

U. S. NUCLEAR REGULATORY COMMISSION  
NOTICE OF GRANT AWARD

<b>1. GRANT NUMBER</b> NRC-04-90-113	<b>2. MODIFICATION NUMBER</b> N/A	<b>3. GRANT PERIOD</b> FROM: 9/28/90 TO: 9/27/92
<b>4. AUTHORITY</b> Pursuant to Sections 31a and 141b of the Atomic Energy Act of 1954, as amended	<b>5. TYPE OF AWARD</b> Grant	<b>6. GRANTEE TYPE</b> Educational Institution
<b>7. GRANTEE NAME AND ADDRESS</b> University of Virginia School of Engineering & Applied Science P.O. Box 9003 Charlottesville, VA 22906		<b>8. PROJECT TITLE</b> "Studies on Limit Cycles and the Nonlinear Dynamics of Boiling Water Reactors"
<b>9. PROJECT WILL BE CONDUCTED PER GRANTEE'S PROPOSAL(S)</b>  DATED <u>December 1989</u> AND APPENDIX A - PROJECT GRANT PROVISIONS		<b>10. TECHNICAL REPORTS ARE REQUIRED</b> <input checked="" type="checkbox"/> PROGRESS AND FINAL <input type="checkbox"/> FINAL ONLY <input type="checkbox"/> OTHER
<b>11. PRINCIPAL INVESTIGATOR(S) NAME AND ADDRESS</b> P.I.'s Name: John J. Dorning (804) 924-7136 P.I.'s Address: See Block No. 7 Above		<b>12. NRC PROGRAM OFFICE (NAME AND ADDRESS)</b> Office of Nuclear Regulatory Research Attn: Harold Scott, NL/N 353 Washington, DC 20555 TELEPHONE NO. (301) 492-3563
<b>13. ACCOUNTING AND APPROPRIATION DATA</b>  B&R No. : 0601925040 FIN No. : G16020 APPN No. : 31X0200.600		<b>14. METHOD OF PAYMENT</b>  <input type="checkbox"/> ADVANCE BY TREASURY CHECK <input checked="" type="checkbox"/> REIMBURSEMENT BY TREASURY CHECK <input type="checkbox"/> LETTER OF CREDIT <input type="checkbox"/> OTHER (SPECIFY)

**15. FUNDING SOURCES**

<u>SOURCE</u>	<u>AMOUNT</u>
NRC:	
THIS GRANT	\$ <u>24,895.00*</u>
PREVIOUSLY OBLIGATED	\$ _____
GRANTEE SHARE:	
THIS GRANT	\$ _____
PRIOR GRANT	\$ _____
TOTAL FUNDING	\$ <u>24,895.00*</u>

\*Funds in the amount of \$49,792.00 (FY 1991) and \$24,895.00 (FY 1992) will be obligated pending availability of funds. The total cost of this 3 year effort is \$99,582.00.

**16. AMOUNT OBLIGATED BY THIS GRANT ACTION:**                   \$ 24,895.00

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 PDR CONTR  
 NRC-04-90-113 PNU

17. NRC ISSUING OFFICE (NAME AND ADDRESS)

Office of Administration  
Division of Contracts  
Washington, DC 20555

18. GRANTEE

B. Wayne Jennings      9/24/90  
(Signature)                      (Date)

NAME (TYPED) B. WAYNE JENNINGS

TITLE DIRECTOR  
SPONSORED PROGRAMS

TELEPHONE NO. (804) 924-4370

19. NRC GRANT OFFICER

Elois J. Wiggins      9/20/90  
(Signature)                      (Date)

NAME (TYPED) Elois J. Wiggins

TITLE Grants Officer

TELEPHONE NO. (301) 492-4210

20. GRANT PAYMENT INFORMATION

Payment will be made within thirty (30) days after receipt of the billing unless the billing is improper or the grantee has failed to comply with the program objectives, grant award conditions. Federal reporting requirements or other conditions are specified in OMB Circular A-110.

Payment will be made by:

U. S. Nuclear Regulatory Commission  
Office of Resource Management  
Division of Accounting and Finance, ATTN: GQV/COM ACCOUNTS  
Washington, DC 20555

Vouchers should be submitted in an original and one (1) copy to the above address. A copy of the voucher should also be forwarded to the Division of Contracts.

21. Attached is a copy of the "NRC Project Grant Provisions for Institutions of Higher Education and Other Nonprofit Organizations." Acceptance of these terms and conditions is acknowledged when federal funds are used on this grant project.

