



UNITED STATES
ATOMIC ENERGY COMMISSION

1249

OAK RIDGE OPERATIONS

717308

OAK RIDGE, TENNESSEE 37830

JUN 20 1972

Duke University
ATTN: Dr. Douglas M. Knight, President
Durham, North Carolina 27706

REPOSITORY Oak Ridge Operations
COLLECTION Records Holding Area
Documents 1944-94
BOX No. A-31-1 73-28 2 of 4 Bids. 2714-H
FOLDER Contract No. AT-(40-1)-3945
Duke University 3945

REASSIGNMENT OF CONTRACT FOR ADMINISTRATION

Gentlemen:

Effective June 15, 1972, the following listed AEC contracts with your organization have been reassigned from the Laboratory and University Division to the Research Contracts, Procedures and Reports Branch, Contract Division, for administration:

- Contract No. AT-(40-1)-1067
- Contract No. AT-(40-1)-3065
- Contract No. AT-(40-1)-3195
- Contract No. AT-(40-1)-3329
- Contract No. AT-(40-1)-3504
- Contract No. AT-(40-1)-3631
- Contract No. AT-(40-1)-3857
- Contract No. AT-(40-1)-3941

Contract No. AT-(40-1)-3945

All future correspondence and other documents pertaining to the above contract(s) should be addressed as follows:

A. H. Frost, Jr., Chief
Research Contracts, Procedures and Reports Branch
Contract Division
U. S. Atomic Energy Commission
Post Office Box E
Oak Ridge, Tennessee 37830

Requests for funding changes, renewal of contracts, and term extension must be in writing and be endorsed by the appropriate administrative official(s) before submission to the AEC for approval. All Financial reports should also be endorsed by the appropriate administrative official of your organization.

Please advise appropriate personnel within your organization, accordingly.

CC: Mr. S. J. Fultz
Office of Sponsored Programs
310 Allen Bldg.
Duke University
Durham, N. C. 27706

Sincerely,

Ralph Elson, Director
Contract Division
Oak Ridge Operations

ACR:AHF
CC: Office of Chief Counsel
Finance Division

COPY

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Contract No. AT-(40-1)-3945
DUKE UNIVERSITY
Modification No. 4

SUPPLEMENTAL AGREEMENT

THIS SUPPLEMENTAL AGREEMENT, entered into the 7th day of December, 1971, by and between the UNITED STATES OF AMERICA (hereinafter referred to as the "Government"), as represented by the U. S. ATOMIC ENERGY COMMISSION (hereinafter referred to as the "Commission"), and DUKE UNIVERSITY (hereinafter referred to as the "Contractor");

WITNESSTH THAT:

WHEREAS, the parties hereto have heretofore entered into Contract No. AT-(40-1)-3945 and Modifications thereto numbered 1 through 3 providing for the Contractor's performance of certain research; and

WHEREAS, the parties desire to amend the contract further to provide for the continuance of this research without additional funds, and to provide for certain other changes; and

WHEREAS, this Supplemental Agreement is authorized by the Atomic Energy Act of 1954, as amended, and Section 302(c)(15) of the Federal Property and Administrative Services Act of 1949, as amended;

NOW, THEREFORE, the parties do mutually agree that the contract, as amended, is hereby further amended as follows:

The date November 30, 1971, as such appears in ARTICLE II - THE PERIOD FOR PERFORMANCE, and in the portion of Appendix "A" which states the contract period, is deleted and the date February 29, 1972, is substituted therefor.

IN WITNESS WHEREOF, the parties have executed this Supplemental Agreement.

UNITED STATES OF AMERICA

BY: U. S. ATOMIC ENERGY COMMISSION

BY: Herman M. Roth

Herman M. Roth

TITLE: Director
Laboratory and University Division

DUKE UNIVERSITY

BY: S. C. Harward

S. C. Harward

TITLE: Assistant Treasurer

1117308



UNITED STATES
ATOMIC ENERGY COMMISSION

Letter Supplement to
Contract No. AT-(40-1)-3945
DUKE UNIVERSITY
June 22, 1971

Duke University
Durham, North Carolina 27706

Gentlemen:

The following changes are proposed in Contract No. AT-(40-1)-3945:

1. Reduce the AEC Support Ceiling from \$6,202 to \$5,203.56 for the period May 1, 1969, through July 31, 1970.
2. Increase the AEC Support Ceiling from \$3,764 to \$5,853 for the period August 1, 1970, through November 30, 1971.

If these changes meet with your approval, please indicate your acceptance in the space provided below and return one executed copy to this office.

Sincerely,

UNITED STATES OF AMERICA

BY: UNITED STATES ATOMIC ENERGY
COMMISSION

BY: *A. E. Johnston*
A. E. Johnston, Deputy Director
TITLE: Contract Division, ORO

MC:CCM

ACCEPTED:

DUKE UNIVERSITY

BY: *S.C. Harward*
S.C. Harward

TITLE: Assistant Treasurer

DATE: 6/25/71

1117309

Contract No. AT-(40-1)-3945
DUKE UNIVERSITY
Modification No. 3

SUPPLEMENTAL AGREEMENT

THIS SUPPLEMENTAL AGREEMENT, entered into this 2nd day of June, 1971, by and between the UNITED STATES OF AMERICA (hereinafter referred to as the "Government"), as represented by the UNITED STATES ATOMIC ENERGY COMMISSION (hereinafter referred to as the "Commission"), and DUKE UNIVERSITY (hereinafter referred to as the "Contractor");

WITNESSETH THAT:

WHEREAS, the parties hereto have heretofore entered into Contract No. AT-(40-1)-3945 and Modifications thereto numbered 1 and 2 providing for the Contractor's performance of certain research; and

WHEREAS, the parties desire to amend the contract further to provide for the continuance of this research without additional funds and to provide for certain other changes; and

WHEREAS, this Supplemental Agreement is authorized by the Atomic Energy Act of 1954, as amended, and Section 302(c)(15) of the Federal Property and Administrative Services Act of 1949, as amended;

NOW, THEREFORE, the parties do mutually agree that said contract, as amended, is hereby further amended in the following particulars, but in no others:

1. the date "July 31, 1971," as such appears in ARTICLE II - THE PERIOD FOR PERFORMANCE, and in the portion of Appendix "A" which states the contract period, is deleted and the date "November 30, 1971," is substituted therefor.

IN WITNESS WHEREOF, the parties have executed this Supplemental Agreement.

UNITED STATES OF AMERICA

BY: UNITED STATES ATOMIC ENERGY COMMISSION

BY: Herman M. Roth
Herman M. Roth

TITLE: Director
Laboratory and University Division

DUKE UNIVERSITY

BY: S.C. Harward

TITLE: S.C. Harward, Asst. Treasurer

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(b) This work shall be conducted under the direction of Dr. C. Craig Harris or such other member of the Contractor's staff as may be mutually satisfactory to the parties.

ARTICLE II - THE PERIOD FOR PERFORMANCE

The period of performance under this contract shall commence on August 1, 1970, and expire on July 31, 1971. Performance may be extended for additional periods by the mutual written agreement of the parties.

ARTICLE III - CONSIDERATION

(a) In full consideration of the Contractor's performance hereunder, the Commission shall furnish the equipment, supplies, materials, and services, if any, listed in Article A-II(b)(2) and pay the Contractor the sum of \$3,764.00, hereinafter called the "Support Ceiling," which sum shall be subject to adjustment as hereinafter provided.

(b) Payments to the Contractor shall equal the "Cumulative Support Cost" of performance of this contract, as the term "Cumulative Support Cost" is defined in Article B-XXII^{1/}; Provided, however, and notwithstanding any other provision of this contract, that the Government's monetary liability under this contract shall not exceed the Support Ceiling specified in (a) above. The Commission shall not pay more than the Support Ceiling or an amount equal to the Cumulative Support Cost, whichever is less. The Contractor shall be obligated to perform under this contract throughout the agreed-upon period of performance, and to bear all costs which the Commission has not agreed to pay; Provided, however, that the Contractor shall have the right to cease to perform the research provided for in this contract, upon written notice to the Commission to that effect, at any time when or after the Cumulative Support Cost equals or exceeds the Support Ceiling.

(c) The Support Ceiling specified in (a) above may be revised as the parties may mutually agree in writing. In the event the stated period of contract performance is extended, the Support Ceiling will be revised to reflect any increased Commission support for the extended period or periods.

(d) Upon termination, or expiration of the total period of performance, the Contractor shall promptly refund to the Commission any

^{1/} See NOTE on page 4.

sums paid by the Commission to the Contractor under this contract, through direct payment or under letter of credit, in excess of the Cumulative Support Cost incurred in performance under the contract.

ARTICLE IV - ADDITIONAL CONTRACT PROVISIONS

Appendix "B", attached hereto and made a part hereof, sets forth additional general provisions of this contract.

ARTICLE V - GOVERNMENT PROPERTY

The following items of property procured or fabricated by the Contractor are hereby listed as "Government Property": None.

ARTICLE VI - CIVIL RIGHTS ACT OF 1964

The Contractor agrees to comply with the Atomic Energy Commission's Regulation (Part 4 of Title 10, Chapter 1, Code of Federal Regulations), as amended, effectuating the provisions of Title VI of the Civil Rights Act of 1964.

IN WITNESS WHEREOF, the parties have executed this Supplemental Agreement.

UNITED STATES OF AMERICA

BY: UNITED STATES ATOMIC ENERGY COMMISSION

BY: Herman M. Roth
Herman M. Roth

TITLE: Director
Laboratory and University Division

DUKE UNIVERSITY

BY: S. C. Harward

TITLE: Assistant Treasurer

I, Rufus Powell, III, certify that I am the Secretary of the corporation named as the Contractor herein; that S. C. Harward who signed this contract on behalf of the Contractor was then Assistant Treasurer of said corporation; that said contract was duly signed for and on behalf of

said corporation by authority of its governing body and is within the scope of its corporate powers.

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

(Corporate Seal)

Rufus H. Powell

Contractor: DUKE UNIVERSITY

Contract No.: AT-(40-1)-3945

NOTE: The term "Cumulative Support Cost" refers to the cost of items under A-II(a) of Appendix "A", for the initial contract period plus any extension periods, that may be properly chargeable to the AEC. If proportionate cost-sharing is involved, the Support Cost is the AEC's share of such costs, and it does not include the cost of items excluded from Article A-II(a), such as items to be contributed solely by the Contractor or property to be furnished by the Government. Charges to the AEC will be reported after the conclusion of each contract period set forth in Appendix "A" (generally an annual period); in addition to the limitations on charges to the AEC provided for by this Article III, charges to the AEC for a specified contract period may not exceed 110 percent of the estimated Support Cost for that contract period except as approved by the AEC (see Article B-XXVIII). The estimated Support Cost for each pertinent period of contract performance will be set forth in Article A-III. If Article A-III of Appendix "A" provides that the cost of the items listed under Article A-II(a) is to be proportionately shared by the parties, the charges to the AEC shall be determined by applying the AEC's sharing percentage set forth in Article A-III to the cost for items under Article A-II(a) incurred during the specified contract period; such charges to the AEC shall also be subject to the 110 percent limitation mentioned above as well as to the provisions of this Article III.

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APPENDIX "A"

For the Contract Period August 1, 1970 through July 31, 1971.

A-I RESEARCH TO BE PERFORMED BY CONTRACTOR

The Contractor will continue studies and design for the development of phantoms for medical radionuclide imaging that will produce pictures similar to those from clinical studies. These phantoms, in the proto-type stage, will be used for standardising recording techniques, checking the imaging equipment for malfunction, for student training, and for the assessment of imaging-data-processing techniques useful in nuclear medicine.

Dr. C. Craig Harris, Principal Investigator, expects to devote approximately 10% of his time or effort to the contract work.

A-II WAYS AND MEANS OF PERFORMANCE(a) Items Included in Total Estimated Cost:

(1) <u>Salaries and Wages:</u>	\$2,320.00
Technician	
Clerical Help	
(2) <u>Employee Benefits:</u>	234.00
(3) <u>Supplies and Materials:</u>	1,400.00
Cobalt-57, material for phantoms and storage shields, and general items.	
(4) <u>Publications and Communications:</u>	100.00
(5) <u>Equipment to be Purchased or Fabricated by the Contractor:</u>	0
<u>a</u> Equipment Estimated to Cost Less than \$1,000:	
None	
<u>b</u> Equipment Estimated to Cost in Excess of \$1,000:	
None	
(6) <u>Travel:</u>	500.00
(6) <u>Indirect Costs</u> (Fixed at 56% of Salaries and Wages):	1,300.00

(b) Items, if any, Significant to the Performance of this Contract, but Excluded from Computation of Support Cost and from Consideration in Proportioning Costs:

(1) Items to be Contributed by the Contractor:

Approximately 5% of time for two co-investigators and fringe benefit and overhead thereon.

(2) Items to be Contributed by the Government:

None

(c) Time or Effort of Principal Investigator(s) Contributed by Contractor, but Excluded from Computation of Support Cost and from Consideration in Proportioning Costs:

Approximately 10% of time by Principal Investigator and fringe benefits and overhead thereon.

A-III The total estimated cost of items under A-II (a) above for the contract period stated in this Appendix "A" is \$5,854.00; the Commission will pay 100% 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-XXVII. The estimated AEC support cost for the contract period stated in this Appendix "A" is \$5,854.00.

The estimated AEC support cost is the basis for calculating the payments provided for in Article B-XI. In view of the amount of AEC funds tentatively estimated to be remaining in the contractor's hands from previous periods under this contract, the additional funding to be added to the letter of credit at this time is \$3,178.60. AEC funds remaining from previous periods not to exceed \$2,090.00 are hereby authorized to be applied to the current period above.

