STANDARD FORM 26, JULY 1966
GENERAL SERVICES ADMINISTRATION
FED. PROC. REG. (41CFR) 1-16.101

AWARD/CONTRACT

PAGE 1 OF 6

1. CONTRACT (Proc. Inst. Ident.) NO.: NRC-03-79-150 (TASK 4)

2. EFFECTIVE DATE: MAY 01 1979

3. REQUISITION/PURCHASE REQUEST/PROJECT NO.:

4. CERTIFIED FOR NATIONAL DEFENSE UNDER BDSA REG. 2 AND/OR DMS REG. 1. RATING:

5. ISSUED BY: CODE:
U.S. Nuclear Regulatory Commission
Division of Contracts
Washington, DC 20555

6. ADMINISTERED BY (If other than block 5): CODE:

7. DELIVERY
☐ FOB DESTINATION
☐ OTHER (See below)

8. CONTRACTOR NAME AND ADDRESS (Street, city, county, State, and ZIP code): CODE: FACILITY CODE:
Nuclear Associates International
A Division of Control Data Corporation
6003 Executive Boulevard
Rockville, Maryland 20852

9. DISCOUNT FOR PROMPT PAYMENT

10. SUBMIT INVOICES (4 copies unless otherwise specified) TO ADDRESS SHOWN IN BLOCK: See Article XIV of BOA
CODE:

11. SHIP TO/MARK FOR: CODE:
U.S. Nuclear Regulatory Commission
Division of Systems Safety
ATTN: Dr. Zolton R. Rosztoczy
Washington, DC 20555

12. PAYMENT WILL BE MADE BY

13. THIS PROCUREMENT WAS ☐ ADVERTISED, ☒ NEGOTIATED, PURSUANT TO:
☐ 10 U.S.C. 2304 (a)( )
☒ 41 U.S.C. 252 (c)(10)

14. ACCOUNTING AND APPROPRIATION DATA
B-6805 20-19-03-03-2 31X0200.209 Obligate: $28,739.00

15. ITEM NO.	16. SUPPLIES/SERVICES	17. QUANTITY	18. UNIT	19. UNIT PRICE	20. AMOUNT
	This Cost-Plus-Fixed-Fee Contract is issued pursuant to the terms and conditions of Basic Ordering Agreement Number NRC-03-78-129-02 for core thermal-hydraulic analysis for light water reactors. Task 4: Verification of Exxon Technique for Stability Calculations 2228 071				
21.	Total Cost-Plus-Fixed-Fee				$ $28,739

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.)

23. NAME OF CONTRACTOR
BY Donald A. Lambe
(Signature of person authorized to sign)

24. NAME AND TITLE OF SIGNER (Type or print)
DONALD A. LAMBE
PRESIDENT, NAI

25. DATE SIGNED
MAY 01 1979

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.
7906160040

27. UNITED STATES OF AMERICA
BY D J Dougherty
(Signature of Contracting Officer)

28. NAME OF CONTRACTING OFFICER (Type or print)
D. J. Dougherty

29. DATE SIGNED
MAY 01 1979

U.S. GOVERNMENT PRINTING OFFICE: 1976-220-774

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This Contract Consists Of:

2228 072

SCHEDULE

Article I - SCOPE OF WORK

Task 4 - Verification of Exxon Technique for Stability Calculations

Purpose

Exxon Nuclear Corporation is developing a method for predicting instabilities in a BWR core. This method uses a version of the subchannel code COBRA coupled with a neutronics code to calculate the nuclear feedback. The purpose of this task is to audit COBRA's capability to accurately predict the thermal-hydraulic aspect of the core instability calculation. No attempt will be made to couple the COBRA code with a neutronics code.

Work Scope

The paper by E. Quandt, "Analysis and Measurements of Flow Oscillations," Chem. Eng. Prog. Symp. Sec., 57, 32, 111, 1961 (copy enclosed), provides experimental data for parallel channel flow oscillations. In these tests, flow oscillations were observed over a pressure range of $600 \leq PS\ 1600$ psia and over an exit quality range of $23 \leq x \leq 73\%$.

This task consists of using COBRA-IV to model the test geometry and test conditions for each of the tests described in the Quandt paper. These are transient tests and the flow and/or heat flux for the calculations should be varied as in the tests. The principal calculational components to be compared with the test data are:

1. Conditions at onset of instability,
2. Frequency of oscillations,
3. Prediction of DNB if DNB occurred in the test.

The use of COBRA-IV for these calculations, as opposed to other versions of COBRA, is requested because the execution time for COBRA-IV is shorter than for earlier version of COBRA when transients are calculated.

Article II - REPORTS

The contractor shall submit a final report prepared in accordance with NRC Manual Chapter 3202. The report shall contain the detailed description of the results of the task work performed and of the models and assumptions used in the analysis. The report shall be submitted to:

M. Wayne Hodges, DSS (3 copies)
Z. R. Rosztoczy, DSS (1 copy)
D. J. Dougherty, Contracting Officer (1 copy)

Article III - PERIOD OF PERFORMANCE

The period of performance shall be from the effective date of the contract through August 31, 1979.

Article IV - CONSIDERATION AND OBLIGATION OF FUNDS

A. Obligation of Funds, Estimated Cost, Fixed Fee

1) Total funds currently available for payment and allotted to this contract is $28,739.00.

Article V - CONTRACTING OFFICER'S AUTHORIZED REPRESENTATIVE

The following authorized representative will represent the Government for the purpose of this contract:

Dr. Zoltan R. Rosztoczy

The authorized representative is responsible for: (1) monitoring the contractor's technical progesss, including the surveillance and assessment of performance and recommending to the Contracting Officer changes in requirements; (2) interpreting the statement 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 representative is authorized to approve payment vouchers 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 authorized representative 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 to 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; (4) not constitute a basis for any increase in the contract ceiling amount.

If the Contractor receives guidance from the COAR which the Contractor feels is not valid under the criteria cited above, the Contractor shall immediately notify the COAR. If the COAR and the Contractor are not able to resolve the question within 5 days, the Contractor shall notify the Contracting Officer.

Article VI - KEY PERSONNEL

In accordance with Clause No. 41 of Appendix A, the following individuals are designated as key personnel under this contract:

Richard Kern Anthony Hsia

Article VII - GENERAL PROVISIONS AND MODIFICATIONS

The following General Provisions attached to Basic Ordering Agreement No. NRC-03-78-129-02 and referenced below form a part of this contract: Appendix A, General Provisions for Cost Type Contracts With Concerns Other Than Educational Institutions (2/15/78).

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