



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

May 29, 1979

Gentlemen:

Subject: Request for Proposal (RFP) No. RS-NRR-79-118 Entitled, "Review and Evaluation of Approximately 500 Pending Operating Reactors Licensing Actions"

You are invited to submit to the U.S. Nuclear Regulatory Commission (NRC) a proposal to provide support services as described herein.

This effort will involve a review of licensee submittals, comparative evaluations relative to established regulatory guidelines, documentation of conclusions reached including the bases for the conclusions or additional information, and definition of additional information needed to complete the action.

The period of performance for completion of the effort will be twelve (12) months, plus two one-year options, commencing on the date of contract award. It is anticipated that a cost-plus-award-fee (level of effort) contract will result from this solicitation; however, the Government reserves the right to negotiate and award whatever type of contract is determined to be most appropriate. One contract is expected to be awarded as a result of this RFP.

Please review the RFP and if you elect to submit a proposal, ten (10) copies each of the technical proposal and the cost proposal must be received at the address set forth below, no later than 3:30 p.m. (local time), July 14, 1979:

U.S. Nuclear Regulatory Commission
ATTN: Mr. A. F. Glagola
Division of Contracts
Washington, DC 20555
RFP No. RS-NRR-79-118
Closes 3:30 p.m.--July 14, 1979
MAIL ROOM--DO NOT OPEN

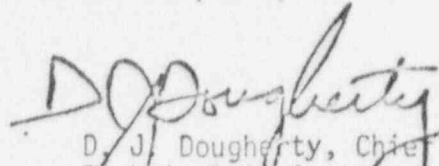
Hand carried proposals should be addressed as indicated above and delivered by the date and time indicated above to 7915 Eastern Avenue, Room 376, Silver Spring, (Montgomery County) Maryland 20910. (Do not deliver proposal to building security guards.)

Your particular attention is invited to Part II, page 14, paragraph C, which sets forth special qualifications to be eligible for award.

8106190342

2

If you have any questions concerning the requirements of this solicitation, they should be addressed to Mr. A. F. Glagola, Contract Specialist, at (301) 427-4480. (Collect calls will not be accepted.)



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

Enclosure: RFP No. RS-NRR-79-118 (1 copy)

REQUEST FOR PROPOSAL

No. RS-NRR-79-118

Contents Of Request For Proposal

This RFP consists of the following:

		<u>Page No.</u>
Part I	Statement of Work	1
Part II	Evaluation Criteria	9
Part III	Proposal Presentation and Format	15
Part IV	Terms and Conditions of the RFP	21
Attachment A	Licensing Backlog Actions	
Attachment B	Staff Position for Degraded Voltage Reviews	
Attachment C	Proposal Summary and Data Sheet	
Attachment D	Representations and Certifications	
Attachment E	Optional Form 60	
Attachment F	Nuclear Regulatory Commission--Contractor Organizational Conflicts of Interest	

Part 1 - Statement of Work

A. Background

The primary goal of the Nuclear Regulatory Commission (NRC) in licensing and regulating nuclear reactors in the United States is to assure the health and safety of the public and the protection of the environment. The reactor licensing process is centered in the NRC's Office of Nuclear Reactor Regulation (NRR). The Division of Operating Reactors (DOR), within NRR, reviews and evaluates proposed license amendments and other actions for operating nuclear reactors. The staff that reviews these actions is drawn from a broad spectrum of professional disciplines.

The Operating Reactors Licensing Action Program of the NRC consists of a large inventory of approximately 1,500 backlog actions involving the technical review of 72 nuclear power plants licensed to operate in the United States. The sources of these actions are specific regulations requiring licensee submittals, operational problems and issues identified at specific plants, topics that evolve from new information generated in research or other technological advancements, internal staff reviews of reactor safety issues, and actions that licensees initiate for economy or for improving plant efficiencies. Since the impact of these reviews may determine the operational status of a plant or groups of plants, it is mandatory that they be conducted using sound engineering and management principles. The capabilities needed to accomplish these reviews include engineering and project management expertise in mechanical systems, electrical systems, reactor systems, and the material and structural aspects associated with these systems. A deficiency in any of these disciplines or skills can negate the balanced judgments necessary to an effective regulatory support program.