SPECIAL RESEARCH SUPPORT AGREEMENT

APPENDIX "B"

ARTICLE B-1 - DEFINITIONS

(a) The term "Commission" means the United States Atomic Energy Commission or any duly authorized representative thereof, including the Contracting Officer, except for the purpose of deciding an appeal under the article entitled, "Disputes."

(b) The term "Contracting Officer" means the person executing this contract on behalf of the Government and includes his successors or any duly authorized representative of any such person.

(c) Except as otherwise provided in this contract, the term "subcontracts" includes purchase orders under this contract.

ARTICLE B-II - INSPECTION, REPORTS, RECORDS AND ACCOUNTS

(a) The Commission shall have the right to inspect, in such manner and at all reasonable times as it deems appropriate, all activities of the Contractor arising in the course of its undertakings under this contract.

(b) The Contractor shall make progress and other reports in such manner and at such times as specified in Article B-XXI. The Contractor shall also make such other reports to the Commission, with respect to its activities under this contract, as the Commission may reasonably require from time to time.

(c) The Contractor agrees to keep records and books of account, in accordance with generally accepted accounting principles and practices, and consistent with the requirements of BOB Circular No. A-21 as constituted on the effective commencement date of the contract period, covering its costs and expenditures for items included under Article A-II(a) of Appendix "A" and which are in furtherance of the research work under this contract. In the event a contract contribution is listed in Article A-II(b), the Contractor shall maintain records adequate to permit the Commission to determine the extent of the contribution. If professional staff members are included under Article A-II (b), the Contractor shall maintain records on such personnel in accordance with the payroll distribution procedure of Section J.7.b. of BOB Circular No. A-21.

(d) The Commission shall at all reasonable times be afforded access to the premises and to these books and records and to related correspondence, receipts, vouchers, memoranda, and other data of the Contractor; and the Contractor shall preserve such books and papers, without additional compensation therefor, for a period of three (3) years after completion of this contract.

ARTICLE B-III - PUBLICATION OF RESULTS

(a) Research results obtained under this contract shall be made available to all through normal and accepted channels without restriction except that no Restricted Data as defined in the Atomic Energy Act of 1954 or other classified information shall be disclosed to unauthorized persons. Published results shall indicate that the research was supported by the Commission. Seven (7) copies of each article submitted by the Contractor for publication shall be promptly sent to the Commission. The Contractor shall also inform the Commission when the article is published and furnish seven (7) copies of the article as finally published.

(b) It is recognized that during the course of the work hereunder or subsequent thereto, the Contractor, its employees, or its subcontractors may from time to time desire to publish, within the limit of security requirements, information regarding technical or scientific developments arising in the course of the contract. In order that public disclosure of such information will not adversely affect the patent interest of the Commission, such information shall be withheld from public disclosure if it discloses an invention or discovery which shall be promptly reported to the Commission, and in such case, it shall be withheld for a period of four (4) months after submission of the information to the Commission for patent review and possible patent application, unless the Commission approves earlier release.

If so indicated in the article entitled "Alterations" of this contract, the following sentence shall be deemed to govern in lieu of the last sentence of Article B-III:

"In order that public disclosure of such information will not adversely affect the patent interest of the Commission, patent approval for release shall be secured from the Commission prior to any such publication."

ARTICLE B-IV - DISCLOSURE OF INFORMATION

(a) It is mutually expected that the activities under this contract will not involve Restricted Data or other classified information or material. It is understood, however, that if in the opinion of either party this expectation changes prior to the expiration or termination of all activities under this contract, said party shall notify the other party accordingly in writing without delay. In any event, the Contractor shall classify, safeguard, and otherwise act with respect to all Restricted Data and other classified information and material, in accordance with applicable law and the requirements of the Commission, and shall promptly inform the Commission in writing if and when Restricted Data or other classified information or material

becomes involved. If and when Restricted Data or other classified information or material becomes involved, or in the mutual judgment of the parties it appears likely that Restricted Data or other classified information or material may become involved, the Contractor shall have the right to terminate performance of the work under this contract and in such event the provisions of this contract respecting termination for the convenience of the Government shall apply.

(b) The Contractor shall not permit any individual to have access to Restricted Data, or other classified information, except in accordance with the Atomic Energy Act of 1954, as amended, and the Commission's regulations or requirements.

(c) The term "Restricted Data" as used in this article means all data concerning the design, manufacture, or utilization of atomic weapons, the production of special nuclear material, or the use of special nuclear material in the production of energy, but shall not include data declassified or removed from the Restricted Data category pursuant to Section 142 of the Atomic Energy Act of 1954, as amended.

ARTICLE B-V - RESPONSIBILITY FOR THE WORK

(a) The Contractor is solely responsible for the conduct of the work.

(b) In instances where the carrying out of the contract work involves a Commission license, the provisions of the pertinent license shall prevail over any inconsistent provisions of this contract.

ARTICLE B-VI - FELLOWSHIPS

The Contractor agrees that, unless the Commission shall give its prior written approval, the Contractor shall not use any of the funds provided by the Commission under this contract to pay the stipend of any appointment for which commensurate services are not rendered under this contract or to pay any part of the stipend of a fellowship of any kind.

ARTICLE B-VII - WRITTEN MATERIAL

(a) The Contractor hereby grants to the Government a royalty-free, nonexclusive, irrevocable license to reproduce, translate, publish, use and dispose of, and to authorize others to do so, all copyrightable material produced or composed or delivered to the Government or its designees under this contract, including work not first produced or composed by the Contractor in the course of

...under this contract but including all the material produced or prepared or delivered under this contract and, to the extent that the Contractor now has, or prior to final settlement of the contract may have, the right to grant such license to work previously produced or composed work without becoming liable to pay compensation to others solely because of such grant).

(b) The Contractor agrees that, except as the Commission may otherwise specifically authorize in writing, the Contractor will not include in any report or other material delivered under this contract, or in any published material relating to the work under this contract, any copyrighted material owned by others which such owners have not consented to have so included.

(c) The Commission will not publish in advance of the Contractor's publication without prior consultation with the Contractor.

ARTICLE B-VIII - PATENTS

(a) Whenever any invention or discovery is made or conceived by the Contractor or its employees in the course of or under this contract, the Contractor shall promptly furnish the Commission with complete information thereon; and the Commission shall have the sole power to determine whether or not and where a patent application shall be filed, and to determine the disposition of the patent, if and when made, and to any invention or discovery and any patent application or patent that may result. The judgment of the Commission on these matters shall be accepted as final; and the Contractor, for itself and for its employees, agrees that the inventor or inventors will execute all documents and do all things necessary or proper to carry out the judgment of the Commission.

(b) No claim for pecuniary award or compensation under the provisions of the Atomic Energy Act of 1954, as amended, shall be asserted by the Contractor or its employees with respect to any invention or discovery made or conceived in the course of or under this contract.

(c) Except as otherwise authorized in writing by the Commission, the Contractor will obtain patent agreements to effectuate the purposes of paragraphs (a) and (b) of this article from all persons who perform any part of the work under this contract, except such clerical and manual labor personnel as will not have access to technical data.

(d) Except as otherwise authorized in writing by the Commission, the Contractor will insert in all subcontracts and purchase orders other than purchase orders for standard commercial items, provisions making this article applicable to the subcontract or purchase order. Except as otherwise authorized in writing by the Commission, the

Contractor will insert in purchase orders for standard commercial items a provision indemnifying the Government against liability for use of any invention or discovery and for the infringement of any Letters Patent arising by reason of the purchase, use, or disposal by or for the account of the Government of items manufactured or supplied under the purchase order.

(e) With respect to any U. S. Patent Application filed by the Contractor on any contract invention or discovery made or conceived in the course of the contract, the Contractor will incorporate in the first paragraph of the U. S. Patent Application the following statement:

"The invention described herein was made in the course of, or under, a contract (if desired, may substitute contract with identifying number) with the U. S. Atomic Energy Commission."

ARTICLE B-IX - PROPERTY ITEMS

(a) Except as otherwise provided in this paragraph (a) and paragraph (b) of this Article B-IX, title to all materials, supplies, and equipment purchased or otherwise acquired by the Contractor in the performance of its research activities shall be and remain in the Contractor. Said materials, supplies, and equipment shall be used for the benefit of research under this contract and any extensions or successor contracts hereto and, provided there is no interference with said research, shall be made available for use by investigators working on any Federal research agreement at the same location. Subject to these priorities, the materials, supplies, and equipment may be used as the Contractor wishes. Except as otherwise agreed in writing, title to any items of property listed as "Government Property" shall pass directly to the Government; such property shall be subject to paragraphs (b), (c), (d), (e), and (f) of this Article B-IX.

(b) Subject to the mutual agreement of the Commission and the Contractor, the Government may furnish the Contractor items of equipment, materials, supplies, or facilities for use by the Contractor in the performance of the contract work; title to these items shall remain in the Government unless otherwise agreed in writing. Such items of property and the items of property listed elsewhere in this contract as Government property are hereinafter referred to as "Government property." Title to Government property shall not be affected by the Government nor shall any such property, or any part thereof, be or become a fixture or lose its identity as personalty by reason of affixation to any realty.

To the extent practicable, the Contractor shall cause all items of Government property to be suitably marked with an identifying mark or symbol indicating that the items are the property of the Government. The Contractor shall maintain at all times and in a manner satisfactory to the Commission records showing the use and disposition of Government property. Such records shall be subject to Commission inspection at all reasonable times and the Commission shall at all reasonable times have access to the premises wherein any items of Government property are located. Unless otherwise authorized in writing by the Commission, the Contractor shall use Government property only for the purposes of this contract; provided, however, that the Contractor is hereby authorized to use items of equipment constituting Government property for other Federal research agreements to the extent such use (1) does not interfere with its work under this contract, (2) is not prohibited by provisions of the other Federal agreements, and (3) is promptly reported by the Contractor to the Commission under this contract.

(d) The Contractor shall promptly notify the Commission of any loss or destruction of or damage to Government property. It is understood that the Contractor shall not be liable for any such loss, destruction, or damage, unless same results from willful misconduct or lack of good faith on the part of any corporate officer of the Contractor, or of one or more of the Contractor's representatives having supervision or direction of all or substantially all of the activities under this contract. If the Contractor is liable for any such loss, destruction, or damage, it shall promptly account therefor to the satisfaction of the Commission; if the Contractor is not liable therefor, and is indemnified, reimbursed, or otherwise compensated for such loss, destruction, or damage, it shall promptly account therefor to the satisfaction of the Commission.

(e) With the written approval of the Commission, the Contractor may sell, transfer, or otherwise dispose of items of Government property to such parties and upon such terms as so approved, or itself acquire title to items of Government property upon such terms as may be mutually agreed upon in writing by the Contractor and the Commission. The proceeds of any such disposition, and any agreed price of any such Contractor acquisition, shall be paid by the Contractor to the Government, or credited on account of Commission payments to be made under this contract, as the Commission may direct. Subject to the other provisions of this contract, the Contractor shall deliver Government property to the Commission upon request (suitably packed and shipped at the Government's expense).

(f) The Contractor shall utilize for the benefit of the work under this contract such items of property available to the Contractor by reason of its activities under other Federal research agreements as are

appropriate for utilization under this contract pursuant to the provisions of the pertinent Federal agreements.

ARTICLE B-X - TERMINATION FOR CONVENIENCE OF THE GOVERNMENT

(a) The performance of work under this contract may be terminated, in whole or from time to time in part, by the Government whenever for any reason the Contracting Officer shall determine that such termination is in the best interest of the Government. Termination of work hereunder shall be effected by delivery to the Contractor of a Notice of Termination specifying the extent to which performance of work under the contract is terminated and the date upon which such termination becomes effective.

(b) After receipt of the Notice of Termination the Contractor shall cancel its outstanding commitments hereunder covering the procurement of materials, supplies, equipment, and miscellaneous items. In addition, the Contractor shall exercise all reasonable diligence to accomplish the cancellation or diversion of its outstanding commitments covering personal services and extending beyond the date of such termination to the extent that they relate to the performance of any work terminated by the notice. With respect to such canceled commitments the Contractor agrees to (1) settle all outstanding liabilities and all claims arising out of such cancellation of commitments, with the approval or ratification of the Contracting Officer, to the extent he may require, such approval or ratification shall be final for all purposes of this article, and (2) assign to the Government, in the manner, at the time, and to the extent directed by the Contracting Officer, all of the right, title and interest of the Contractor under the orders and subcontracts so terminated, in which case the Government shall have the right, in its discretion, to settle or pay any or all claims arising out of the termination of such orders and subcontracts.

(c) The Contractor shall submit its termination claim to the Contracting Officer promptly after receipt of a Notice of Termination, but in no event later than one year from the effective date thereof, unless one or more extensions in writing are granted by the Contracting Officer upon written request of the Contractor within such one-year period or authorized extension thereof. Upon failure of the Contractor to submit its termination claim within the time allowed, the Contracting Officer may, subject to any review required by the Commission's procedures in effect as of the date of execution of this contract, determine on the basis of information available to him, the amount, if any, due to the Contractor by reason of the termination and shall thereupon pay to the Contractor the amount so determined.

any determination of liability under paragraph (c) shall be governed by the same principles set forth in Subpart 1-15.3 of the Federal Procurement Regulations (41 CFR 1-15.3), as in effect on the date of this contract, except that if the Contractor is not an educational institution the determination shall be governed by AECPR 9-15.50 (41 CFR 9-15.50).

(e) Subject to the provisions of paragraph (c) above, and subject to any review required by the Commission's procedures in effect as of the date of execution of this contract, the Contractor and the Contracting Officer may agree upon the whole or any part of the amount or amounts to be paid to the Contractor by reason of the termination under this article, which amount or amounts may include any reasonable cancellation charges thereby incurred by the Contractor and any reasonable loss upon outstanding commitments for personal services which it is unable to cancel: Provided, however, That in connection with any outstanding commitments for personal services which the Contractor is unable to cancel, the Contractor shall have exercised reasonable diligence to divert such commitments to its other activities and operations. Any such agreement shall be embodied in an amendment to this contract and the Contractor shall be paid the agreed amount.

