

8005180731

IN WITNESS WHEREOF, the parties have executed this document.

UNITED STATES OF AMERICA

BY: Kellogg V. Morton
Kellogg V. Morton, Chief
Research Contracts Branch
(title)

Nuclear Regulatory Commission

THE UNIVERSITY OF HOUSTON

BY: Julie T. Norris
Assistant Vice Chancellor and Director,
Research Administration
(title)

I, James Bishop, certify that I am the
(attester)

Controller of the Contractor named
(title)

under this document; that Julie T. Norris
(signatory)

who signed this document on behalf of said Contractor was then
Assistant Vice Chancellor and Director,
Research Administration of said Contractor; that
this document was duly signed for and on behalf of said Contractor by
authority of its governing body and is within the scope of its legal
powers.

IN WITNESS WHEREOF, I have hereunto affixed my hand and the seal of
said Contractor.

James Bishop
James Bishop

(SEAL)

CONTRACTOR: THE UNIVERSITY OF HOUSTON

APPENDIX A

For the Contract period January 1, 1980 through December 31, 1980

Article A-I RESEARCH TO BE PERFORMED BY CONTRACTOR

- (a) The unclassified scope of work under this contract entitled, "Studies of Gas Liquid Flow Patterns" is as follows:

Task A. Flow Pattern Transitions in Vertical Bundle Array Experimental

- Modify existing test section, carry out experiments and obtain data to determine the effects of rod bundle geometry and spacers on two-phase flow regimes
- Complete measurements of bubble rise velocity in a rod bundle

Analytical

- Complete modeling of two-phase flow transitions in rod bundle geometries
- Incorporate geometry effects if needed
- Prepare final correlation for flow pattern transition

Task B. Effect of Phase Change on Transition

- Complete modeling and prepare final correlations for predicting effects of phase change on transition of two-phase regimes.

- (b) The Principal Investigator expects to devote the following approximate amount(s) of time to the contract work:

100% of his time for one month

ARTICLE A-II WAYS AND MEANS OF PERFORMANCE

- (a) Items for which support will be provided as indicated in A-III, below

(1) Salaries and Wages \$ 30,900.00

- | | | |
|--|---|-------------|
| (2) Equipment to be purchased or fabricated by the Contractor | | \$ 8,000.00 |
| <u>Over \$1,000.00</u> | <u>Under \$1,000.00 for Materials and Fabrication of Rod Bundle</u> | |
| Laser | Plastic Components, Values Tanks, Temperature guages, and Pressure Guages | |
| (3) Travel | | |
| (i) Domestic | | \$ 2,000.00 |
| (ii) Foreign | | \$ -0- |
| (4) Other direct costs including fringe benefits | | |
| (5) Indirect costs based on a predetermined rate of 53 percent applicable to salaries and wages. | | |

(b) Items, if any, significant to the performance of this contract, but excluded from computation of Support Cost and from consideration in proportioning costs:

NONE

(c) Time or effort of Principal Investigator(s) including indirect costs and fringe benefits contributed by Contractor but excluded from computation of Support Cost and from consideration in proportioning costs:

NONE

Article A-III

The total estimated cost of items under A-II(a) above for the contract period stated in this Appendix A is \$73,648.00 ; the Commission will pay 100 percent of the actual costs of these items incurred during the contract period stated in this Appendix A, subject to the provisions of Article III and Article B-XXVIII. The estimated NRC Support Cost for the contract period stated in this Appendix A is \$73,648.00 .

The estimated NRC Support Cost is funded as follows:

- | | |
|---|--------------|
| (a) Estimated unexpended balance from prior period(s) | \$ -0- |
| (b) New funds for the current period | \$ 73,648.00 |
| (c) The new funds being added in A-III(b) constitute the basis for advance payments provided under Article B-X. | |