagency Agreement is to obtain the service of expert technical personnel from the Corps of Engineers to assist the Geotechnical Engineering Section in their areas of responsibility in the review and evaluation of PSAR's and FSAR's submitted by utilities for a CP or OL.

General Requirements

The reviews are to be conducted using the guidance contained in NRC Regulatory Guides, Industry Standards and guidance and acceptance criteria in the Standard Review Plans (SRP) in the areas of geotechnical responsibility. The contractor will generally follow the approach outlined below in conducting reviews and evaluations:

- Recommend requests for additional information or clarification based upon initial review and evaluation of the information provided by the applicants.
- Evaluation of the responses provided by the applicants.
- Attendance at meetings with the staff, applicants and architect-engineers to discuss and resolve outstanding issues, and audit the implementation of applicant commitments.

- Preparation of a Safety Evaluation Report (SER) input which describes the evaluation of the design of the applicants' safety related (and some non-safety related) systems.
- Attend meetings with the Advisory Committee on Reactor Safeguards (ACRS) and public hearings to assist the staff in explaining bases for conclusions and positions reached in the SER.
- Preparation of input to SER Supplements which further clarify and document systems evaluations in the SER based upon review by the ACRS.

The geotechnical engineering aspects of proposed nuclear plant facilities to be evaluated generally include the stability and settlement of safety related structures, emergency cooling water reservoirs, appurtenant, safety-related structures such as earth embankments and rock fill dams, canals, weirs, intake and discharge structures, and pipelines, under both static and dynamic conditions, including the subjection of dams, etc., to the Safe Shutdown and Operating Basis Earthquakes. The evaluation typically consists of:

1. A review of the site investigation program, both field and laboratory, to assure that an adequate determination of all subsurface conditions has been achieved including consideration of borrow sources. This may require recommendations for additional investigations to obtain the required data;
2. Evaluations and recommendations pertaining to the proposed design criteria;
3. A review of the stability and settlement analysis performed by the applicant and, in many cases, the performance of independent stability analysis. A determination that the applicant has presented adequate bases to support the design parameters used in his analysis;
4. An evaluation of stabilization techniques proposed by applicants to solve site foundation problems. In many cases, the contractor will be asked to provide recommendations for stabilization;
5. In regard to most cases, field trips by contractor personnel will be necessary to inspect the site, to observe sampling and testing of soil and rock, and to evaluate the adequacy of techniques and equipment.

Specific Work Requirements

Task 1 - Midland Plant Units 1 and 2

Technical Monitor: J. Kane

Estimated Manpower: 3 Man-years

The contractor shall review the FSAR (with amendments and documents related to the 10 CFR 50.54 (f) request regarding plant fill which have been submitted to NRC on the subject plant for the purpose of obtaining an OL.

This review shall include an evaluation of all the information included in Section 2.5, 3.7 and 3.8 of the FSAR and 10 CFR 50.54 (f) documents which address the adequacy of soil and rock mechanics, earthquake engineering and foundation engineering design and construction aspects in order to assure the safe siting and operation of all seismic category safety-related structures and conduits. The review should be conducted in accordance with NRC Standard Review Plans Sections 2.5.1, 2.5.2 and 2.5.4. Specific guidance on design methods which are acceptable to the NRC staff that have been made available to applicants in their designs include Regulatory Guides 1.132, 1.138 and 1.70 (Section 2.5).

<u>Subtasks</u>	<u>Estimated Completion Date</u>
1. Review and evaluate the information contained in the above NRC 10 CFR 50.54 (f) documents regarding plant fill in accordance with acceptance criteria outlined in the related Standard Review Plans. Meet with the NRC staff and applicant as required. Make site visits to observe remedial methods and procedures. Prepare a letter report identifying any unresolved issues with recommendations on a course of action to be taken during construction to resolve these issues.	12/79
2. Review and evaluate the information contained in the above FSAR Sections in accordance with acceptance criteria outlined in the related Standard Review Plans. Meet with the NRC staff as required, prepare a draft SER identifying any unresolved issues. Participate in approximately ten meetings with the applicant and the NRC staff to resolve the issues identified in the above draft SER.	1/80
3. Prepare a final SER. This SER may contain open issues or describe areas in which the contractor and staff continue to differ with an applicant.	3/80
4. Participate at a maximum of six ACRS meetings, prepare testimony for and appear at Licensing Board Hearings as required.	6/80
5. Review and evaluate any unresolved or open issues identified in the SER, or issues raised at ACRS meetings and in hearings. Participate in a maximum of five meetings with the applicant and the NRC staff to resolve any outstanding issues. Prepare inputs to SER supplements and Technical Specifications to complete the resolution of all outstanding issues, as required.	8/80