2. ORDER OF PRECEDENCE

In the event of a conflict between the grantee's proposal and this Notice of Grant Award, the terms of the Notice of Grant Award shall prevail.

23. By this Grant award, the Grantee certifies that payment of any audit-related debt will not reduce the level of performance of any Federal Program.

APPENDIX A

3150-0107  
(07/90)

NRC PROJECT GRANT PROVISIONS FOR  
INSTITUTIONS OF HIGHER EDUCATION  
AND OTHER NONPROFIT ORGANIZATIONS

This grant is subject to the following provisions:

1. General

- a. This grant is composed of a grant face page (which may incorporate the grantee's proposal by reference) and the NRC Project Grant Provisions for Institutions of Higher Education and Other Nonprofit Organizations.
- b. This award constitutes acceptance by the U.S. Nuclear Regulatory Commission (NRC) of the grantee's proposal and budget unless otherwise indicated on the face page.
- c. The grantee is obligated to conduct such project oversight as may be appropriate, to manage the funds with prudence, and to comply with the provisions outlined herein. Within this framework, the Principal Investigator (PI) named on the grant face page is responsible for the scientific or technical direction of the project and for preparation of the project performance reports.
- d. This grant is funded on a cost reimbursement basis not to exceed the amount awarded as indicated on the face page and is subject to a refund of unexpended funds to NRC.
- e. This grant award is subject to the policies prescribed in OMB Circular A-110, dated July 30, 1976.

2. Reporting Program Technical Performance

Grantees are responsible for the performance under grants and other agreements and, where appropriate, ensure that time schedules are being met, projected work units by time periods are being accomplished, and other performance goals are being achieved.

a. Frequency of Performance Reports

Performance reports will be submitted in letter format within 30 calendar days after the end of every second calendar quarter and a final report no later than the expiration date of the grant period indicated on the face page.

b. Copies of Performance Reports

One copy of the letter report shall be submitted to the Division of Contracts and Property Management, three copies to the NRC Program Office (at the address indicated on the face page).

c. Content of Performance Report

The report content shall be as follows:

- (1) A comparison of actual accomplishments with the goals established for the period, the findings of the investigator, or both. If the output of programs or projects can be readily quantified, such quantitative data should be related to cost data for computation of unit costs.
- (2) Reasons why established goals were not met.
- (3) Other pertinent information including, when appropriate, analysis and explanation of anticipated cost overruns or high unit costs.
- (4) Between the required performance reporting dates, events may occur that have significant impact upon the project or program. In such instances, the recipient shall inform the Nuclear Regulatory Commission as soon as the following types of conditions become known:
  - (a) Problems, delays, or adverse conditions that will materially affect the ability to attain program objectives, prevent the meeting of time schedules and goals, or preclude the attainment of project work units by established time periods. This disclosure shall be accompanied by a statement of the action taken, or contemplated, and any Federal assistance needed to resolve the situation.
  - (b) Favorable developments or events that enable time schedules to be met sooner than anticipated or more work units to be produced than originally projected.
  - (c) If any performance review conducted by the grantee discloses the need for change in the budget estimates in accordance with the criteria established in Attachment J to Circular A-110, the grantee shall submit a request for budget revision.

d. Publication of Results

The general conditions of the assistance instrument will specify the publications requirements of the award and a provision for the granting to the Government a royalty free, nonexclusive, irrevocable license to reproduce, translate, publish, use and dispose of all copyrightable material first produced or composed in the grantee's/ cooperator's performance under the grant or cooperative agreement.

Grantees or cooperators may be required to produce reports to be published by NRC in accordance with the provisions of Manual Chapter 3202 or be given the option of publication in a recognized technical journal.

Each journal article submission must be accompanied by the following statement, "The submitted manuscript has been authored by a grantee of the U.S. Government under Grant No. \_\_\_\_\_. Accordingly, the U.S. Government has a nonexclusive, royalty-free license to publish or reproduce the published form of this contribution, or allow others to do so, for U.S. Government purposes."

All open literature publications prepared under this grant shall contain the following statement:

This paper was prepared with the support of the U.S. Nuclear Regulatory Commission (NRC) under Grant No. \_\_\_\_\_. The opinions, findings, conclusions and recommendations expressed herein are those of the author(s) and do not necessarily reflect the views of the NRC.

If requested by the journal or other publisher to transfer the copyright, the author shall respond to the journal or other publisher, in writing, in accordance with the sample letter shown below:

#### Sample Letter on Copyright Agreement

Dear \_\_\_\_\_:

We recently received a document for signature assigning copyright and republication rights in the submitted article (title) to (name of publication). This letter is offered in lieu of the document as a means of completing the transfer of ownership. Accordingly, we hereby expressly transfer and assign our rights of ownership in the above cited work to (name of publisher).