To obtain an acceptable licensing program requires a multidisciplinary approach to problem solving. It is not possible to separate small portions of engineering effort in this program and hope to achieve efficient and cost effective results. A balanced approach to problem solving involves integrating the necessary engineering skills with a clear understanding of nuclear safety principles, combined with effective project management review and coordination of all necessary elements. The contractor selected must achieve efficient logistical coordination of resources along with proper planning and monitoring of achievements.

Objective

The purpose of the proposed contract is to provide contract support for the management and review of approximately 500 operating reactor licensing actions. Ultimate decisions regarding the acceptability of the proposed licensing actions will be made by DOR after review of the contractor's evaluation and recommendation.

Work Required

Independently, and not as an agent of the Government, the contractor shall manage and review that portion of the license backlog set forth in attachment A, which list is representative of the anticipated first years effort. The specific plants will be finalized at time of award.

Specific Topics Anticipated for First Year

1.0 Mechanical Systems Engineering

1.1 Control Rod Drive (CRD) Systems Modifications

The contractor will be required to review and evaluate General Electric Company final recommendations for CRD system modifications in order to reduce the creation and growth of reactor vessel nozzle cracks. The evaluation is to consider the effect of the modifications at each Boiling Water Reactor (BWR) plant on the CRD mechanisms individually and collectively during normal power operation and scrams. The contractor will be required to prepare reports that will contain: (a) a description of the modifications; (b) a comparison of General Electric's CRD system acceptance criteria with the test results following the modifications; (c) the reactor coolant makeup capability following the modifications as compared to that which existed before the modifications. Also, its adequacy to provide makeup water following the loss of all other makeup systems; (d) an evaluation of the potential for future CRD malfunctions as a result of the modifications (this includes long terms effects such as building up of foreign material in the system, increased duty requirements of components and changes in drive line friction and broken seals); (e) conclusions regarding the effectiveness of reducing reactor vessel return line nozzle cracking as a result of the modifications and the potential for acceptable future CRD system operation following the modifications; (f) recommendations to the NRC staff regarding acceptability of the modifications and any additional measures that would further enhance reliable CRD system operation and reduction in the development in reactor vessel return line nozzle cracks.

1.2 Inservice Testing

The contractor will review and evaluate licensees' submittals in regard to its compliance with the ASME, Boiler and Pressure Vessel Code, Section XI, 1974 edition, as required by 10 CFR 50.55a (g), in the area of inservice testing practices for valves.

This activity will include the evaluation of the technical bases for the licensee's request for relief from the ASME requirements that have been determined to be impractical for his facility. The generic areas of the plant that are to be reviewed are:

PWR

1. Reactor Coolant System
2. Secondary System
3. High Pressure Injection System
4. Low Pressure Injection System
5. Accumulator Systems
6. Primary and Secondary Safety and Relief Valves
7. Containment Spray System
8. Auxiliary Feedwater Systems
9. Active Components in Service Water and Instrument Air Systems which are Required to Support Safety System Functions
10. Containment Isolation Valves Required to Change Position to Isolate Containment
11. Chemical and Volume Control System
12. Other Key Components in Auxiliary Systems Which are Required to Directly Support Plant Shutdown or Safety System Function

BWR

1. Reactor Coolant System
2. High Pressure Core Injection System
3. Low Pressure Core Injection System
4. Residual Heat Removal System (Shutdown Cooling System)
5. Low Pressure Core Spray System
6. Safety, Relief, and Safety/Relief Valves
7. Reactor Core Isolation Cooling (RCIC) System
8. Standby Liquid Control System (Boron System)
9. Automatic Depressurization System (Any Pilot or Control Valves, Associated Hydraulic or Pneumatic Systems, etc.)
10. Emergency Condenser System (Isolation Condenser System)
11. Containment Spray System
12. Containment Cooling System
13. Containment Isolation Valves Required to Change Position to Isolate Containment
14. Control Rod Drive Hydraulic System ("Scram" Function)
15. Active Components in Service Water and/or Closed Cooling Water and/or Fire Water and/or Well Water Systems and Other Auxiliary Systems Which are Required to Support Safety System Functions or Plant Shutdown

1.3 Containment Air Dilution System

Most operating BWR plants have an inerted (i.e., oxygen deficient) containment atmosphere as part of the measures to control combustible gases that may be formed following a postulated Loss of Coolant Accident (LOCA). A recently issued Regulation (10 CFR 50.44) would allow these plants to deinert by providing an alternate combustible gas control system involving repressurization of the containment for dilution.

