

1. CONTRACT (Proc. Inst. Ident.) NO. **NRC-23-82-517** 2. EFFECTIVE DATE **30 Aug 82** 3. REQUISITION/PURCHASE REQUEST/PROJECT NO. **RFPA EDO-82-517** 4. CERTIFIED FOR NATIONAL DEFENSE UNDER DDSA REG. 2 AND/OR DMS REG. 1. RATING:

5. ISSUED BY **US Nuclear Regulatory Commission**
 Division of Contracts, AR-2223
 Washington, DC. 20555
 6. ADMINISTERED BY (If other than block 5)
 7. DELIVERY FOB DESTINATION
 NATION
 OTHER (See below)

8. CONTRACTOR NAME AND ADDRESS
Decision Science Consortium, Inc.
 7700 Leesburg Pike, Suite 421
 Falls Church, VA 22043
 9. DISCOUNT FOR PROMPT PAYMENT
 10. SUBMIT INVOICES (4 copies unless otherwise specified) TO ADDRESS SHOWN IN BLOCK 12

11. SHIP TO/MARK FOR
US Nuclear Regulatory Commission
 ATTN: Thomas H. Cox, 6113 MNBB
 Washington, DC 20555
 12. PAYMENT WILL BE MADE BY
US Nuclear Regulatory Commission
 ORM, Division of Accounting and Finance
 Washington, DC 20555

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
31X0200.802 80-19-01 - B8170 - \$9,990.00

15. ITEM NO.	16. SUPPLIES/SERVICES	17. QUANTITY	18. UNIT	19. UNIT PRICE	20. AMOUNT
	Prioritizing a Selected Group of Issues Using a Predetermined Model and Attribute Data			FIXED PRICE:	\$9,990.00

21. TOTAL AMOUNT OF CONTRACT \$ **\$9,990.00**

CONTRACTING OFFICER WILL COMPLETE BLOCK 22 OR 26 AS APPLICABLE

22. 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. 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.

23. NAME OF CONTRACTOR BY **Decision Science Consortium, Inc.**
 (Signature of person authorized to sign)

27. UNITED STATES OF AMERICA BY **John E. Rebello**
 (Signature of Contracting Officer)

24. NAME AND TITLE OF SIGNER (Type or print) **James O. Chinnis, Jr., President** 25. DATE SIGNED **8/26/82**

28. NAME OF CONTRACTING OFFICER (Type or print) **JOHN E. REBELLO** 29. DATE SIGNED **8/30/82**

ARTICLE I - BACKGROUND

The DEDROGR staff has, since the inception of the office in October 1981, worked toward identifying a rational, objective, and reproducible decision-making process as a framework for the development and promulgation of new regulatory requirements. Such a process would include a systematic assessment of the relative priorities of proposed generic requirements and of the net value of a requirement as measured against the safety goals in NUREG-0880. The Office of Nuclear Reactor Regulation (NRR) is developing a relative priority ranking of approximately 100 proposed generic requirements by September 30, 1982. NRR has developed a quantitative scoring method for prioritizing these generic safety issues. The method utilizes the attributes of probabilistic risk reduction (expected frequency and consequences of an offsite radioactive release) and the costs to NRC and to the utility industry to carry out the changes proposed to provide the beneficial risk reduction.

The DEDROGR has supported the development by DSC of a prototype alternative model to assess the importance of safety issues. This model yields a quantitative net benefit for a given proposed requirement, and also allows for an importance ranking of individual proposals within a set of such proposed requirements. The prototype model is a weighted-average model of net benefit, is an algebraic sum of the values calculated for ten attributes, and is based on traditional concepts of engineering economics. The model incorporates both NRC cost and licensee cost in the net benefit expression. In addition, a priority score can be expressed as the ratio of net benefit to cost, where the costs considered would be those considered constrained (in the aggregate) in an effort to effect a selected set of prioritized requirements.

The prioritization methods identified by NRR and DSC differ in their algorithms for assessing priority. As one step in developing a decision-making process to guide the evaluation of proposed new generic requirements, DEDROGR staff intends to comparatively evaluate the output from both NRR and DSC prioritization models, using the attribute data base developed by NRR for approximately 100 issues. This data base is being assembled by NRR, with technical assistance from Battelle Laboratories.

ARTICLE II - STATEMENT OF WORK

Decision Science Consortium, Inc. (DSC) shall prioritize a list of 60 to 100 proposed safety issues using the attribute data supplied by the NRC, in the prototype prioritization model proposed by DSC in its letter report to the NRC of June 23, 1982 (in fulfillment of Purchase Order No. DR-82-1101). Data will be supplied by the NRC in the form of values for each of up to 10 attributes of value for each safety issue studied. DSC will complete and report on the following work items:

1. Implement the prototype model on existing DSC software, to produce a prioritized list of all issues, and a calculation of each issue's net benefit.
2. Modify the input of the calculation done in 1. above, and recompute for two other values of the dollars/manrem weighting factor.
3. Recompute the values of 1. above for input modified to set values of the following attributes to zero:
 - a. public damages
 - b. licensee damages
 - c. NRC cost (accident)

ARTICLE III - DELIVERABLES

1. A plan for accomplishing the effort is due 15 days after contract award. This plan shall include, among other things, a proposed standard form for display of quantitative attribute values to be supplied by the NRC.
2. The final report documenting the effort described in the statement of work is due 60 days after the last data for 100 issues, or some number less than 100 mutually agreed upon, has been supplied to DSC.

ARTICLE IV - PERIOD OF PERFORMANCE

The period of performance with respect to this contract shall commence on or about September 1, 1982 and all effort shall be completed by December 31, 1982.

ARTICLE V - CONSIDERATION

In full consideration of the Contractor's performance hereunder, the NRC shall pay the Contractor the fixed price of \$9,990.00.

ARTICLE VI - OBLIGATIONS

The amount presently obligated by the NRC with respect to this contract is \$9,990.00.

ARTICLE VII - PAYMENT

Payment shall be made in accordance with Clause 2 of the General Provisions entitled "Payment" as soon as practicable after completion and acceptance of all of the work, 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.

In the absence of a discount, the Contractor shall be paid upon the submission of a proper and correct invoice or voucher in approximately thirty days after submission or date of delivery, whichever is later, the prices stipulated herein for supplies delivered and accepted or services rendered and accepted, as herein provided.

If this order provides for a discount, the Contractor shall indicate the order's discount terms on the invoice or voucher.

ARTICLE VIII - PROJECT OFFICER

Thomas H. Cox is hereby designated as the Contracting Officer's authorized representative (hereinafter called Project Officer) for technical aspects of this contract. The Project Officer is not authorized to approve or request any action which results in or could result in an increase in contract costs; nor to terminate or settle any claim or dispute arising under the contract; nor to issue any unilateral directive whatever.

The Project Officer is responsible for:

1. monitoring the Contractor's technical progress, including surveillance and assessment of performance, and recommending to the Contracting Officer changes in requirements;
2. interpreting the scope of work;
3. performing technical evaluation as required;
4. performing 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 review all costs requested for reimbursement by the Contractor and submit recommendations for approval, disapproval, or suspension 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.

ARTICLE IX - GENERAL PROVISIONS

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