You are advised, however, that the above assignment and any publication or republication of the above cited work is subject to the following Government rights:

The submitted manuscript has been authored by a contractor (grantee) of the U.S. Government under contract (grant) No. \_\_\_\_\_. Accordingly, the U.S. Government has a nonexclusive, royalty-free license to publish or reproduce the published form of this contribution, or allow others to do so, for U.S. Government purposes.

Sincerely,

\_\_\_\_\_

e. Reprints of Publications

At such time as any article resulting from work under the grant is published in a scientific technical or professional journal or publication, two reprints of the publication should be sent to the cognizant NRC Program Officer clearly labeled with the grant number and other appropriate identifying information.

3. Suspension or Termination for Cause

- a. When in the opinion of NRC, a grantee has materially failed to comply with the terms and conditions of a grant, NRC may (1) suspend the grant or (2) terminate the grant for cause.
- b. NRC prefers that deficiencies be corrected whenever practicable. When it is believed that a grantee has failed to comply with one or more of the terms and conditions of a grant, the Grants Officer will advise the grantee by letter of the nature of the problem and that failure to correct the deficiency may result in suspension or termination of the grant. The grantee will be requested to respond in writing within 30 days of receipt of such letter, describing the action taken or the plan designed to correct the deficiency. Copies of such correspondence will be furnished to the Principal Investigator (PI) and to the NRC Program Officer. If a satisfactory response is not received within 30 days of receipt of such a letter, the Grants Officer may issue a notice suspending authority to further obligate grant funds, in whole or in part. The notice of suspension will be sent by certified mail (return receipt requested, to the grantee with a copy to the PI. The notice will set forth the activities covered by the suspension and its effective date, and the corrective action required by the grantee in order to lift the suspension. However, this policy does not preclude immediate suspension or termination when such action is reasonable under the circumstances and necessary to protect the interests of the Government.
- c. If a grant is suspended pursuant to this article, no obligations incurred by the grantee during the period of suspension will be allowable under the suspended grant other than necessary and proper costs that the grantee could not reasonably avoid during the period of suspension; provided that such costs would otherwise be allowable under the applicable Federal cost principles.
- d. The suspension will remain in effect for a maximum of 90 days during which time the grantee will take corrective action to the satisfaction of NRC or give assurances satisfactory to NRC that corrective action will be taken. In that event, the Grants Officer will issue a notification, to the grantee, that the suspension is lifted.
- e. In the event the deficiency is not corrected to the satisfaction of NRC, the Grants Officer may issue a notice of termination. The notice will establish the reasons for the action and its effective date.

- f. If a grant is terminated pursuant to this article, financial obligations incurred by the grantee prior to the effective date of termination shall be allowable to the extent they would have been allowable had the grant not been terminated, except that no obligation incurred during the period in which the grant was suspended (except those allowed pursuant to c, above) will be allowed. The settlement of termination costs will be in accordance with the applicable Federal cost principles.
- g. Within 90 days of the effective date of termination, the grantee will furnish an itemized accounting of funds expended for allowable costs prior to the effective date of termination and the unexpended grant balance.

#### 4. Termination for Convenience

- a. Circumstances may arise in which either NRC or the grantee wishes to terminate its performance of a project in whole or in part. If both parties agree, the grant may be terminated by mutual agreement.
- b. If the grantee wishes to terminate the project, it shall advise the NRC Grants Officer, with a copy to the cognizant NRC Program Officer.
- c. If NRC wishes to terminate the project, the Grants Officer will advise the grantee with copies to the PI and the cognizant NRC Program Officer.
- d. Within 30 days after receipt of a request from either party for termination by mutual agreement, the other party will provide an appropriate written response.
- e. In the event of disagreement between the parties, the Grants Officer will make a final decision subject to the review procedures described in the following article entitled "Dispute Review Procedure."
- f. The grantee shall not incur new obligations for the terminated portion after the effective date, and shall cancel as many outstanding obligations as possible. The Nuclear Regulatory Commission shall allow full credit to the grantee for the Federal share of the noncancellable obligations, properly incurred by the grantee prior to termination.