The contractor will review and evaluate licensees' submittals on the proposed combustible gas control system, e.g., containment air dilution system. The activities will include the evaluation of the system design, system operating procedure, instrumentation and control, and radiation dose release. The result of the evaluation should include a recommendation for the licensee's request for de-inerting activities.

1.4 Reactor Containment Performance

The contractor will review and evaluate licensees' submittals covering the following specific categories with regard to existing designs or design changes in the containment systems of operating reactors:

1. Containment Response to a LOCA
2. Subcompartment Differential Pressure Response
3. Containment Heat Removal Systems
4. Secondary Containment Functional Design
5. Containment Isolation System
6. Combustible Gas Control Systems
7. Containment Leakage Testing

The contractor will review specific issues or licensee proposed modifications to determine the extent to which they satisfy the criteria set forth by the staff for containment design.

1.5 Containment Leakage Testing

The contractor will review and evaluate licensees' submittals regarding its compliance with Appendix J to 10 CFR 50 and associated staff positions for the implementation of Appendix J to operating reactors. The activities will include the evaluation of the technical bases for licensee's request for exemption from Appendix J requirements that may have been determined to be impractical for his facility.

2.0. Electrical Engineering

2.1 Degraded Voltage of Offsite Power System and Interaction of the Offsite and Onsite Emergency Power Systems

The contractor will review and evaluate licensees' submittals concerning onsite emergency power systems to assess the susceptibility of their associated redundant safety-related electrical equipment to:

- (a) Sustained degraded voltage conditions at the offsite power source;
- (b) Interaction of the offsite and onsite emergency power systems; and
- (c) Voltage drop of the offsite and onsite emergency power systems.

This review will be done with full consideration to the staff positions outlined in attachment B to this work scope.

2.2 Bypassing Related to Containment Purging

The contractor will review and evaluate licensees' submittals which will justify purging of containment and will address technical specification changes and plant modifications to permit proposed purging operations. The licensee may propose limited purging (limited to a number of hours per year) or unlimited purging.

The contractor will be required to evaluate the impact of emergency purging during Emergency Core Cooling System (ECCS) performance, the radiological consequence of a LOCA during purging operations, and conformance of isolation instrumentation and circuit design to IEEE 279-1971.

2.3 Reactor Protection System Power Supply

The NRC staff has requested that licensees of BWR's evaluate their reactor protection system power supplies and determine whether there is potential for undetected single failures to adversely affect the reactor protection system and whether there is a potential for a postulated sequence of events initiated by an earthquake which could adversely affect the reactor protection systems.

The contractor will be required to review and evaluate the licensee's proposals and any modifications or technical specification changes that are proposed.

2.4 Electrical Component Qualification

The contractor shall review the environmental qualification of electrical equipment subjected to the environment resulting from either LOCA or main steam line break (MSLB) accidents in nuclear power plants. The environmental qualification analyses will consider such factors as steam at pressure and temperature, radioactivity, chemical spray, electrical stress and mechanical stresses. The qualification data provided by licensees will have to be reviewed against criteria provided by NRC.

3.0 Mechanical Engineering

3.1 Hydraulic Snubber Technical Specification Review

Periodic surveillance of hydraulic snubbers in nuclear power plants is necessary to insure proper operability and functionability of these supports throughout their design life. The NRC staff has developed standard surveillance requirements for hydraulic snubbers and is requiring the operating plants to implement these requirements to the extent practical. The review that is required will be to assess the proposed licensee implementation program against the staff's standard requirements or acceptance criteria.

The standard surveillance program consists of two parts: first, the reservoir hydraulic fluid levels are inspected and compared, along with the time in service, to the manufacturer's limits. Secondly, a test for functional reliability must be performed which compares drag, activation rate and the bleed rate against manufacturer's limits.

The review will consider the following: the completeness of the proposed program, the areas where complete compliance with the staff's standards are not proposed, and proposed alternatives evaluated on the basis of consequences of the support failing.

4.0 Structural Engineering

4.1 Heavy Loads Near Spent Fuel Pools

Heavy loads transported over or near spent fuel pools involve the postulation of an accidental drop of the heavy load with potential for subsequent damage to the stored spent fuel, the spent fuel pool structures or other safety related equipment or systems. The licensee submittals include a survey of potential accidents resulting from heavy loads near spent fuel pools and an assessment of the results. The review will entail an assessment of the fuel and equipment handling cranes for structural design and operational interlock devices, the completeness of heavy load analysis of potential drop accidents and assessment of resulting consequences. Specific acceptance criteria will be supplied by the NRC staff.