(f) The Government may from time to time, under such terms and conditions as it may prescribe, make partial payments against costs incurred by the Contractor in connection with the terminated portion of this contract, whenever, in the opinion of the Contracting Officer, the aggregate of such payments is within the amount to which the Contractor will be entitled hereunder. If the total of such payments is in excess of the amount finally agreed or determined to be due under this article, such excess shall be payable by the Contractor to the Government upon demand: Provided, That if such excess is not so paid upon demand, interest thereon shall be payable by the Contractor to the Government at the rate of 6 percent per annum, beginning 30 days from the date of such demand.

(g) The Contractor agrees to transfer title to the Government and deliver in the manner, at the times, and to the extent, if any, directed by the Contracting Officer, such information and items which, if the contract had been completed, would have been required to be furnished to the Government, including:

(1) Completed or partially completed plans, drawings, and information; and

(2) Materials or equipment produced or in process or acquired in connection with the performance of the work terminated by the notice.

Other than the above, any termination inventory resulting from the termination of the contract may, with the written approval of the Contracting Officer, be sold or acquired by the Contractor under the conditions prescribed by and at a price or prices approved by the Contracting Officer. The proceeds of any such disposition shall be applied in reduction of any payments to be made by the Government to the Contractor under this contract or shall otherwise be credited to the price or cost of work covered by this contract or paid in such other manner as the Contracting Officer may direct. Pending final disposition of property arising from the termination, the Contractor agrees to take such action as may be necessary, or as the Contracting Officer may direct, for the protection and preservation of the property related to this contract which is in the possession of the Contractor and in which the Government has or may acquire an interest.

(h) Any dispute as to questions of fact which may arise hereunder shall be subject to the "Disputes" article of this contract.

ARTICLE B-XI - PAYMENTS

(a) The Commission shall make payment to the Contractor with respect to the amount of consideration prescribed in Article III of this contract as follows:

(1) A maximum of forty-five percent of the estimated AEC Support Cost as set forth in Article A-III of this contract following execution of this contract (and following the effectuation of each extended period).

(2) A maximum of an additional forty-five percent of the estimated AEC Support Cost as set forth in Article A-III of this contract upon receipt of a request or requests from the Contractor evidencing that the amount requested is then required in connection with the work under the contract.

(3) If, following submission of an annual progress report, the contract is to be extended for an additional period of performance, an additional payment may be made at the time of execution of the extension which, when added to the payments already made under (1) and (2) above for the expiring period, will not exceed the currently estimated AEC Support Cost for the expiring period; a concluding payment for the pertinent period, if appropriate, may be made following submission of a certified statement showing the AEC Support Cost and evidencing the Contractor's performance under the contract.

(4) If the contract is not to be extended, the final payment of the consideration provided for in Article III of this contract shall be made following submission by the Contractor of a final report

required by Article B-XXI, in form and content satisfactory to the Commission, and submission of a certified statement showing the AEC Support Cost and evidencing the Contractor's performance under the contract.

(b) The payments made pursuant to paragraph (a) above shall not prejudice or otherwise affect adversely any of the Government's rights under the contract. For purposes of settlement in the event of termination pursuant to Article B-X hereof, these payments shall not be construed as evidentiary, and any excess payment in the light of Article B-X shall be promptly returned to the Commission.

(c) The Commission, at its option, may invoke the following with respect to any amount of the contract consideration remaining to be paid at any given time:

(1) The Commission shall issue a letter of credit as provided for by Treasury Department Circular No. 1075, Revised, of February 13, 1967, under which payments to the Contractor with respect to the amount of consideration provided for in Article III of this contract will be made. The Contractor agrees that the first ninety (90) percent of the estimated AEC Support Cost as set forth in Article A-III of the contract will be under the letter of credit and will be subject to the submission by the Contractor of a Payment Voucher on Letter of Credit (TUS 5401), in accordance with procedures based upon Treasury Department Circular No. 1075, Revised, of February 13, 1967, which are agreed to by the parties. Following submission by the Contractor of a final report provided for in Article B-XXI, in form and content satisfactory to the Commission, and submission of a certified statement showing the total expense and evidencing the Contractor's performance under the contract, and upon submission by the Contractor to the Commission of such invoices or vouchers as are satisfactory to the Commission, the Commission shall pay the Contractor the concluding payment of the consideration provided for in Article III of this contract, or said concluding payment will be included under the letter of credit and will be subject to submission by the Contractor of a Payment Voucher on Letter of Credit, in accordance with the procedure described above. If, following submission of an annual report, the contract is extended for an additional period of performance, an additional payment may similarly be made at the time of execution of the extension which, when added to the payments already made for the expiring period, will not exceed the currently estimated AEC Support Cost for the expiring period; a concluding payment for the pertinent period, if appropriate, may be made following submission of a certified statement showing the AEC Support Cost for the pertinent period and evidencing the Contractor's performance under the contract.

(2) The Commission reserves the right to increase, decrease, or cancel the amount covered by the letter of credit, provided that such action is required because of a change in the amount of consideration provided for in Article III or is taken pursuant to subparagraph (c)(1) of this article. The issuance and use of a letter of credit and receipt of funds pursuant thereto shall not prejudice or otherwise adversely affect any of the Government's rights under the contract.

ARTICLE B-XII - EQUAL OPPORTUNITY

(The following clause is applicable unless this contract is exempt under the rules, regulations, and relevant orders of the Secretary of Labor (41 CFR, ch. 60).)

During the performance of this contract, the Contractor agrees as follows:

(a) The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, or national origin. Such action shall include, but not be limited to, the following: Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the Contracting Officer setting forth the provisions of this Equal Opportunity clause.

(b) The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin.

(c) The Contractor will send to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, a notice, to be provided by the Contracting Officer, advising the labor union or workers' representative of the Contractor's commitments under this Equal Opportunity clause, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(d) The Contractor will comply with all provisions of Executive Order No. 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

(e) The Contractor will furnish all information and reports required by Executive Order No. 11246 of September 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to its books, records, and accounts by the Commission and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(f) In the event of the Contractor's noncompliance with the Equal Opportunity clause of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended, in whole or in part, and the Contractor may be declared ineligible for further Government contracts in accordance with procedures authorized in Executive Order No. 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order No. 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(g) The Contractor will include the provisions of paragraphs (a) through (f) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 114 of Executive Order No. 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as the Commission may direct as a means of enforcing such provisions, including sanctions for noncompliance; provided, however, that in the event the Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction of the Commission, the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

ARTICLE B-XIII - CONVICTION LABEL

In connection with the performance of work under this contract, the Contractor agrees not to employ any person undergoing sentence of imprisonment at hard labor.

ARTICLE B-XIV - CONTRACT WORK HOURS STANDARDS ACT - OVERTIME COMPENSATION

This contract, to the extent that it is of a character specified in the Contract Work Hours Standards Act (40 U.S.C. 327-330), is subject to the following provisions and to all other applicable provisions and exceptions of such Act and the regulations of the Secretary of Labor thereunder:

(a) Overtime requirements. No Contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any laborer or mechanic in any workweek in which he is employed on such work to work in excess of eight hours in any calendar day or in excess of forty hours in such workweek on work subject to the provisions of the Contract Work Hours Standards Act unless such laborer or mechanic receives compensation at a rate not less than one and one-half times his basic rate of pay for all such hours worked in excess of eight hours in any calendar day or in excess of forty hours in such workweek, whichever is the greater number of overtime hours.

(b) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the provisions of paragraph (a), the Contractor and any subcontractor responsible therefor shall be liable to any affected employee for his unpaid wages. In addition, such Contractor and subcontractor shall be liable to the United States for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic employed in violation of the provisions of paragraph (a) in the sum of \$10 for each calendar day on which such employee was required or permitted to be employed on such work in excess of eight hours or in excess of the standard workweek of forty hours without payment of the overtime wages required by paragraph (a).

(c) Withholding for unpaid wages and liquidated damages. The Contracting Officer may withhold from the Government Prime Contractor, from any moneys payable on account of work performed by the Contractor or subcontractor, such sums as may administratively be determined to be necessary to satisfy any liabilities of such Contractor or subcontractor for unpaid wages and liquidated damages as provided in the provisions of paragraph (b).

(d) Subcontracts. The Contractor shall insert paragraphs (a) through (d) of this article in all subcontracts, and shall require their inclusion in all subcontracts of any tier.

(e) Records. The Contractor shall maintain payroll records containing the information specified in 29 C.F.R. 516.2(a). Such records shall be preserved for three years from the completion of the contract.

ARTICLE B-XV - DISPUTES

(a) Except as otherwise provided in this contract, any dispute concerning a question of fact arising under this contract which is not disposed of by agreement shall be decided by the Contracting Officer, who shall reduce his decision to writing and mail or otherwise furnish

a copy thereof to the Contractor. The decision of the Contracting Officer shall be final and conclusive unless within 30 days from the date of receipt of such copy the Contractor mails or otherwise furnishes to the Contracting Officer a written appeal addressed to the Commission. The decision of the Commission or its duly authorized representative for the determination of such appeals shall be final and conclusive unless determined by a court of competent jurisdiction to have been fraudulent, or capricious, or arbitrary, or so grossly erroneous as necessarily to imply bad faith, or not supported by substantial evidence. In connection with any appeal proceeding under this article, the Contractor shall be afforded an opportunity to be heard and to offer evidence in support of its appeal. Pending final decision of a dispute hereunder, the Contractor shall proceed diligently with the performance of the contract and in accordance with the Contracting Officer's decision.

(b) This "Disputes" article does not preclude consideration of law questions in connection with decisions provided for in paragraph (a) above: Provided, That nothing in this contract shall be construed as making final the decision of any administrative official, representative, or board on a question of law.

ARTICLE B-XVI - OFFICIALS NOT TO BENEFIT

No member of or delegate to Congress, or resident commissioner, shall be admitted to any share or part of this contract, or to any benefit that may arise therefrom; but this provision shall not be construed to extend to this contract if made with a corporation for its general benefit.

ARTICLE B-XVII - COVENANT AGAINST CONTINGENT FEES

The Contractor warrants that no person or selling agency has been employed or retained to solicit or secure this contract upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, excepting bona fide employees or bona fide established commercial or selling agencies maintained by the Contractor for the purpose of securing business. For breach or violation of this warranty the Government shall have the right to annul this contract without liability or in its discretion to deduct from the contract price or consideration, or otherwise recover, the full amount of such commission, percentage, brokerage, or contingent fee.

ARTICLE 7 - ACCESS TO RECORDS

a. The records of a record of the Comptroller General of the United States or any of his duly authorized representatives shall, until the expiration of three years after final payment under this contract, have access to and the right to examine any directly pertinent books, documents, papers, and records of the Contractor involving transactions related to this contract.

(b) The Contractor further agrees to include in all its subcontracts hereunder a provision to the effect that the subcontractor agrees that the Comptroller General of the United States or any of his duly authorized representatives shall, until the expiration of three years after final payment under the subcontract, have access to and the right to examine any directly pertinent books, documents, papers, and records of such subcontractor, involving transactions related to the subcontract. The term "subcontract" as used in this article excludes (i) purchase orders not exceeding \$2,500 and (ii) subcontracts or purchase orders for public utility services at rates established for uniform applicability to the general public.

c. Nothing in this contract shall be deemed to preclude an audit by the General Accounting Office of any transaction under this contract.

ARTICLE 8 - BUY AMERICAN ACT

(a) In acquiring end products, the Buy American Act (41 U.S. Code 101 a-1) provides that the Government give preference to domestic source end products. For the purpose of this article:

(i) "Components" means those articles, materials, and supplies which are directly incorporated in the end products;

(ii) "End products" means those articles, materials, and supplies which are to be acquired under this contract for public use; and

(iii) A "domestic source end product" means (A) an unmanufactured end product which was been mined or produced in the United States and (B) an end product manufactured in the United States if the cost of the components thereof which are mined, produced, or manufactured in the United States exceeds 50 percent of the cost of all its components. For the purposes of this (a)(iii) (B), components of foreign origin of the same type or kind as the products referred to in (b)(ii) or (iii) of this article shall be treated as components mined, produced, or manufactured in the United States.

(c) The Contractor agrees that there will be delivered under this contract only domestic source end products, except end products:

- (i) Which are for use outside the United States;
- (ii) Which the Government determines are not mined, produced, or manufactured in the United States in sufficient and reasonably available commercial quantities and of a satisfactory quality;
- (iii) As to which the Commission determines the domestic preference to be inconsistent with the public interest; or
- (iv) As to which the Commission determines the cost to the Government to be unreasonable.

(The foregoing requirements are administered in accordance with Executive Order No. 10582, dated December 17, 1954.)

ARTICLE B-XX - ASSIGNMENT; SUBCONTRACTING

Neither this contract nor any interest therein nor claim thereunder shall be assigned or transferred by the Contractor, except as expressly authorized in writing by the Commission. The Contractor shall not subcontract any research or development work under this contract, except as expressly authorized in writing by the Commission.

ARTICLE B-XXI - REPORTS AND RENEWAL PROPOSALS

The Contractor shall furnish seven (7) copies of the following reports and renewal proposals, if any, addressed to the Laboratory and University Division, U. S. Atomic Energy Commission, Oak Ridge Operations Office, Post Office Box E, Oak Ridge, Tennessee 37830:

(a) Progress Report. The progress report shall briefly describe the scope of investigations undertaken and the significant results obtained. It shall also indicate compliance with the contract requirements and any failures to comply. The report shall indicate the approximate percentage of time or effort which the principal investigator(s) has devoted to the project since the beginning of the current term of the agreement and indicate the amount of effort which is expected to be devoted during the remainder of the current term. Technical reports and articles prepared for publication shall be listed with bibliographic references. Reprints or preprints of all such material shall be appended and material contained therein need not be duplicated in the report. Progress reports shall be submitted approximately three months in advance of the expiration of the current contract term and

shall give the Contractor's best estimate of the probable events and occurrences in regard to the remainder of the current contract term. Except as the Commission may otherwise request, no further progress report will be required for any contract year unless there has been a significant change in scientific results or contract compliance between the latest progress report by the Contractor and its actual experience; this shall be reported promptly.