Specific Work Requirements

Task 2 - Bailly Generating Station - Nuclear 1

Technical Monitor: L. Heller

Estimated Required Manpower: 1 Man-year

The contractor shall review the FSAR with amendments and documents related to the pile foundations which have been submitted to the NRC on the subject plant for the purpose of obtaining an OL.

This review shall include an evaluation of all the information included in Section 2.5, 2.7 and 3.8 of the FSAR which address the adequacy of soil and rock mechanics, earthquake engineering and foundation engineering design and construction aspects in order to assure the safe siting and operation of all seismic Category I safety-related structures and conduits. The review should be conducted in accordance with NRC Standard Review Plans Sections 2.5.1, 2.5.2 and 2.5.4. Specific guidance on design methods which are acceptable to the NRC staff that have been made available to applicants in their designs include Regulatory Guides 1.132, 1.138 and 1.70 (Section 2.5).

<u>Subtasks</u>	<u>Estimated Completion Date</u>
1. Review and evaluate the information contained in the documents regarding plant pile foundation in accordance with acceptance criteria outlined in the related Standard Review Plans. Meet with the NRC staff, NRC consultants and applicant as required. Prepare a letter report identifying any unresolved issues with recommendations on a course of action to be taken during construction to resolve these issues.	12/79
2. Review and evaluate the information contained in the above FSAR Sections in accordance with acceptance criteria outlined in the related Standard Review Plans. Meet with the NRC staff as required, prepare a draft SER identifying any unresolved issues. Participate in approximately six meetings with the applicant and the NRC staff to resolve the issues identified in the above draft SER.	3/80
3. Prepare a final SER. This SER may contain open issues or describe areas in which the contractor and staff continue to differ with an applicant.	5/80
4. Participate at a maximum of five ACRS meetings, prepare testimony for and appear at Licensing Board Hearings as required.	6/80
5. Review and evaluate any unresolved or open issues identified in the SER, or issues raised at ACRS meetings and in hearings. Participate in a maximum of five meetings with the	9/80

applicant and the NRC staff to resolve any outstanding issues. Prepare inputs to SER supplements and technical specifications to complete the resolution of all outstanding issues, as required.

Reporting Requirements

1. Upon a completion of each subtask of each task the contractor will provide the cognizant NRC branch chief with a letter report which includes, as appropriate, safety evaluation report input testimony and supplemental safety report input.
2. A bi-monthly business letter report shall be submitted by the 20th of the month to the cognizant branch chief with a copy to the Director, Division of Systems Safety (Attn: B. L. Grenier). These reports will contain:
 - A listing of any efforts completed during the period; milestones reached, or if missed, an explanation provided;
 - The amount of funds expended during the period and cumulative to date;
 - Any problems or delays encountered or anticipated;
 - A summary of the progress to date;
 - Plans for the next reporting period;
 - The first bi-monthly letter report should contain the planned monthly rate of expenditure based upon review schedule established.

Note: These reports are not to be technical in nature.

Meetings and Travel

The contractor will attend approximately 10 meetings with the staff and applicants or with ACRS over the period of performance in Bethesda or Washington, D.C. and approximately 10 at each of the plant sites, A/E, or utility offices. These meetings will usually be of one or two days duration, however, on-site review meetings and observation of practices may extend over a longer period.

NRC Furnished Materials

Documents needed for review will be forwarded to the contractor under separate cover. Some of this material may contain propriety information, as marked, and must be kept in confidence by the contractor.

Billing Requirements

Vouchers submitted for payment should list expenditures for manpower and any other major items of expenditures for each task, i.e., for each separate plant.