4.2 Mark-I Hydrodynamic Loads

New suppression pool hydrodynamic loads associated with a postulated LOCA and Safety Relief Valve (SRV) discharge have been identified which were not considered in the original design of the Mark-I containment systems. Load definitions for the loading transients have been approved by the NRC staff. The licensee's submittals will include a reanalysis of the containment system response to the new loading transients. The containment systems include the torus structure, its supports and attached piping. Specific acceptance criteria will be provided by the staff.

5.0 Materials Engineering

5.1 Atypical Weld Material

A number of Babcock and Wilcox reactor pressure vessels potentially have weld material which has not been reviewed and approved for use. The contractor shall review Quality Assurance

(QA) records or the results of the records search conducted by Babcock and Wilcox and determine whether this unapproved weld material was used. Experimental programs to determine the weld material properties, including environmental effects will be assessed. Proposed changes in the operating pressure-temperature limits will also be reviewed and assessed.

B. Reporting Requirements

The contractor shall furnish a monthly letter-type progress report in five (5) copies to the NRC Project Officer and one (1) copy to the Contracting Officer (CO) by the fifteenth of the month being reported. This report shall state in concise form:

- a. A short description of the project and objectives;
- b. A brief statement on what was actually accomplished in completing each assigned task during the reporting period;
- c. Funds committed during the reporting period;
- d. What is planned for accomplishment during the next reporting period;
- e. Preliminary or interim results, conclusions, trends, or other items of information that the contractor feels are of timely interest;
- f. Problems or delays that the contractor has experienced in the conduct of his effort;
- g. Specific action that the contractor would like NRC to undertake to alleviate a problem;
- h. Updated task and sub-task schedules, network flow chart, program milestone chart, program management summary, personnel assignments, and funding from those initially submitted in the plan of work and methodology.

The contractor shall prepare a report for each licensee submittal in five (5) copies to the NRC Project Officer and one (1) copy to the CO at the completion of his review. This report shall as a minimum include:

The licensee's submittals should be reviewed to determine the adequacy of the information presented with the information requirement stated by the staff. If the submittals are found

to be incomplete, the contractor will provide requests to be transmitted to the NRC staff for forwarding to licensees to obtain additional information. The contractor will determine the extent to which the licensee's design criteria comply with criteria provided by the staff. The contractor will provide a written technical evaluation for each plant addressing the acceptability of the licensee's proposed design and technical specification modifications as appropriate and the adequacy of these modifications.

C. Level of Effort

The "First Year" effort is expected to require a total of seventeen manyears of engineering support coupled with the necessary project management and support manpower necessary for a viable program. It is expected that the number of engineering manyears noted in parenthesis following each discipline will be necessary for the first year of work. The proposals should reflect technical/secretarial needs based upon their proposed management plan. [a. Mechanical Systems (3), b. Containment Systems Analysis (2), c. Electrical Engineering (4), d. Mechanical Engineering (3), e. Materials Engineering (4), f. Structural Engineering (1).]

D. Award Fee

(i) The use of a cost plus award fee type contract is contemplated. Designate the base fee proposed. (Desired maximum award fee may also be indicated.) Optional: contractors may propose an alternate type of contract in addition to cost plus award fee.

(ii) The successful contractor's performance shall be evaluated periodically, whereby the contractor may earn award fee over and above the base fee, for continued high level performance at lowest possible cost, with minimum Government supervision and for contractor initiated innovations and accepted improvements. The award fee shall be especially pertinent to management aspects of the contractor's performance.

(iii) The evaluation and recommendation as to the amount of award fee earned will be made by a Fee Determination Official (FDO) from the Nuclear Regulatory Commission. A performance evaluation plan shall be discussed with prospective contractors and shall be incorporated into the contract. The plan may be unilaterally modified from time to time by the duly appointed FDO based upon information provided by a Performance Evaluation Panel and shall not be subject to the terms of the Clause in the General Provisions entitled "Disputes." The successful contractor shall be advised periodically in writing of the decision setting forth the amount of fee awarded and the reasons thereafter in order that the contractor may improve his performance if indicated.