(b) Final Report. Upon termination or expiration of the total period of performance, the Contractor shall submit, promptly, a summary of its activities for the entire period, including a list of publications issued during the total term of the contract and copies of any reprints not previously submitted, as well as a comprehensive evaluation of progress in the area of research supported by the contract.

(c) Renewal Proposals. A renewal proposal, if any, shall be submitted along with the technical progress report, and each of the two documents shall be separately bound.

(d) Report of Equipment Purchased or Fabricated. The Contractor shall itemize equipment having a useful life expectancy in excess of one year and an acquisition cost in excess of \$100 purchased or fabricated by the Contractor when title to such equipment is vested in the Contractor pursuant to the Grant Act (Public Law 85-934)--omit any items appearing in Article V--and submit a report thereof within three months after the expiration of the contract year specified in Article II. Where the cost of individual pieces of equipment exceeds \$1,000, they will be listed individually. Where individual items cost \$100 to \$1,000, they will also be individually listed to the extent practical or grouped in general categories, such as "electronic equipment" or "six motors," with the total dollar amount of such category. The cost of purchased items shall be determined by the actual invoice cost of such items, but the cost of fabricated items may be established by engineering estimates. This report may be submitted in conjunction with the certified statement required by Article B-XXVII of this contract.

ARTICLE B-XXII - FOREIGN TRAVEL

Foreign travel shall be subject to the prior approval of the Contracting Officer.

ARTICLE B-XXIII - PRIORITIES, ALLOCATIONS, AND ALLOTMENTS

The Contractor shall follow the provisions of DMS Regulation 1 and all other applicable regulations and orders of the Business and Defense Services Administration in obtaining controlled materials and other products and materials needed to fill this order. This contract carries rating: DO-E-2 certified for national defense under DMS Regulation 1.

ARTICLE B-XXIV - UTILIZATION OF CONCERNS IN LABOR SURPLUS AREAS

It is the policy of the Government to place contracts with concerns which will perform such contracts substantially in or near concentrated unemployment or underemployment sections of States or in areas of persistent or substantial labor surplus, where this can be done consistent with the efficient performance of the contract and at prices no higher than are obtainable elsewhere. The Contractor agrees to use its best efforts to place its subcontracts in accordance with this policy. In complying with the foregoing and with paragraph (b) of the clause of this contract entitled "Utilization of Small Business Concerns," the Contractor in placing its subcontracts shall observe the following order of preference: (a) Certified-eligible concerns which are also small business concerns; (b) other certified-eligible concerns; (c) persistent labor surplus area concerns which are also small business concerns; (d) other persistent labor surplus area concerns; (e) substantial labor surplus area concerns which are also small business concerns; (f) other substantial labor surplus area concerns; and (g) small business concerns which are not labor surplus area concerns.

ARTICLE B-XXV - UTILIZATION OF SMALL BUSINESS CONCERNS

(a) It is the policy of the Government as declared by the Congress that a fair proportion of the purchases and contracts for supplies and services for the Government be placed with small business concerns.

(b) The Contractor agrees to accomplish the maximum amount of subcontracting to small business concerns that the Contractor finds to be consistent with the efficient performance of this contract.

ARTICLE B-XXVI - SOVIET-BLOC CONTROLS

In connection with the contract activities, the Contractor agrees to comply with the requirements set forth in Appendix "D" of this contract relating to the countries listed therein. From time to time, by written notice to the Contractor, the Commission shall have the right to change the listing of countries in Appendix "D" upon a determination by the Commission that such change is in conformance with national policy. The Contractor shall have the right to terminate its performance under this contract upon at least sixty (60) days' prior written notice to the Commission if the Contractor determines that it is unable, without substantially interfering with its policies as an educational institution or without adversely affecting its performance, to continue performance of the work under this contract as a result of a change in Appendix "D" made by the Commission pursuant to the preceding sentence. If the Contractor elects to terminate performance, the provisions of this contract respecting termination for the convenience of the Government shall apply.

ARTICLE B-XXVII - DETERMINATION OF SUPPORT COSTS

(a) The term "Support Cost" as used in this contract means the Commission's share^{1/} of the sum of costs incurred by the Contractor for items included under Article A-II(a) of Appendix "A" which are in furtherance of the work hereunder, which are incurred in accordance with the provisions of this contract, and which are reported to the AEC in accordance with (b) below. The term "Cumulative Support Cost" as used in this contract means the total of the Support Cost incurred during the initial contract period plus any extension periods of the contract.

(b) Within three months after the end of each contract period set forth in Appendix "A", and within three months after the termination or expiration of the total period of performance, the Contractor shall furnish a certified statement, executed by an official of the Contractor and also signed by the principal investigator, showing the Contractor's cost, and evidencing its performance under the contract, during the contract term just completed. The statement shall show all costs incurred during the pertinent contract term set forth in Appendix "A" for items under Article A-II(a) of Appendix "A", including the Contractor's share, if any, of such costs, and show the extent of the Contractor's contribution of items listed under Article A-II(b)(1) of Appendix "A". Costs included in the certified statement may include the following: Expenditures of cash; the cost of material and supplies transferred from stores inventory; and the amount due the Contractor for indirect costs in accordance with the rate and factor or factors shown in Appendix "A" of the contract for the pertinent contract period. The costs for the pertinent contract period shall be consistent with the principles of the Bureau of the Budget Circular A-21, as constituted on the effective commencement date of said period. The certified statement shall be in the form set forth in Appendix "C".

(c) The Contractor understands that the Commission expects to rely on this certified statement for determining the Support Cost for the pertinent contract period. With respect to any period in which proportionate cost-sharing is applicable, the Support Cost for the pertinent period will be determined by applying the percentage figure included in

1/ In those cases in which there is no proportionate sharing of costs, the Commission's "share" will be 100%. With respect to any period in which proportionate cost-sharing is applicable pursuant to Article A-III, it is understood that the Support Cost for that specified period will equal the stipulated percent of the sum of costs incurred by the Contractor during the stated period for items under A-II(a) of Appendix "A", not to exceed 110% of the estimated Support Cost set forth in Article A-III for that contract period except as otherwise approved by the AEC.

Article A-III for the pertinent period, to the certified cost of items included under Article A-II(a) incurred during the pertinent contract period. All charges to the AEC shall be subject to the approval requirements of this contract. The Contractor is expected to maintain auditable records as contemplated by Article B-II(c) to substantiate the costs incurred for items under Article A-II(a) and to show the extent of the Contractor's contribution of items listed under Article A-II(b)(1).

ARTICLE B-XXVIII - ADDITIONAL APPROVALS

(a) In addition to such approvals as are specifically required by other provisions of this contract, the Contractor shall obtain the Commission's approval for:

(1) Acquisition of:

(i) An item of equipment, not itemized in Appendix "A", involving an acquisition cost in excess of \$1,000 or 2 percent of the total estimated cost specified in A-III of Appendix "A", whichever is greater, unless such equipment is merely a different model of an item listed in Appendix "A". [When plant and equipment funds are provided for the acquisition of Government property, the Headquarters Program Divisions may require, in specific cases, that such funds be used only for acquiring the equipment designated in Article V, unless prior AEC approval has been obtained.]

(ii) Any equipment not itemized in Appendix "A", the acquisition cost of which will cause the equipment dollar level shown in Article A-II(a) of Appendix "A" to be increased by \$500 or more. (If plant and equipment funds are provided for the acquisition of equipment, with title to be vested in the Government, the total cost of such equipment acquisitions shall not exceed the amount budgeted for such equipment unless prior AEC approval has been obtained.)

(2) Purchase of any general-purpose equipment, such as office furniture or air conditioning, not specifically provided for in Appendix "A", except that purchased without cost to the Commission.

(3) Incurring costs during the pertinent contract period set forth in Appendix "A", for items set forth in Article A-II(a), in excess of 110% of the estimated cost specified in Article A-III for the pertinent contract period; charges to the Commission for any such costs incurred with the approval of the Commission shall also be subject to the limitations of Article III.

(4) A change of the principal investigator, or continuation of the research work without direction by an approved principal investigator. The principal investigator may increase or decrease the amount of effort which he devotes to the project without obtaining Commission approval; however, the principal investigator shall consult with the appropriate AEC Headquarters program representative if he plans to, or becomes aware that he will, devote substantially less effort to the work than anticipated in Article A-I. The purpose of such consultation will be to determine what effect, if any, the anticipated change will have on the research work.

(b) No change in the phenomenon or phenomena under study; i.e., broad category of the research under this contract, shall be made without the specific written approval of the Commission; ordinarily, such changes, if approved by the Commission, will be accomplished through a new contract or a mutually agreed-to modification. The Contractor may change the specific objectives in the research work described in this contract, provided it gives the Commission prompt notification of such changes; and the Contractor may continue to follow the new objectives while the Commission determines whether it wishes to continue the program under the changed approach.

APPENDIX "C"

U. S. ATOMIC ENERGY COMMISSION

STATEMENT OF COSTS

1. Name and address of Contractor: _____

2. Contract number: _____
3. Beginning and ending date of pertinent contract period: _____
4. Costs incurred during the pertinent contract period. (List only those costs which are to be reimbursed by the AEC or proportionately shared by the parties in accordance with Article A-II(a) and Article A-III.)

<u>Cost categories</u> ^{1/}	<u>Amount</u>
a. <u>Salaries and wages</u> _____	_____
(List personnel included in Article A-II(a) of Appendix "A" in same detail as shown in the Contractor's payroll distribution or time and attendance records)	
b. <u>Supplies and materials</u> _____	_____
(Show in same detail as in Appendix "A".)	
c. <u>Equipment</u> _____	_____
(List separately the cost of each piece of equipment separately listed in Appendix "A" to the contract or for which separate approval was obtained from AEC.)	
d. <u>Publications</u> _____	_____
e. <u>Travel</u> _____	_____

^{1/} The listing of categories should be consistent with the itemization in Appendix "A"

<u>List Categories</u>	<u>Amount</u>
f. <u>Other</u> _____ (List separately each type of cost included in this category.)	_____
g. <u>Total Direct Expenditures</u> _____	_____
h. <u>Indirect Charges</u> _____ (Indicate percent and expenditures to which percent is applied.)	_____
5. <u>Total Costs</u> for items under Article A-II(a) for pertinent contract period.	_____
6. <u>Support Cost</u> for the pertinent contract period set forth in Appendix "A", as defined in Article B-XXVII of the contract, chargeable to AEC for the pertinent contract period (percent of Total Costs using percent shown in Article A-III of Appendix "A" for pertinent period of contract).	_____
7. <u>Cumulative Support Cost</u> (Support Cost under this statement plus Support Cost for previous periods of the contract).	_____
8. <u>Accumulated Support Ceiling</u> in Article III of the contract.	_____
9. Provide information regarding contributions by the Contractor of items listed in Article A-II(b) of Appendix "A" during pertinent contract period. State the extent of the Contractor's actual contribution; the measure of such contributions should be in the same terms as the Contractor's commitment under Article A-II(b); e.g., time, dollar, etc.	_____

I hereby certify that this report is true and correct to the best of my knowledge and belief and that the costs listed herein were incurred in

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connection with the performance of the research provided for under this contract and in accordance with the terms and conditions set forth therein.

Name and title of principal investigator

Signature

Date

Name and title of business officer

Signature

Date

APPENDIX "D"

REQUIREMENTS RELATING TO EXCHANGES OF INFORMATION

1. The requirements set forth herein relate to the dissemination by the Contractor of the information developed under this contract and/or under other Commission programs to countries by or through exchange activities, including but not limited to employment, work participation, visits and correspondence. The term "countries" (including where used in the term "Soviet-Bloc Countries"), as used in this Appendix "D", includes all nations (other than the United States, its territories and possessions), the embassies, consulates, and agencies of such nations, and individuals and organizations of such nations.
2. For the purpose of these requirements the Soviet-Bloc Countries consist of:

Group A

Albania
Bulgaria
Czechoslovakia
Estonia
Hungary
Latvia
Lithuania
Poland and Danzig
Rumania
Union of Soviet Socialist Republics

Group B

China, including Manchuria (includes Inner Mongolia; the provinces of Tsinghai and Sikang, Tibet; the former Kwantung Leased Territory, the present Port Arthur Naval Base Area and Liaoning Province) and excluding Taiwan (Formosa)
Communist-controlled area of Viet Nam
East Germany (Soviet Zone of Germany and the Soviet Sector of Berlin)
North Korea
Outer Mongolia
Cuba

3. The following exchange activities between the Contractor and any of the Soviet-Bloc Countries shall be subject to the prior written approval of the Commission on an individual case basis:

- a. Employees of the Contractor engaging in employment by activities of, or travel to, any of the Soviet-Bloc Countries where such employees' travel or other activity is financially supported by the Commission.
 - b. Employment of, or participation in activities of the Contractor by, nationals of any of the Soviet-Bloc Countries in furtherance of or in connection with work under this contract.
 - c. Participation of nationals of any of the Soviet-Bloc Countries at U. S. conferences, meetings and symposia which are supported by Commission funds or are organized and directed by persons receiving financial support for such activities from the Commission and acting in the name of the Commission or the Contractor.
4. Unofficial travel to any of the Soviet-Bloc Countries by employees of the Contractor who hold a Commission security clearance will be subject to the prior approval of the Commission on an individual case basis.
 5. The Contractor shall inform all of its employees who formerly held a Commission security clearance of the Commission's desire to be advised of their proposed unofficial travel to any of the Soviet-Bloc Countries. The Contractor shall notify the Commission of all such proposed unofficial travel by its employees of which it becomes aware pursuant to the notification given in accordance with the provisions hereof.
 6. The Contractor, if the contract herein is a cost-type rather than a fixed-price type, shall inform the Commission, in advance whenever feasible, of all proposed visits by nationals of any of the Soviet-Bloc Countries and shall furnish a report thereof in accordance with directions furnished by the Contracting Officer.
 7. All correspondence and other communications relative to the exchange of information whether with Soviet-Bloc or other countries shall be subject to the following policy and procedure:
 - a. Transmittal of published information relating to the peaceful uses of atomic energy is permitted and encouraged provided the transmittals to countries listed in Group B of Section 2., above, are made in the name of the Contractor or the individual scientist and not in the name of the Commission;
 - b. Transmittal of unpublished information relating to the peaceful uses of atomic energy is permitted and encouraged provided:
 - (1) The information transmitted is made available to requesters in the United States. In order to insure availability to requesters in the United States, one copy of all such unpublished information (with the exception of personal correspondence covering informal scientific or technical opinion) shall be forwarded to the Contracting Officer;

- (2) The transmittals to countries listed in Section 2., above, are accompanied by a request for appropriate equally valuable material in return.
 - (3) The transmittals to countries listed in Group B of Section 1., above, are made in the name of the Contractor or the individual scientist and not in the name of the Commission.
- c. Requests for information not falling within the scope of the above-stated policy and any unusual requests for published and unpublished information shall be forwarded to the Contracting Officer. Examples of unusual requests for published and unpublished information include: (1) Requests for collections of published documents or for unpublished information which are not readily available to the recipient of the request; (2) Requests for comprehensive and detailed unpublished design information and unpublished development information on major equipment, such as reactors, chemical processing plants, and accelerators; and (3) Official correspondence from any government other than the United States, its territories and possessions.