#### 5. Dispute Review Procedure

- a. Any request for review of a notice of termination or other adverse decision should be addressed to the Grants Officer. It must be postmarked no later than 30 days after the postmarked date of such notice.
- b. The request for review must contain a full statement of the grantee's position and the pertinent facts and reasons in support of such position.
- c. The Grants Officer will promptly acknowledge receipt of the request for review and shall forward it to the Director, Office of Administration, who shall appoint a review committee consisting of a minimum of three persons.

- d. Pending resolution of the request for review, the NRC may withhold or defer payments under the grant during the review proceedings.
- e. The termination review committee will request the Grants Officer who issued the notice of termination to provide copies of all relevant background materials and documents. It may, at its discretion, invite representatives of the grantee and the NRC program office to discuss pertinent issues and to submit such additional information as it deems appropriate. The chairman of the review committee will insure that all review activities or proceedings are adequately documented.
- f. Based on its review, the committee will prepare its recommendations to the Director, Office of Administration, who will advise the parties concerned of his decision.

#### 6. Travel

Domestic travel is an appropriate charge to this grant, and prior authorization for specific trips is not required. Foreign travel must be clearly essential to the grant effort and must, to be charged against this grant, have prior explicit approval of the Grants Officer regardless of its inclusion in the approved grant budget.

All common carrier travel reimbursable hereunder shall be via the least expensive class rates consistent with achieving the objective of the travel. If not available, reimbursement vouchers will be annotated that economy class accommodations were not available. First-class air travel is not authorized.

#### 7. Use of U.S. Flag Carriers

- a. The Comptroller General of the United States, by Decision B-138942 of June 17, 1975, as amended, provided guidelines for implementation of Section 5 of the International Air Transportation Fair Competitive Practices Act of 1974.
- b. Any air transportation to, from, between, or within a country other than the U.S. of persons or property, the expense of which will be assisted by NRC funding, must be performed on a U.S. flag carrier if services provided by such carrier is "available."
- c. For the purposes of this requirement:
  - (1) Passenger or freight service by a certificated air carrier is considered "available" even though:
    - (a) Comparable or a different kind of service by a noncertificated air carrier costs less, or
    - (b) Service by a noncertificated air carrier can be paid for in excess foreign currency, or



- (c) Service by a noncertificated air carrier is preferred by the grantee, contractor, or traveler needing air transportation, or
  - (d) Service by a noncertificated air carrier is convenient for the grantee, contractor or traveler needing air transportation.
- (2) Passenger service by a certificated air carrier is considered to be "unavailable":
- (a) When the traveler, while enroute, has to wait 6 hours or more for an available U.S. carrier, or
  - (b) When any flight by a U.S. flag carrier is interrupted by a stop anticipated to be 6 hours or more for refueling, reloading, repairs, etc., and no other flight by a U.S. air carrier is available during the 6 hour period, or
  - (c) When the flight by a U.S. air carrier takes 12 or more hours longer than a foreign carrier.

8. Allowable Costs

- a. The allowability of costs and cost allocation methods for work performed under this grant, up to the amount specified in the grant instrument, shall be determined in accordance with the applicable Federal Cost Principles in effect on the effective date of the grant and the terms of the grant.
- b. The Federal Cost Principles applicable to specific types of grantees are as follows:
  - (1) Institutions of higher education. OMB Circular A-21 is applicable to both public and private institutions of higher education.
  - (2) Nonprofit Organizations - OMB Circular A-122

9. Retention and Custodial Requirements for Records

Grantees shall retain and permit examination of records as required by OMB Circular A-110, Attachment C. Grantees shall place appropriate requirements on sub-grantees as specified by that attachment.

10. Payment and Financial Reporting Requirements

Payments by NRC will be made by the method indicated on the face page. Grantee requests for payment, NRC payments, and grantee financial reporting requirements shall be made in accordance with OMB Circular A-110, Attachments G and I.

11. Property Management Standards

Property shall be accounted for and managed in accordance with OMB Circular A-110, Attachment N.

12. Copyright

Unless otherwise provided in the grant instrument, the grantee may copyright any books, publications, films, or other copyrightable materials developed in the course of or under this grant. However, any such copyrighted materials shall be subject to a royalty-free, irrevocable, worldwide, nonexclusive license in the United States Government to reproduce, perform, translate, and otherwise use and to authorize others to use such materials for Government purposes.