As used in this Section 7:

- a. The term "published information" means all unclassified scientific and technical documents; internal and informal reports; reprints; preprints; page proofs of journal articles; engineering drawings; photographs; films; notes; irradiated emulsions; etc., originated within Commission programs and which are available from the Division of Technical Information Extension, Oak Ridge, Tennessee, AEC depository libraries, or other sources from which the public may obtain the above type of information by purchase or without cost.
 - b. The term "unpublished information" means all unclassified scientific and technical documents; internal and informal reports; reprints; preprints; page proofs of journal articles; engineering drawings; photographs; films; notes; irradiated emulsions; etc., originating within Commission programs but which are not available from the Division of Technical Information Extension, Oak Ridge, Tennessee, AEC depository libraries, or from other sources from which the public may normally obtain the information by purchase or without cost.
8. In all exchanges of information, care should be taken that the release of the information does not result in the disclosures of Restricted Data or other classified information, or privileged information, in violation of applicable law and/or the provisions of this contract; or the disclosure of any information that would adversely affect the patent interest of the Commission in violation of the provisions of this contract.

Contract No. AT-(40-1)-3945
DUKE UNIVERSITY
Modification No. 1

SUPPELEMENTAL AGREEMENT

THIS SUPPLEMENTAL AGREEMENT, entered into this 19th day of March, 1970, by and between the UNITED STATES OF AMERICA (hereinafter referred to as the "Government"), as represented by the UNITED STATES ATOMIC ENERGY COMMISSION (hereinafter referred to as the "Commission"), and DUKE UNIVERSITY (hereinafter referred to as the "Contractor");

WITNESSETH THAT:

WHEREAS, the parties hereto have heretofore entered into Contract No. AT-(40-1)-3945 providing for the Contractor's performance of certain research; and

WHEREAS, the parties desire to amend the contract to provide for the continuance of this research without additional funds and to provide for certain other changes; and

WHEREAS, this Supplemental Agreement is authorized by the Atomic Energy Act of 1954, as amended, and Section 302(c)(15) of the Federal Property and Administrative Services Act of 1949, as amended;

NOW, THEREFORE, the parties do mutually agree that said contract is hereby amended in the following particulars, but in no others:

1. The date "April 30, 1970," as such appears in ARTICLE II - THE PERIOD FOR PERFORMANCE, in Paragraph (a) of ARTICLE III - CONSIDERATION and in the portion of Appendix "A" which states the contract period, is deleted and the date "July 31, 1970" is substituted therefor.

IN WITNESS WHEREOF, the parties have executed this Supplemental Agreement.

UNITED STATES OF AMERICA

BY: UNITED STATES ATOMIC ENERGY COMMISSION

BY: Herman M. Roth
Herman M. Roth

TITLE: Director
Laboratory and University Division

DUKE UNIVERSITY

BY: S. C. Harward
S. C. Harward

TITLE: Assistant Treasurer

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THIS AGREEMENT, entered into the 30th day of June, 1969, effective the 1st day of May, 1969, by and between the UNITED STATES OF AMERICA (hereinafter referred to as the "Government"), as represented by the UNITED STATES ATOMIC ENERGY COMMISSION (hereinafter referred to as the "Commission"), and DUKE UNIVERSITY (hereinafter referred to as the "Contractor");

WITNESSETH THAT:

WHEREAS, the Commission desires to have the Contractor perform certain research work, as hereinafter provided; and

WHEREAS, this agreement is authorized by the Atomic Energy Act of 1954, as amended, and Section 302(c)(15) of the Federal Property and Administrative Services Act of 1949, as amended, and Public Law 85-934;

NOW, THEREFORE, the parties agree as follows:

ARTICLE I - THE RESEARCH TO BE PERFORMED

(a) The Contractor shall, to the best of its ability, furnish personnel, facilities, equipment, materials, supplies, and services, except such as are furnished by the Government, necessary for the performance of the research provided for in Appendix "A" hereto, and shall perform the research and report thereon pursuant to the provisions of this contract. It is understood that Appendix "A", a guide to the performance of this contract, may be deviated from by the Contractor subject to the specific requirements of this contract.

(b) This work shall be conducted under the direction of Dr. C. Craig Harris or such other member of the Contractor's staff as may be mutually satisfactory to the parties.

ARTICLE II - THE PERIOD FOR PERFORMANCE

The period of performance under this contract shall commence on May 1, 1969, and expire on April 30, 1970. Performance may be extended for additional periods by the mutual written agreement of the parties.

ARTICLE III - CONSIDERATION

(a) In full consideration of the Contractor's performance hereunder, the Commission shall pay the Contractor the sum of \$6,202.00, hereinafter called the "Support Ceiling," which sum shall be subject to adjustment as hereinafter provided.

(b) Payments to the Contractor shall equal 100% of the total cost of performance of this contract, as the term "total cost" is defined in Article B-XXVII; provided, however, and notwithstanding any other provision of this contract, that the Government's monetary liability under this contract shall not exceed the Support Ceiling specified in (a) above. The Commission shall not pay more than the Support Ceiling or 100% of the total cost, whichever is less. The Contractor shall be obligated to perform under this contract throughout the pertinent annual period of performance, and to bear all costs which the Commission has not agreed to pay; provided, however, that the Contractor shall have the right to cease to perform the research provided for in this contract, upon written notice to the Commission to that effect, at any time when or after the Support Ceiling on the Commission's liability for any pertinent annual period of performance is reached.

(c) At any time during an annual period of performance subsequent to the initial annual period of performance, the Commission, in its sole discretion, may increase the Support Ceiling for the pertinent annual period of performance by written notice to that effect to the Contractor; provided, however, that the Commission may not unilaterally increase the Support Ceiling to an amount greater than 100% of the total estimated project cost specified in the pertinent Appendix "A" for said period. No such increase in the Support Ceiling shall be deemed to increase or affect the percentage of total cost which the Commission has agreed to pay for the pertinent period.

(d) Except as provided in (e) below, at the end of each contract period, the Contractor will refund to the Commission, or make such disposition as the Commission may, in writing, otherwise direct, any sums advanced by the Commission to the Contractor under this contract through direct payment or under letter of credit in excess of 100% of the total cost of performance, as the term "total cost" is defined in Article B-XXVII.

(e) If the total amount the Commission is required to pay during an annual period of performance is less than the Support Ceiling established for said period, the difference between said total and the Support Ceiling will be added by the Commission to the Support Ceiling established for the next succeeding contract period, if any; provided that such addition does not raise the level of the Support Ceiling for the succeeding period above that percentage of the total estimated project cost which the Commission has agreed to pay during said period.

(f) After receipt of an annual certified statement pursuant to Article B-XXVII, which establishes the difference referred to in (e)

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above, and upon subsequent determination of any amounts the Commission wants to add pursuant to (c) above, the Commission will send a letter notification to the Contractor stating the increased Support Ceiling for the pertinent period. For the purpose only of formalizing the increased Support Ceiling, said letter shall be considered a contractual document. In the same letter the Commission will endeavor to state, for convenient reference, the total amount which the Commission has obligated under the contract from the beginning of the first annual period to date, as adjusted in accordance with this article, but said statement shall have no evidentiary or contractual effect.

ARTICLE IV - ADDITIONAL CONTRACT PROVISIONS

Appendix "B", attached hereto and made a part hereof, sets forth additional general provisions of this contract.

ARTICLE V - GOVERNMENT PROPERTY

The following items of property procured or fabricated by the Contractor are hereby listed as "Government Property": None.

ARTICLE VI - CIVIL RIGHTS ACT OF 1964

The Contractor agrees to comply with the Atomic Energy Commission's Regulation (Part 4 of Title 10, Chapter 1, Code of Federal Regulations), as amended, effectuating the provisions of Title VI of the Civil Rights Act of 1964.

IN WITNESS WHEREOF, the parties have executed this contract.

UNITED STATES OF AMERICA

BY: UNITED STATES ATOMIC ENERGY
COMMISSION

BY:

Herman M. Roth
Herman M. Roth

TITLE:

Director

~~Laboratory and University Division~~

DUKE UNIVERSITY

BY:

S. C. Harward
S. C. Harward

TITLE:

Controller

I, Rufus H. Powell, III, certify that I am the Secretary of the corporation named as the Contractor herein; that S. C. Harward who signed this contract on behalf of the Contractor was then Controller of said corporation; that said contract was duly signed for and on behalf of said corporation by authority of its governing body and is within the scope of its corporate powers.

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

(Corporate Seal)

Rufus H. Powell

Contractor: Duke University

Contract No.: AT-(40-1)-3945

APPENDIX "A"

For the Contract Period May 1, 1969, through April 30, 1970.

A-I RESEARCH TO BE PERFORMED BY CONTRACTOR

The Contractor will conduct research directed at the development of phantoms for use in the testing and adjustment of nuclear medical scanning equipment, thus assisting physicians in scanning procedures. These phantoms will help portray selected clinical conditions by permitting adjustment of instrumentation prior to patient use.

It is expected that the Principal Investigator will devote approximately 10% of his time or effort to the project.

A-II WAYS AND MEANS OF PERFORMANCE(a) Items Included in Total Estimated Cost:

(1) Salaries and Wages: \$2,130.00

Dr. C. C. Harris, Principal Investigator
(10% of time)*

2 Co-Investigators (5% of time)*

Technician (30% of time)

Clerical Help (10% of time)

*Contributed by other sources and not included in above costs.

(2) Employee Benefits: 200.00

(3) Supplies and Materials: 2,000.00

Cobalt-57, material for phantoms and storage shields
(lead and cadmium or tin), and general items

(4) Publications and Communications: 200.00

(5) Travel: 500.00

(6) Indirect Costs (55% of Salaries and Wages): 1,172.00

(b) Items Significant to the Performance of This Contract, But Excluded From Computation of Total Cost and From Consideration in Proportioning Costs:

None

(c) Time or Effort of Principal Investigator To Be Contributed by Contractor:

None under this paragraph.

A-III The total estimated project cost of A-II (a) above for the contract period stated above is \$6,202.00.

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SPECIAL RESEARCH SUPPORT AGREEMENT

APPENDIX "B"

ARTICLE B-I - DEFINITIONS

(a) The term "Commission" means the United States Atomic Energy Commission or any duly authorized representative thereof, including the Contracting Officer, except for the purpose of deciding an appeal under the article entitled, "Disputes."

(b) The term "Contracting Officer" means the person executing this contract on behalf of the Government and includes his successors or any duly authorized representative of any such person.

(c) Except as otherwise provided in this contract, the term "subcontracts" includes purchase orders under this contract.

ARTICLE B-II - INSPECTION, REPORTS, RECORDS AND ACCOUNTS

(a) The Commission shall have the right to inspect, in such manner and at all reasonable times as it deems appropriate, all activities of the Contractor arising in the course of its undertakings under this contract.

(b) The Contractor shall make progress and other reports in such manner and at such intervals as the Commission may require. The Contractor shall also make such other reports to the Commission, with respect to its activities under this contract, as the Commission may reasonably require from time to time.

(c) The Contractor agrees to keep records and books of account, in accordance with generally accepted accounting principles and practices, and consistent with the requirements of BOB Circular No. A-21 as constituted on the effective commencement date of the contract period, covering its costs and expenditures for items included under Article A-II(a) of Appendix "A" and which are in furtherance of the research work under this contract. In the event a contractor contribution is listed in Article A-II(b), the Contractor shall maintain records adequate to permit the Commission to determine the extent of the contribution. If professional staff members are included under Article A-II(c), the Contractor shall maintain records on such personnel in accordance with the payroll distribution procedure of Section J.7.b. of BOB Circular No. A-21.

(d) The Commission shall at all reasonable times be afforded access to the premises and to these books and records and to related correspondence, receipts, vouchers, memoranda, and other data of the Contractor; and the Contractor shall preserve such books and papers, without additional compensation therefor, for a period of three (3) years after completion of this contract.

ARTICLE B-III - PUBLICATION OF RESULTS

(a) Research results obtained under this contract shall be made available to all through normal and accepted channels without restriction except that no Restricted Data as defined in the Atomic Energy Act of 1954 or other classified information shall be disclosed to unauthorized persons. Published results shall indicate that the research was supported by the Commission. Seven (7) copies of each article submitted by the Contractor for publication shall be promptly sent to the Commission. The Contractor shall also inform the Commission when the article is published and furnish seven (7) copies of the article as finally published.

(b) It is recognized that during the course of the work hereunder or subsequent thereto, the Contractor, its employees, or its subcontractors may from time to time desire to publish, within the limit of security requirements, information regarding technical or scientific developments arising in the course of the contract. In order that public disclosure of such information will not adversely affect the patent interest of the Commission, such information shall be withheld from public disclosure if it discloses an invention or discovery which shall be promptly reported to the Commission, and in such case, it shall be withheld for a period of four (4) months after submission of the information to the Commission for patent review and possible patent application, unless the Commission approves earlier release.

If so indicated in the article entitled "Alterations" of this contract, the following sentence shall be deemed to govern in lieu of the last sentence of Article B-III:

"In order that public disclosure of such information will not adversely affect the patent interest of the Commission, patent approval for release shall be secured from the Commission prior to any such publication."

ARTICLE B-IV - DISCLOSURE OF INFORMATION

(a) It is mutually expected that the activities under this contract will not involve Restricted Data or other classified information or material. It is understood, however, that if in the opinion of either party this expectation changes prior to the expiration or termination of all activities under this contract, said party shall notify the other party accordingly in writing without delay. In any event, the Contractor shall classify, safeguard, and otherwise act with respect to all Restricted Data and other classified information and material, in accordance with applicable law and the requirements of the Commission, and shall promptly inform the Commission in writing if and when Restricted Data or other classified information or material

becomes involved. If and when Restricted Data or other classified information or material becomes involved, or in the mutual judgment of the parties it appears likely that Restricted Data or other classified information or material may become involved, the Contractor shall have the right to terminate performance of the work under this contract and in such event the provisions of this contract respecting termination for the convenience of the Government shall apply.

(b) The Contractor shall not permit any individual to have access to Restricted Data, or other classified information, except in accordance with the Atomic Energy Act of 1954, as amended, and the Commission's regulations or requirements.

(c) The term "Restricted Data" as used in this article means all data concerning the design, manufacture, or utilization of atomic weapons, the production of special nuclear material, or the use of special nuclear material in the production of energy, but shall not include data declassified or removed from the Restricted Data category pursuant to Section 142 of the Atomic Energy Act of 1954, as amended.

ARTICLE B-V - RESPONSIBILITY FOR THE WORK

(a) The Contractor is solely responsible for the conduct of the work.

(c) In instances where the carrying out of the contract work involves a Commission license, the provisions of the pertinent license shall prevail over any inconsistent provisions of this contract.

ARTICLE B-VI - FELLOWSHIPS

The Contractor agrees that, unless the Commission shall give its prior written approval, the Contractor shall not use any of the funds provided by the Commission under this contract to pay the stipend of any appointment for which commensurate services are not rendered under this contract or to pay any part of the stipend of a fellowship of any kind.

ARTICLE B-VII - WRITTEN MATERIAL

(a) The Contractor hereby grants to the Government a royalty-free, nonexclusive, irrevocable license to reproduce, translate, publish, use and dispose of, and to authorize others to do so, all copyrightable material produced or composed or delivered to the Government or its designees under this contract, including work not first produced or composed by the Contractor in the course of

performance under this contract but incorporated in the material produced or composed or delivered under this contract (but only to the extent that the Contractor now has, or prior to final settlement of the contract may have, the right to grant such license to such previously produced or composed work without becoming liable to pay compensation to others solely because of such grant).

(b) The Contractor agrees that, except as the Commission may otherwise specifically authorize in writing, the Contractor will not include in any report or other material delivered under this contract, or in any published material relating to the work under this contract, any copyrighted material owned by others which such owners have not consented to have so included.

(c) The Commission will not publish in advance of the Contractor's publication without prior consultation with the Contractor.

ARTICLE B-VIII - PATENTS

(a) Whenever any invention or discovery is made or conceived by the Contractor or its employees in the course of or under this contract, the Contractor shall promptly furnish the Commission with complete information thereon; and the Commission shall have the sole power to determine whether or not and where a patent application shall be filed, and to determine the disposition of the title to and rights in and to any invention or discovery and any patent application or patent that may result. The judgment of the Commission on these matters shall be accepted as final; and the Contractor, for itself and for its employees, agrees that the inventor or inventors will execute all documents and do all things necessary or proper to carry out the judgment of the Commission.

(b) No claim for pecuniary award or compensation under the provisions of the Atomic Energy Act of 1954, as amended, shall be asserted by the Contractor or its employees with respect to any invention or discovery made or conceived in the course of or under this contract.

(c) Except as otherwise authorized in writing by the Commission, the Contractor will obtain patent agreements to effectuate the purposes of paragraphs (a) and (b) of this article from all persons who perform any part of the work under this contract, except such clerical and manual labor personnel as will not have access to technical data.

(d) Except as otherwise authorized in writing by the Commission, the Contractor will insert in all subcontracts and purchase orders other than purchase orders for standard commercial items, provisions making this article applicable to the subcontract or purchase order. Except as otherwise authorized in writing by the Commission, the

Contractor will insert in purchase orders for standard commercial items a provision indemnifying the Government against liability for use of any invention or discovery and for the infringement of any Letters Patent arising by reason of the purchase, use, or disposal by or for the account of the Government of items manufactured or supplied under the purchase order.

(e) With respect to any U. S. Patent Application filed by the Contractor on any contract invention or discovery made or conceived in the course of the contract, the Contractor will incorporate in the first paragraph of the U. S. Patent Application the following statement:

"The invention described herein was made in the course of, or under, a contract (if desired, may substitute contract with identifying number) with the U. S. Atomic Energy Commission."

ARTICLE B-IX - PROPERTY ITEMS

(a) Except as otherwise provided in this paragraph (a) and paragraph (b) of this Article B-IX, title to all materials, supplies, and equipment purchased or otherwise acquired by the Contractor in the performance of its research activities shall be and remain in the Contractor. Said materials, supplies, and equipment shall be used for the benefit of research under this contract and any extensions or successor contracts hereto and, provided there is no interference with said research, shall be made available for use by investigators working on any Federal research agreement at the same location. Subject to these priorities, the materials, supplies, and equipment may be used as the Contractor wishes. Except as otherwise agreed in writing, title to any items of property listed as "Government Property" shall pass directly to the Government; such property shall be subject to paragraphs (b), (c), (d), (e), and (f) of this Article B-IX.

(b) Subject to the mutual agreement of the Commission and the Contractor, the Government may furnish the Contractor items of equipment, materials, supplies, or facilities for use by the Contractor in the performance of the contract work; title to these items shall remain in the Government unless otherwise agreed in writing. Such items of property and the items of property listed elsewhere in this contract as Government property are hereinafter referred to as "Government property." Title to Government property shall not be affected by the Government nor shall any such property, or any part thereof, be or become a fixture or lose its identity as personalty by reason of affixation to any realty.

(c) To the extent practicable, the Contractor shall cause all items of Government property to be suitably marked with an identifying mark or symbol indicating that the items are the property of the Government. The Contractor shall maintain at all times and in a manner satisfactory to the Commission records showing the use and disposition of Government property. Such records shall be subject to Commission inspection at all reasonable times and the Commission shall at all reasonable times have access to the premises wherein any items of Government property are located. Unless otherwise authorized in writing by the Commission, the Contractor shall use Government property only for the purposes of this contract; provided, however, that the Contractor is hereby authorized to use items of equipment constituting Government property for other Federal research agreements to the extent such use (1) does not interfere with its work under this contract, (2) is not prohibited by provisions of the other Federal agreements, and (3) is promptly reported by the Contractor to the Commission under this contract.

(d) The Contractor shall promptly notify the Commission of any loss or destruction of or damage to Government property. It is understood that the Contractor shall not be liable for any such loss, destruction, or damage, unless same results from willful misconduct or lack of good faith on the part of any corporate officer of the Contractor, or of one or more of the Contractor's representatives having supervision or direction of all or substantially all of the activities under this contract. If the Contractor is liable for any such loss, destruction, or damage, it shall promptly account therefor to the satisfaction of the Commission; if the Contractor is not liable therefor, and is indemnified, reimbursed, or otherwise compensated for such loss, destruction, or damage, it shall promptly account therefor to the satisfaction of the Commission.

(e) With the written approval of the Commission, the Contractor may sell, transfer, or otherwise dispose of items of Government property to such parties and upon such terms as so approved, or itself acquire title to items of Government property upon such terms as may be mutually agreed upon in writing by the Contractor and the Commission. The proceeds of any such disposition, and any agreed price of any such Contractor acquisition, shall be paid by the Contractor to the Government, or credited on account of Commission payments to be made under this contract, as the Commission may direct. Subject to the other provisions of this contract, the Contractor shall deliver Government property to the Commission upon request (suitably packed and shipped at the Government's expense).

(f) The Contractor shall utilize for the benefit of the work under this contract such items of property available to the Contractor by reason of its activities under other Federal research agreements as are

appropriate for utilization under this contract pursuant to the provisions of the pertinent Federal agreements.

ARTICLE B-X - TERMINATION FOR CONVENIENCE OF THE GOVERNMENT

(a) The performance of work under this contract may be terminated, in whole or from time to time in part, by the Government whenever for any reason the Contracting Officer shall determine that such termination is in the best interest of the Government. Termination of work hereunder shall be effected by delivery to the Contractor of a Notice of Termination specifying the extent to which performance of work under the contract is terminated and the date upon which such termination becomes effective.

(b) After receipt of the Notice of Termination the Contractor shall cancel its outstanding commitments hereunder covering the procurement of materials, supplies, equipment, and miscellaneous items. In addition, the Contractor shall exercise all reasonable diligence to accomplish the cancellation or diversion of its outstanding commitments covering personal services and extending beyond the date of such termination to the extent that they relate to the performance of any work terminated by the notice. With respect to such canceled commitments the Contractor agrees to (1) settle all outstanding liabilities and all claims arising out of such cancellation of commitments, with the approval or ratification of the Contracting Officer, to the extent he may require, which approval or ratification shall be final for all purposes of this article, and (2) assign to the Government, in the manner, at the time, and to the extent directed by the Contracting Officer, all of the right, title and interest of the Contractor under the orders and subcontracts so terminated, in which case the Government shall have the right, in its discretion, to settle or pay any or all claims arising out of the termination of such orders and subcontracts.

(c) The Contractor shall submit its termination claim to the Contracting Officer promptly after receipt of a Notice of Termination, but in no event later than one year from the effective date thereof, unless one or more extensions in writing are granted by the Contracting Officer upon written request of the Contractor within such one-year period or authorized extension thereof. Upon failure of the Contractor to submit its termination claim within the time allowed, the Contracting Officer may, subject to any review required by the Commission's procedures in effect as of the date of execution of this contract, determine on the basis of information available to him, the amount, if any, due to the Contractor by reason of the termination and shall thereupon pay to the Contractor the amount so determined.

(d) Any determination of costs under paragraph (c) shall be governed by the cost principles set forth in Subpart 1-15.3 of the Federal Procurement Regulations (41 CFR 1-15.3), as in effect on the date of this contract, except that if the Contractor is not an educational institution the determination shall be governed by AECPR 9-15.50 (41 CFR 9-15.50).

(e) Subject to the provisions of paragraph (c) above, and subject to any review required by the Commission's procedures in effect as of the date of execution of this contract, the Contractor and the Contracting Officer may agree upon the whole or any part of the amount or amounts to be paid to the Contractor by reason of the termination under this article, which amount or amounts may include any reasonable cancellation charges thereby incurred by the Contractor and any reasonable loss upon outstanding commitments for personal services which it is unable to cancel: Provided, however, That in connection with any outstanding commitments for personal services which the Contractor is unable to cancel, the Contractor shall have exercised reasonable diligence to divert such commitments to its other activities and operations. Any such agreement shall be embodied in an amendment to this contract and the Contractor shall be paid the agreed amount.

(f) The Government may from time to time, under such terms and conditions as it may prescribe, make partial payments against costs incurred by the Contractor in connection with the terminated portion of this contract, whenever, in the opinion of the Contracting Officer, the aggregate of such payments is within the amount to which the Contractor will be entitled hereunder. If the total of such payments is in excess of the amount finally agreed or determined to be due under this article, such excess shall be payable by the Contractor to the Government upon demand: Provided, That if such excess is not so paid upon demand, interest thereon shall be payable by the Contractor to the Government at the rate of 6 percent per annum, beginning 30 days from the date of such demand.

(g) The Contractor agrees to transfer title to the Government and deliver in the manner, at the times, and to the extent, if any, directed by the Contracting Officer, such information and items which, if the contract had been completed, would have been required to be furnished to the Government, including:

(1) Completed or partially completed plans, drawings, and information; and

(2) Materials or equipment produced or in process or acquired in connection with the performance of the work terminated by the notice.

Other than the above, any termination inventory resulting from the termination of the contract may, with the written approval of the Contracting Officer, be sold or acquired by the Contractor under the conditions prescribed by and at a price or prices approved by the Contracting Officer. The proceeds of any such disposition shall be applied in reduction of any payments to be made by the Government to the Contractor under this contract or shall otherwise be credited to the price or cost of work covered by this contract or paid in such other manner as the Contracting Officer may direct. Pending final disposition of property arising from the termination, the Contractor agrees to take such action as may be necessary, or as the Contracting Officer may direct, for the protection and preservation of the property related to this contract which is in the possession of the Contractor and in which the Government has or may acquire an interest.