13. Patent Rights (Small Business Firms or Non-Profit Organizations, July, 1981)

a. Definitions

- (1) "Invention" means any invention or discovery which is or may be patentable or otherwise protectable under Title 35 of the United States Code (USC).
- (2) "Subject Invention" means any invention of the grantee conceived or first actually reduced to practice in the performance of work under this grant.
- (3) "Practical Application" means to manufacture in the case of a composition or product, to practice in the case of a process or method, or to operate in the case of a machine or system; and, in each case, under such conditions as to establish that the invention is being utilized and that its benefits are to the extent permitted by law or Government regulations, available to the public on reasonable terms.
- (4) "Made" when used in relation to any invention means the conception or first actual reduction to practice of such invention.
- (5) "Small Business Firm" means small business concern as defined at Section 2 of Public law 85-536 (15 USC 632) and implementing regulations of the Administrator of the Small Business Administration. For the purpose of this clause, the size standard for small business concerns involved in Government procurement, contained in 13 CFR 121.3-8, and in subcontracting, contained in 13 CFR 121.3-12, will be used.
- (6) "Non-Profit Organization" means universities and other institutions of higher education of an organization of the type described in Section 501(c)(3) of the Internal Revenue Code of 1954 (26 USC 501a) or any non-profit scientific or educational organization qualified under a state non-profit organization statute.

b. Allocation of Principal Rights

The grantee may retain the entire right, title, and interest throughout the world to each subject invention subject to the provisions of

this clause. With respect to any subject invention in which the grantee retains title, the Federal Government shall have a non-exclusive, nontransferable, irrevocable, paid-up license to practice or have practiced for or on behalf of the United States any subject invention throughout the world for which the grantee has elected to retain title.

c. Invention Disclosure Election of Title and Filing of Patent Applications by Grantee

- (1) After a subject invention has been disclosed in writing by the inventor(s) to grantee personnel responsible for the administration of patent matters, the grantee will:
  - (i) Disclose such invention to the Nuclear Regulatory Commission (NRC) within six months;
  - (ii) Elect whether or not to retain title to any such invention by notifying the NRC within twelve months of disclosure to the grantee;
  - (iii) File its initial patent application on an elected invention within two years after election; and
  - (iv) File patent applications in additional countries within either ten months of the corresponding initial patent application, or six months from the date a license is granted by the Commissioner of Patents and Trademarks to file foreign patent applications when such filing was prohibited for security reasons.
- (2) Notwithstanding the requirements of subparagraph c(1) above:
  - (i) Disclosure to the NRC shall be made immediately after grantee personnel responsible for the administration of patent matters become aware of any manuscript describing the invention accepted for publication, or any publication, on sale or public use of such invention; and
  - (ii) In any case where publication, or sale or public use has initiated the one year statutory period wherein valid patent protection can still be obtained in the United States, the period for election of title and filing of a United States patent application may be shortened by the NRC to a date that is no more than 45 days prior to the end of the statutory period.
- (3) Requests for extension of the time for disclosure to the NRC, election and filing, where reasonable, will normally be granted.
- (4) The disclosure to the NRC shall be in the form of a written report and shall identify the grant under which the invention was made and the inventor(s). It shall be sufficiently complete in

technical detail to convey a clear understanding of the nature, purpose, operation, and, to the extent known, the physical, chemical, biological or electrical characteristics of the invention. The report shall also identify any publication, on sale or public use of the invention and whether a manuscript describing the invention has been submitted for publication and accepted at the time of disclosure.

d. Forfeiture of Title

- (1) The grantee will convey to the NRC, upon written request, title to any subject invention:
  - (i) If the grantee fails to disclose or elect the subject invention within the times specified in c above, or elects not to retain title.
  - (ii) In those countries in which the grantee fails to file patent applications within the times specified in c above; provided, however, that if the grantee has filed a patent application in a country after the times specified in c above but prior to its receipt of the written request of the NRC, the grantee shall continue to retain title in that country; or
  - (iii) In any country in which the grantee decides not to continue the prosecution of any application for, to pay the maintenance fees on, or defend in a reexamination or opposition proceeding of a patent on a subject invention

e. Minimum Rights to Grantee

The grantee will retain a non-exclusive, royalty-free license throughout the world in each subject invention to which the Government obtains title except if the grantee fails to disclose the subject invention within the times specified in c above. This license extends to and is revocable and transferable, as specified in Part 5b(2) of Office of Federal Procurement Policy Bulletin 81-22 dated June 30, 1981.

f. Grantee Action to Protect Government's Interest

- (1) The grantee agrees to execute or to have executed and promptly deliver to the NRC all instruments necessary to:
  - (i) Establish or confirm the rights the Government has throughout the world in those subject inventions for which the contractor retains title; and
  - (ii) Convey title to the NRC when requested under (d) above and to enable the Government to obtain patent protection throughout the world in that subject invention.
- (2) The grantee agrees to require, by written agreement, its employees, other than clerical and non-technical employees to disclose

promptly in writing to personnel identified as responsible for the administration of patent matters and in a format suggested by the grantee each subject invention made under this grant in order that the grantee can comply with the disclosure provisions of c above and to execute all papers necessary to file patent applications on subject inventions and to establish the Government's rights in the subject inventions. The disclosure format should require, as a minimum, the information requested by subparagraph c(4) above. The grantee shall instruct such employees through the employee agreements or other suitable educational programs on the importance of reporting inventions in sufficient time to permit the filing of patent applications prior to U.S. or foreign statutory bars.