(h) Any dispute as to questions of fact which may arise hereunder shall be subject to the "Disputes" article of this contract.

ARTICLE B-XI - PAYMENTS

(a) The Commission shall make payments to the Contractor with respect to the amount of consideration prescribed in paragraph (a) of Article III of this contract as follows:

(1) Forty-five percent following execution of this contract (and following the effectuation of each extended period).

(2) A maximum of an additional forty-five percent upon receipt of a written request or requests from the Contractor evidencing that the amount requested is then required in connection with the work under the contract.

(3) If, following submission of an annual progress report, the contract is to be extended for an additional period of performance, an additional payment may be made at the time of execution of the extension which, when added to the payments already made under (1) and (2) above for the expiring period, will not exceed the AEC support ceiling or AEC's share of currently estimated total project costs for the expiring period, whichever is less; a concluding payment for the pertinent period, if appropriate, will be made following submission of a certified statement showing the total expenditures and evidencing the Contractor's performance under the contract.

(4) If the contract is not to be extended, the final payment of the consideration provided for in Article III of this contract shall be made following submission by the Contractor of a final

report required by Article B-XXI, in form and content satisfactory to the Commission, and submission of a certified statement showing the total expenditures and evidencing the Contractor's performance under the contract.

(b) The payments made pursuant to paragraph (a) above shall not prejudice or otherwise affect adversely any of the Government's rights under the contract. For purposes of settlement in the event of termination pursuant to Article B-X hereof, these payments shall not be construed as evidentiary, and any excess payment in the light of Article B-X shall be promptly returned to the Commission.

(c) All payments under this contract, except the first payment provided in (a) above, will be subject to the submission by the Contractor to the Commission of such invoices or vouchers as are satisfactory to the Commission.

(d) The Commission, at its option, may invoke the following with respect to any amount of the contract consideration remaining to be paid at any given time:

(1) The Commission shall issue a letter of credit as provided for by Treasury Department Circular No. 1075, Revised, of February 13, 1967, under which payments to the Contractor with respect to the amount of consideration provided for in paragraph (a) of Article III of this contract will be made. The Contractor agrees that the first ninety (90) percent of the amount of consideration provided for in said paragraph (a) of Article III will be under the letter of credit and will be subject to the submission by the Contractor of a Payment Voucher on Letter of Credit (TUS 5401), in accordance with procedures based upon Treasury Department Circular No. 1075, Revised, of February 13, 1967, which are agreed to by the parties. Following submission by the Contractor of a final report provided for in Article B-XXI, in form and content satisfactory to the Commission, and submission of a certified statement showing the total expenditures and evidencing the Contractor's performance under the contract, and upon submission by the Contractor to the Commission of such invoices or vouchers as are satisfactory to the Commission, the Commission shall pay the Contractor the concluding payment of the consideration provided for in Article III of this contract, or said concluding payment will be included under the letter of credit and will be subject to submission by the Contractor of a Payment Voucher on Letter of Credit, in accordance with the procedure described above. If, following an annual report, the contract is extended for an additional period of performance, said concluding payment will similarly be paid for the expired period, and ten (10) percent will be retained with respect to the added period of performance.

The Commission reserves the right to increase, decrease, or amend the amount of funds or the amount of credit, provided that such action is required to effect a change in the amount of consideration provided for in Article III or is taken pursuant to subparagraph (d)(1) of this article. The issuance and use of a letter of credit and receipt of funds pursuant thereto shall not prejudice or otherwise adversely affect any of the Government's rights under the contract.

ARTICLE B-XII - EQUAL OPPORTUNITY

(The following clause is applicable unless this contract is exempt under the rules, regulations, and relevant orders of the Secretary of Labor (41 CFR, ch. 60).)

During the performance of this contract, the Contractor agrees as follows:

(a) The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, or national origin. Such action shall include, but not be limited to, the following: Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and professional training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the Contracting Officer regarding the provisions of this Equal Opportunity clause.

(b) The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin.

(c) The Contractor will send to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, a notice, to be provided by the Contracting Officer, advising the labor union or workers' representative of the Contractor's commitments under this Equal Opportunity clause, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(d) The Contractor will comply with all provisions of Executive Order No. 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

(e) The Contractor will furnish all information and reports required by Executive Order No. 11246 of September 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to its books, records, and accounts by the Commission and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(f) In the event of the Contractor's noncompliance with the Equal Opportunity clause of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended, in whole or in part, and the Contractor may be declared ineligible for further Government contracts in accordance with procedures authorized in Executive Order No. 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order No. 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(g) The Contractor will include the provisions of paragraphs (a) through (g) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order No. 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as the Commission may direct as a means of enforcing such provisions, including sanctions for noncompliance. Provided, however, That in the event the Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the Commission, the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

ARTICLE B-XIII - CONVICT LABOR

In connection with the performance of work under this contract, the Contractor agrees not to employ any person undergoing sentence of imprisonment at hard labor.

ARTICLE B-XIV - CONTRACT WORK HOURS STANDARDS ACT - OVERTIME COMPENSATION

This contract, to the extent that it is of a character specified in the Contract Work Hours Standards Act (40 U.S.C. 327-330), is subject to the following provisions and to all other applicable provisions and exceptions of such Act and the regulations of the Secretary of Labor thereunder:

(a) Overtime requirements. No Contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any laborer or mechanic in any workweek in which he is employed on such work to work in excess of eight hours in any calendar day or in excess of forty hours in such workweek on work subject to the provisions of the Contract Work Hours Standards Act unless such laborer or mechanic receives compensation at a rate not less than one and one-half times his basic rate of pay for all such hours worked in excess of eight hours in any calendar day or in excess of forty hours in such workweek, whichever is the greater number of overtime hours.

(b) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the provisions of paragraph (a), the Contractor and any subcontractor responsible therefor shall be liable to any affected employee for his unpaid wages. In addition, such Contractor and subcontractor shall be liable to the United States for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic employed in violation of the provisions of paragraph (a) in the sum of \$10 for each calendar day on which such employee was required or permitted to be employed on such work in excess of eight hours or in excess of the standard workweek of forty hours without payment of the overtime wages required by paragraph (a).

(c) Withholding for unpaid wages and liquidated damages. The Contracting Officer may withhold from the Government Prime Contractor, from any moneys payable on account of work performed by the Contractor or subcontractor, such sums as may administratively be determined to be necessary to satisfy any liabilities of such Contractor or subcontractor for unpaid wages and liquidated damages as provided in the provisions of paragraph (b).

(d) Subcontracts. The Contractor shall insert paragraphs (a) through (d) of this article in all subcontracts, and shall require their inclusion in all subcontracts of any tier.

(e) Records. The Contractor shall maintain payroll records containing the information specified in 29 CFR 516.2(a). Such records shall be preserved for three years from the completion of the contract.

ARTICLE B-XV - DISPUTES

(a) Except as otherwise provided in this contract, any dispute concerning a question of fact arising under this contract which is not disposed of by agreement shall be decided by the Contracting Officer, who shall reduce his decision to writing and mail or otherwise furnish

a copy thereof to the Contractor. The decision of the Contracting Officer shall be final and conclusive unless within 30 days from the date of receipt of such copy the Contractor mails or otherwise furnishes to the Contracting Officer a written appeal addressed to the Commission. The decision of the Commission or its duly authorized representative for the determination of such appeals shall be final and conclusive unless determined by a court of competent jurisdiction to have been fraudulent, or capricious, or arbitrary, or so grossly erroneous as necessarily to imply bad faith, or not supported by substantial evidence. In connection with any appeal proceeding under this article, the Contractor shall be afforded an opportunity to be heard and to offer evidence in support of its appeal. Pending final decision of a dispute hereunder, the Contractor shall proceed diligently with the performance of the contract and in accordance with the Contracting Officer's decision.

(b) This "Disputes" article does not preclude consideration of law questions in connection with decisions provided for in paragraph (a) above: Provided, That nothing in this contract shall be construed as making final the decision of any administrative official, representative, or board on a question of law.

ARTICLE B-XVI - OFFICIALS NOT TO BENEFIT

No member of or delegate to Congress, or resident commissioner, shall be admitted to any share or part of this contract, or to any benefit that may arise therefrom; but this provision shall not be construed to extend to this contract if made with a corporation for its general benefit.

ARTICLE B-XVII - COVENANT AGAINST CONTINGENT FEES

The Contractor warrants that no person or selling agency has been employed or retained to solicit or secure this contract upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, excepting bona fide employees or bona fide established commercial or selling agencies maintained by the Contractor for the purpose of securing business. For breach or violation of this warranty the Government shall have the right to annul this contract without liability or in its discretion to deduct from the contract price or consideration, or otherwise recover, the full amount of such commission, percentage, brokerage, or contingent fee.

ARTICLE B-XVIII - EXAMINATION OF RECORDS

(a) The Contractor agrees that the Comptroller General of the United States or any of his duly authorized representatives shall, until the expiration of three years after final payment under this contract, have access to and the right to examine any directly pertinent books, documents, papers, and records of the Contractor involving transactions related to this contract.

(b) The Contractor further agrees to include in all its subcontracts hereunder a provision to the effect that the subcontractor agrees that the Comptroller General of the United States or any of his duly authorized representatives shall, until the expiration of three years after final payment under the subcontract, have access to and the right to examine any directly pertinent books, documents, papers, and records of such subcontractor, involving transactions related to the subcontract. The term "subcontract" as used in this article excludes (i) purchase orders not exceeding \$2,500 and (ii) subcontracts or purchase orders for public utility services at rates established for uniform applicability to the general public.

(c) Nothing in this contract shall be deemed to preclude an audit by the General Accounting Office of any transaction under this contract.

ARTICLE B-XIX - BUY AMERICAN ACT

(a) In acquiring end products, the Buy American Act (41 U.S. Code 10 a-d) provides that the Government give preference to domestic source end products. For the purpose of this article:

(i) "Components" means those articles, materials, and supplies which are directly incorporated in the end products;

(ii) "End products" means those articles, materials, and supplies which are to be acquired under this contract for public use; and

(iii) A "domestic source end product" means (A) an unmanufactured end product which has been mined or produced in the United States and (B) an end product manufactured in the United States if the cost of the components thereof which are mined, produced, or manufactured in the United States exceeds 50 percent of the cost of all its components. For the purpose of this (a)(iii)(B), components of foreign origin of the same type or kind as the products referred to in (b)(ii) or (iii) of this article shall be treated as components mined, produced, or manufactured in the United States.

... will be delivered under this contract for limited quantities, except end products:

- (ii) Which are for use outside the United States;
- (iii) Which the Government determines are not mined, produced, or manufactured in the United States in sufficient and reasonably available commercial quantities and of a satisfactory quality;
- (iv) As to which the Commission determines the domestic preference to be inconsistent with the public interest; or
- (v) As to which the Commission determines the cost to the Government to be unreasonable.

(The foregoing requirements are administered in accordance with Executive Order No. 12551, dated December 17, 1954.)

ARTICLE B-XX - ASSIGNMENT; SUBCONTRACTING

Neither this contract nor any interest therein nor claim thereunder shall be assigned or transferred by the Contractor, except as expressly authorized in writing by the Commission. The Contractor shall not subcontract any part of the work under this contract, except as expressly authorized in writing by the Commission.

ARTICLE B-XXI - REPORTS AND RECORDS

The Contractor shall furnish seven (7) copies of the following reports and renewal proposals, if any, addressed to the Laboratory and University Division, U. S. Atomic Energy Commission, Oak Ridge Operations Office, Post Office Box E, Oak Ridge, Tennessee 37830:

(a) Progress Report. The progress report shall briefly describe the scope of investigations undertaken and the significant results obtained. It shall also indicate compliance with the contract requirements and any failures to comply. The report shall indicate the approximate percentage of time or effort which the principal investigator(s) has devoted to the project since the beginning of the current term of the agreement and indicate the amount of effort which is expected to be devoted during the remainder of the current term. Technical reports and articles prepared for publication shall be listed with bibliographic references. Reprints or preprints of all such material shall be appended and material contained therein need not be duplicated in the report. Progress reports shall be submitted approximately three months in advance of the expiration of the current contract term and

shall give the Contractor's best estimate of the probable events and occurrences in regard to the remainder of the current contract term. Except as the Commission may otherwise request, no further progress report will be required for any contract year unless there has been a significant change in scientific results or contract compliance between the latest progress report by the Contractor and its actual experience; this shall be reported promptly.

(b) Final Report. Upon termination or expiration of the total period of performance, the Contractor shall submit, promptly, a summary of its activities for the entire period, including a list of publications issued during the total term of the contract and copies of any reprints not previously submitted, as well as a comprehensive evaluation of progress in the area of research supported by the contract.

(c) Renewal Proposals. A renewal proposal, if any, shall be submitted along with the technical progress report, and each of the two documents shall be separately bound.

(d) Report of Equipment Purchased or Fabricated. The Contractor shall itemize equipment having a useful life expectancy in excess of one year and an acquisition cost in excess of \$100 purchased or fabricated by the Contractor when title to such equipment is vested in the Contractor pursuant to the Grant Act (Public Law 85-934)--omit any items appearing in Article V--and submit a report thereof within three months after the expiration of the contract year specified in Article II. Where the cost of individual pieces of equipment exceeds \$1,000, they will be listed individually. Where individual items cost \$100 to \$1,000, they will also be individually listed to the extent practical or grouped in general categories, such as "electronic equipment" or six motors," with the total dollar amount of such category. The cost of purchased items shall be determined by the actual invoice cost of such items, but the cost of fabricated items may be established by engineering estimates. This report may be submitted in conjunction with the certified statement required by Article B-XXVII of this contract.