- (3) The grantee will notify the NRC of any decision not to continue prosecution of a patent application, pay maintenance fees, or defend in a reexamination or opposition proceeding on a patent, in any country, not less than thirty days before the expiration of the response period required by the relevant patent office.
- (4) The grantee agrees to include, within the specification of any United States patent application and any patent issuing thereon covering a subject invention, the following statement, "This invention was made with Government support under (identify the grant) awarded by the Nuclear Regulatory Commission. The Government has certain rights in this invention."

g. Subcontracts

- (1) The grantee will include this clause, suitably modified to identify the parties, in all subcontracts, regardless of tier, for experimental, developmental or research work to be performed in the United States by a small business firm or a non-profit organization. The subcontractor will retain all rights provided for the grantee in this clause, and the grantee will not, as part of the consideration for awarding the subcontract, obtain rights in the subcontractor's subject inventions.
- (2) The grantee will include in all other subcontracts, regardless of tier, for experimental, developmental or research work the patent rights clause required by Federal Procurement Regulation 1-9.107-5(a).

h. Reporting on Utilization of Subject Inventions

The grantee agrees to submit on request periodic reports no more frequently than annually on the utilization of a subject invention or on efforts at obtaining such utilization that are being made by the grantee or its licensees or assignees. Such reports shall include information regarding the status of development, date of first commercial sale or use, gross royalties received by the grantee, and such other data and information as the NRC may reasonably specify. The grantee also agrees to provide additional reports as may be requested

by the NRC in connection with any march-in proceeding undertaken by the NRC in accordance with paragraph j of this clause. To the extent data or information supplied under this section is considered by the grantee, its licensee or assignee to be privileged and confidential and is so marked, the NRC agrees that, to the extent permitted by 35 USC 202(c)(5), it will not disclose such information to persons outside the Government.

i. Preference for United States Industry

Notwithstanding any other provision of this clause, the grantee agrees that neither it nor any assignee will grant to any person the exclusive right to use or sell any subject invention in the United States unless such person agrees that any products embodying the subject invention or produced through the use of the subject invention will be manufactured substantially in the United States. However, in individual cases, the requirement for such an agreement may be waived by the NRC upon a showing by the grantee or its assignee that reasonable but unsuccessful efforts have been made to grant licenses or similar terms to potential licensees that would be likely to manufacture substantially in the United States or that under the circumstances domestic manufacture is not commercially feasible.

j. March-in Rights

The grantee agrees that with respect to any subject invention in which it has acquired title, the NRC has the right in accordance with the procedures in OMB Bulletin 81-22 to require the grantee, an assignee or exclusive licensee of a subject invention to grant a non-exclusive, partially exclusive, or exclusive license in any field of use to a responsible applicant or applicants, upon terms that are reasonable under the circumstances, and if the grantee, assignee, or exclusive licensee refuses such a request, the NRC has the right to grant such a license itself if the NRC determines that:

- (1) Such action is necessary because the grantee or assignee has not taken, or is not expected to take within a reasonable time, effective steps to achieve practical application of the subject invention in such field of use;
- (2) Such action is necessary to alleviate health or safety needs which are not reasonably satisfied by the grantee, assignee, or their licensees;
- (3) Such action is necessary to meet requirements for public use specified by Federal regulations and such requirements are not reasonably satisfied by the grantee, assignee, or licensees; or
- (4) Such action is necessary because the agreement required by paragraph i of this clause has not been obtained or waived or because a licensee or the exclusive right to use or sell any subject invention in the United States is in breach of such agreement.

k. Special Provisions for Grants with Non-profit Organizations

If the grantee is a non-profit organization, it agrees that:

- (1) Rights to a subject invention in the United States may not be assigned without the approval of the NRC, except where such assignment is made to an organization which has as one of its primary functions the management of inventions and which is not, itself, engaged in or does not hold a substantial interest in other organizations engaged in the manufacture or sale of products or the use of processes that might utilize the invention or be in competition with embodiments of the invention (provided that such assignee will be subject to the same provisions as the grantee);
- (2) The grantee may not grant exclusive licenses under United States patents or patent application in subject inventions to persons other than small business firms for a period in excess of the earlier of:
  - (i) five years from first commercial sale or use of the invention; or
  - (ii) eight years from the date of the exclusive license excepting that time before regulatory agencies necessary to obtain pre-market clearance, unless on a case-by-case basis, the Federal agency approves a longer exclusive license. If exclusive field of use licenses are granted, commercial sale or use in one field of use will not be deemed commercial sale or use as to other fields of use, and a first commercial sale or use with respect to a product of the invention will not be deemed to end the exclusive period to different subsequent products covered by the invention.
- (3) The grantee will share any royalties collected on a subject invention with the inventor; and
- (4) The balance of any royalties or income earned by the grantee with respect to subject inventions, after payment of expenses (including payments to inventors) incidental to the administration of subject inventions, will be utilized for the support of scientific research or education.

14. Notice and Assistance Regarding Patent and Copyright Infringement

The provisions of this clause shall be applicable only if the amount of this grant exceeds \$10,000.

- a. The grantee shall report to the grants officer, promptly and in reasonable written detail, each notice or claim of patent or copyright infringement based on the performance of this grant of which the grantee has knowledge.

- b. In the event of any claim or suit against the Government on account of any alleged patent or copyright infringement arising out of the performance of this grant or out of the use of any supplies furnished or work or services performed hereunder, the grantee shall furnish to the Government when requested by the Grants Officer, all evidence and information in possession of the grantee pertaining to such suit or claim. Such evidence and information shall be furnished at the expense of the Government except where the grantee has agreed to indemnify the Government.
- c. This clause shall be included in all subcontracts.

15. Reporting of Royalties

If this grant is in an amount which exceeds \$10,000 and if any royalty payments are directly involved in the grant or are reflected in the grant price to the Government, the grantee agrees to report in writing to the Patent Counsel, NRC (with notification by Patent Counsel to the Grants Officer) during the performance of this grant and prior to its completion or final settlement the amount of any royalties or other payments paid or to be paid by it directly to others in connection with the performance of this grant together with the names and addresses of licensors to who such payments are made and either the patent numbers involved or such other information as will permit the identification of the patents or other basis on which the royalties are to be paid. The approval of NRC of any individual payments or royalties shall not stop the Government at any time from contesting the enforceability, validity or scope of, or title to, any patent under which a royalty or payments are made.

16. Procurement Standards

- a. NRC grantees shall follow the requirements of Attachment O to OMB Circular A-110.
- b. In addition, unless these provisions provide otherwise, prior written approval shall be obtained from the NRC Grants Officer before:
  - (1) Any of the research or other substantive project effort is contracted or otherwise transferred.
  - (2) Contracting for the commercial production or distribution of books, films, or similar materials.
- c. NRC approvals will be made by the Grants Officer, who will specify which requirements of this grant must be flowed-down to satisfy the purposes of OMB Circular A-110.
- d. Grantee requests for approvals shall include an explanation of the need for the contracting, a proposed performance statement, justification for the price or estimated cost (including a detailed budget for cost-reimbursement type arrangements), and the basis for selecting the contractor.



17. Revision of Financial Plans

Grant budget activity under this grant is subject to the requirements of OMB Circular A-110, Attachment J.

18. Program Income

Program income is subject to the policy prescribed by OMB Circular A-110, Attachment D.

19. Statutory Requirements

a. Civil Rights

This grant is subject to Title VI of the Civil Rights Act of 1964 (P.L. 88-352); Title IV, Sex Discrimination, of the Energy Reorganization Act of 1974, and Executive Order 11246, as amended, Parts II, III, and IV (for grants over \$10,000 within a twelve month period).

The grantee agrees that no person in the United States shall, on the ground of race, sex, color or national origin, be excluded from participation in, be deprived the benefits of, or be otherwise subjected to discrimination under any program or activity for which the grantee receives financial support from NRC.

b. Nondiscrimination Under Federal Grants

This grant is subject to the provisions of the Rehabilitation Act of 1973, Public Law 93-112. The grantee therefore agrees that, "No otherwise qualified handicapped individual in the United States (as defined in Section 7(6) of the Act), shall solely by reason of his handicap, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance." Further, this grant is subject to the provisions of the Age Discrimination Act of 1975 (42 U.S.C. 6101). The grantee therefore agrees that no age discrimination will occur under this Federally assisted program.

c. Clean Air - Clean Water

(Applicable only if the grant exceeds \$100,000, or a facility to be used has been the subject of a conviction under the Clean Air Act (42 U.S.C. 1857c-8(c)(1) or the Federal Water Pollution Control Act (33 U.S.C. 1319(c), and is listed by EPA.