ARTICLE B-XXII - FOREIGN TRAVEL

Foreign travel shall be subject to the prior approval of the Contracting Officer.

ARTICLE B-XXIII - PRIORITIES, ALLOCATIONS, AND ALLOTMENTS

The Contractor shall follow the provisions of DMS Regulation 1 and all other applicable regulations and orders of the Business and Defense Services Administration in obtaining controlled materials and other products and materials needed to fill this order. This contract carries rating: DO-E-2 certified for national defense under DMS Regulation 1.

ARTICLE B-XXIV - UTILIZATION OF CONCERNS IN LABOR SURPLUS AREAS

It is the policy of the Government to place contracts with concerns which will perform such contracts substantially in areas of persistent or substantial labor surplus, where this can be done consistent with the efficient performance of the contract and at prices no higher than are obtainable elsewhere. The Contractor agrees to use its best efforts to place its subcontracts in accordance with this policy. In complying with the foregoing and with paragraph (b) of the article of this contract entitled, "Utilization of Small Business Concerns," the Contractor in placing its subcontracts shall observe the following order of preference: (1) persistent labor surplus area concerns which are also small business concerns; (2) other persistent labor surplus area concerns; (3) substantial labor surplus area concerns which are also small business concerns; (4) other substantial labor surplus area concerns; and (5) small business concerns which are not labor surplus area concerns.

ARTICLE B-XXV - UTILIZATION OF SMALL BUSINESS CONCERNS

(a) It is the policy of the Government as declared by the Congress that a fair proportion of the purchases and contracts for supplies and services for the Government be placed with small business concerns.

(b) The Contractor agrees to accomplish the maximum amount of subcontracting to small business concerns that the Contractor finds to be consistent with the efficient performance of this contract.

ARTICLE B-XXVI - SOVIET-BLOC CONTROLS

In connection with the contract activities, the Contractor agrees to comply with the requirements set forth in Appendix "D" of this contract relating to the countries listed therein. From time to time, by written notice to the Contractor, the Commission shall have the right to change the listing of countries in Appendix "D" upon a determination by the Commission that such change is in conformance with national policy. The Contractor shall have the right to terminate its performance under this contract upon at least sixty (60) days' prior written notice to the Commission if the Contractor determines that it is unable, without substantially interfering with its policies as an educational institution or without adversely affecting its performance, to continue performance of the work under this contract as a result of a change in Appendix "D" made by the Commission pursuant to the preceding sentence. If the Contractor elects to terminate performance, the provisions of this contract respecting termination for the convenience of the Government shall apply.

ARTICLE B-XXVII - DETERMINATION OF TOTAL COSTS

(a) The term "total cost" as used in this contract means the sum of costs incurred by the Contractor for items included under Article A-II (a) of Appendix "A", which are in furtherance of the work hereunder, and may include the following: expenditures of cash, exclusive of cash payments relating to items included in the total cost of a prior period; the cost of material and supplies transferred from stores inventory; unpaid delivered orders for services, supplies, and equipment; unpaid undelivered orders (commitments) for items of equipment; unpaid delivered orders (commitments) for materials and supplies purchased in normal and reasonable quantities; and the amount due the Contractor for indirect costs in accordance with the rate and factor or factors shown in Appendix "A" of this contract. Except as the parties may otherwise specifically agree in writing, total cost will apply separately to each annual (or lesser) period of performance. Total cost for a contract period shall be determined consistent with the principles of the Bureau of the Budget Circular A-21, as constituted on the effective commencement date of said period.

(b) Within three months after the end of each contract period and within three months after the expiration or termination of the contract, the Contractor shall furnish its certified statement, executed by an official of the Contractor and also signed by the principal investigator, showing the Contractor's total cost and evidencing its performance under the contract. The statement shall be in the form set forth in Appendix "C". The Contractor understands that the Commission expects to rely on this certified statement. The Contractor is expected to maintain auditable records as contemplated by Paragraph (c) of Article B-II to substantiate the total costs incurred under this contract.

ARTICLE B-XXVIII - ADDITIONAL APPROVALS

(a) In addition to such approvals as are specifically required by other provisions of this contract, the Contractor shall obtain the Commission's approval for:

(1) Acquisition of:

(i) An item of equipment, not itemized in Appendix "A", involving an acquisition cost in excess of \$1,000 or 2 percent of the total estimated project cost specified in A-III of Appendix "A", whichever is greater, unless such equipment is merely a different model of an item itemized in Appendix "A". (When plant and equipment funds are provided for the acquisition of Government property, the Headquarters Program

Divisions may require, in specific cases, that such funds be used only for acquiring the equipment designated in Article V, unless prior AEC approval has been obtained.)

(ii) Any equipment not itemized in Appendix "A", the acquisition cost of which will cause the equipment dollar level shown in Appendix "A" to be increased by \$500 or more. (If plant and equipment funds are provided for the acquisition of equipment, with title to be vested in the Government, the total cost of such equipment acquisitions shall not exceed the amount budgeted for such equipment unless prior AEC approval has been obtained.)

(2) Purchase of any general-purpose equipment, such as office furniture or air conditioning, not specifically provided for in Appendix "A".

(3) Reserved.

(4) A change of the principal investigator, or continuation of the research work without direction by an approved principal investigator. The principal investigator may increase or decrease the amount of effort which he devotes to the project without obtaining Commission approval; however, the principal investigator shall consult with the appropriate AEC Headquarters program representative if he plans to, or becomes aware that he will, devote substantially less effort to the work than anticipated in Article A-1. The purpose of such consultation will be to determine what effect, if any, the anticipated change will have on the research work.

(b) No change in the phenomenon or phenomena under study; i.e., broad category of the research under this contract, shall be made without the specific written approval of the Commission; ordinarily, such changes, if approved by the Commission, will be accomplished through a new contract or a mutually agreed-to modification. The Contractor may change the specific objectives in the research work described in this contract, provided it gives the Commission prompt notification of such changes; and the Contractor may continue to follow the new objectives while the Commission determines whether it wishes to continue the program under the changed approach.

APPENDIX "C"^{1/}

U. S. ATOMIC ENERGY COMMISSION

Statement of Annual Costs

1. Name and address of Contractor: _____
2. Contract Number: _____
3. Beginning and ending date of pertinent contract period: _____
4. Support ceiling for the pertinent contract period: _____
5. Costs incurred during the pertinent contract period. (List only those costs which are to be reimbursed by the AEC or proportionately shared by the parties in accordance with Article A-II (a).):

<u>Cost Categories</u>	<u>Amount</u>
a. <u>Salaries and Wages</u> (List principal investigator and other personnel in same detail as shown in Article A-II (a) of Appendix "A".)	\$ _____
b. <u>Supplies and Materials</u> (Show in same detail as in Appendix "A".)	\$ _____
c. <u>Equipment</u> (List cost of each piece of equipment separately listed in Appendix "A" to the contract or for which separate approval was obtained from AEC.)	\$ _____
d. <u>Publications</u>	\$ _____
e. <u>Travel</u>	\$ _____
f. <u>Other</u> (List separately each type of cost included in this category.)	\$ _____
Total Direct Expenditures	\$ _____

^{1/} Appendix "C" is a sample statement. The actual statement furnished by the Contractor should be consistent with the itemization in Appendix "A".

<u>Cost Categories</u>	<u>Amount</u>
g. <u>Indirect Charges</u> (Indicate percent and expenditures to which percent is applied.)	\$ _____
h. <u>Orders delivered but not paid for</u> (Break down, by types of cost, items delivered or services provided that were not paid for at the close of the contract period.)	\$ _____
i. <u>Unpaid undelivered orders for equipment, supplies, and materials</u> (Break down, by types of costs, items ordered but not delivered at the close of the contract period.)	\$ _____
j. <u>Items of equipment specifically authorized by AEC for purchase in prior contract period and for inclusion in the total costs for this contract period</u>	\$ _____
Total Costs	\$ _____
Total Costs as defined in Article B-XXVII of the contract chargeable to AEC (% of total using % shown in contract)	\$ _____
6. Information regarding prior period costs (identify amounts of undelivered orders in prior periods where the cost claimed was not incurred and any other differences in costs incurred from those claimed)	\$ _____
7. Provide information regarding contributions by the Contractor of items listed in Article A-II (b) of Appendix "A". State the extent of the Contractor's actual contribution; the measure of such contributions should be in the same terms as the Contractor's commitment under Article A-II (b); e.g., time, dollars, etc.	

I hereby certify that this report is true and correct to the best of my knowledge and belief and that the costs and commitments listed herein were incurred, except as provided in j. above, during the period indicated, in connection

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with the performance of the research provided for under this contract and in accordance with the terms and conditions set forth therein.

Name and title of Principal Investigator

Signature

Date

Name and title of business officer

Signature

Date

APPENDIX "D"

REQUIREMENTS RELATING TO EXCHANGES OF INFORMATION

1. The requirements set forth herein relate to the dissemination by the Contractor of the information developed under this contract and/or under other Commission programs to countries by or through exchange activities, including but not limited to employment, work participation, visits and correspondence. The term "countries" (including where used in the term "Soviet-Bloc Countries"), as used in this Appendix "D", includes all nations (other than the United States, its territories and possessions), the embassies, consulates, and agencies of such nations, and individuals and organizations of such nations.
2. For the purpose of these requirements the Soviet-Bloc Countries consist of:

Group A

Albania
 Bulgaria
 Czechoslovakia
 Estonia
 Hungary
 Latvia
 Lithuania
 Poland and Danzig
 Rumania
 Union of Soviet Socialist Republics

Group B

China, including Manchuria (includes Inner Mongolia; the provinces of Tsinghai and Sikang, Tibet; the former Kwantung Leased Territory, the present Port Arthur Naval Base Area and Liaoning Province) and excluding Taiwan (Formosa)
 Communist-controlled area of Viet Nam
 East Germany (Soviet Zone of Germany and the Soviet Sector of Berlin)
 North Korea
 Outer Mongolia
 Cuba

3. The following exchange activities between the Contractor and any of the Soviet-Bloc Countries shall be subject to the prior written approval of the Commission on an individual case basis:

- a. Employees of the Contractor engaging in employment by activities of, or travel to, any of the Soviet-Bloc Countries where such employees' travel or other activity is financially supported by the Commission.
 - b. Employment of, or participation in activities of the Contractor by, nationals of any of the Soviet-Bloc Countries in furtherance of or in connection with work under this contract.
 - c. Participation of nationals of any of the Soviet-Bloc Countries at U. S. conferences, meetings and symposia which are supported by Commission funds or are organized and directed by persons receiving financial support for such activities from the Commission and acting in the name of the Commission or the Contractor.
4. Unofficial travel to any of the Soviet-Bloc Countries by employees of the Contractor who hold a Commission security clearance will be subject to the prior approval of the Commission on an individual case basis.
 5. The Contractor shall inform all of its employees who formerly held a Commission security clearance of the Commission's desire to be advised of their proposed unofficial travel to any of the Soviet-Bloc Countries. The Contractor shall notify the Commission of all such proposed unofficial travel by its employees of which it becomes aware pursuant to the notification given in accordance with the provisions hereof.
 6. The Contractor, if the contract herein is a cost-type rather than a fixed-price type, shall inform the Commission, in advance whenever feasible, of all proposed visits by nationals of any of the Soviet-Bloc Countries and shall furnish a report thereof in accordance with directions furnished by the Contracting Officer.
 7. All correspondence and other communications relative to the exchange of information whether with Soviet-Bloc Countries or other countries shall be subject to the following policy and procedure:
 - a. Transmittal of published information relating to the peaceful uses of atomic energy is permitted and encouraged provided the transmittals to countries listed in Group B of Section 2., above, are made in the name of the Contractor or the individual scientist and not in the name of the Commission;
 - b. Transmittal of unpublished information relating to the peaceful uses of atomic energy is permitted and encouraged provided:
 - (1) The information transmitted is made available to requesters in the United States. In order to insure availability to requesters in the United States, one copy of all such unpublished information (with the exception of personal correspondence covering informal scientific or technical opinion) shall be forwarded to the Contracting Officer;

- (2) The transmittals to countries listed in Section 2., above, are accompanied by a request for appropriate equally valuable material in return; and
 - (3) The transmittals to countries listed in Group B of Section 2., above, are made in the name of the Contractor or the individual scientist and not in the name of the Commission.
- c. Requests for information not falling within the scope of the above-stated policy and any unusual requests for published and unpublished information shall be forwarded to the Contracting Officer. Examples of unusual requests for published and unpublished information include: (1) Requests for collections of published documents or for unpublished information which are not readily available to the recipient of the request; (2) Requests for comprehensive and detailed unpublished design information and unpublished development information on major equipment, such as reactors, chemical processing plants, and accelerators; and (3) Official correspondence from any government other than the United States, its territories and possessions.

As used in this Section 7:

- a. The term "published information" means all unclassified scientific and technical documents; internal and informal reports; reprints; preprints; page proofs of journal articles; engineering drawings; photographs; films; notes; irradiated emulsions; etc., originated within Commission programs, and available either from the Division of Technical Information Extension, Oak Ridge, Tennessee, AEC depository libraries, or other sources from which the public may obtain the above types of information by purchase or without cost.
 - b. The term "unpublished information" means all unclassified scientific and technical documents; internal and informal reports; reprints; preprints; page proofs of journal articles; engineering drawings; photographs; films; notes; irradiated emulsions; etc., originating within Commission programs but which are not available from the Division of Technical Information Extension, Oak Ridge, Tennessee, AEC depository libraries, or from other sources from which the public may normally obtain the information by purchase or without cost.
8. In all exchanges of information, care should be taken that the release of the information does not result in the disclosures of Restricted Data or other classified information, or privileged information, in violation of applicable law and/or the provisions of this contract; or the disclosure of any information that would adversely affect the patent interest of the Commission in violation of the provisions of this contract.