(a) The Grantee agrees as follows:

- (1) To comply with all the requirements of section 114 of the Clean Air Act, as amended (42 U.S.C. 1857, et seq., as amended by Public Law 91-604) and section 308 of the Federal Water Pollution Control Act (33 U.S.C. 1251 et Seq., as amended by public Law 92-500), respectively, relating to inspection, monitoring, entry, reports, and

information, as well as other requirements specified in section 114 and section 308 of the Clean Air Act and the Water Act, respectively, and all regulations and guidelines issued thereunder before the award of this grant.

- (2) That no portion of the work required by this grant will be performed in a facility listed on the Environmental Protection Agency List of Violating Facilities on the date that this grant was awarded unless and until the EPA eliminates the name of such facility or facilities from such listing.
  - (3) To use his best efforts to comply with clean air standards and clean water standards at the facility in which the grant is being performed.
  - (4) To insert the substance of the provisions of this clause into any nonexempt subcontract, including this paragraph (a)(4).
- (b) The terms used in this clause have the following meanings:
- (1) The term "Air Act" means the Clean Air Act, as amended (42 U.S.C. 1857 et seq., as amended by Public Law 91-604).
  - (2) The term "Water Act" means the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251 et seq., as amended by Public Law 92-500).
  - (3) The term "clean air standards" means any enforceable rules, regulations, guidelines, standards, limitations, orders, controls, prohibitions, or other requirements which are contained in, issued under, or otherwise adopted pursuant to the Air Act or Executive Order 11738, an applicable implementation procedure as described in section 110 (d) of the Clean Air Act (42 U.S.C. 1857c-5(d)), an approved implementation procedure or plan under section 111(c) or section 111(d), respectively, of the Air Act (42 U.S.C. 1857c-6(c) or (d)), or an approved implementation procedure under section 112(d) of the Air Act (42 U.S.C. 1857c-7(d)).
  - (4) The term "clean water standards" means any enforceable limitation, control, condition, prohibition, standard, or other requirement which is promulgated pursuant to the Water Act or contained in a permit issued to a discharger by the Environmental Protection Agency or by a State under an approved program, as authorized by section 402 of the Water Act (33 U.S.C. 1342) or by local Government to ensure compliance with pretreatment regulations as required by section 307 of the Water Act (33 U.S.C. 1317).
  - (5) The term "compliance" means compliance with clean air or water standards. Compliance shall also mean compliance with

a schedule or plan ordered or approved by a court of competent jurisdiction, the Environmental Protection Agency or an air or water pollution control agency in accordance with the requirements of the Air Act or Water Act and regulations issued pursuant thereto.

- (6) The term "facility" means any building, plant, installation, structure, mine, vessel or other floating craft, location, or site of operations, owned, leased, or supervised by the grantee or subcontractor, to be utilized in the performance of work under a grant or subcontract. Where a location or site of operations contains or includes more than one building, plant, installation, or structure, the entire location or site shall be deemed to be a facility except where the Director, Office of Federal Activities, Environmental Protection Agency, determines that independent facilities are collocated in one geographical area.

20. Liability and Losses

NRC assumes no liability with respect to any damages or loss arising out of any activities undertaken with the financial support of this grant.

21. Changes in Principal Investigator or Technical Objectives

- a. The grantee shall be permitted to change the methods and procedures employed in performing the research without the need to make special reports on proposed actions or obtain NRC approval. Significant changes in methods or procedures shall be reported to NRC in status reports and final technical reports. However, in the event the methodology or experiment is proposed as a specific stated objective of the research work, it shall not be changed without approval of the Grants Officer.
- b. The stated objective of the research effort shall not be changed, except with the approval of the NRC Grants Officer.
- c. The phenomenon or phenomena under study, i.e., the broad category of research, shall not be changed except with the prior approval of the NRC Grants Officer.
- d. The grantee shall obtain the approval of the NRC Grants Officer to change the principal investigator, or to continue the research work during a continuous period in excess of three months without the participation of an approved principal investigator.
- e. The grantee shall consult with the NRC Grants Officer if the principal investigator plans to, or becomes aware that he will, devote substantially less effort to the work than that anticipated in the approved proposal. If NRC determines that the reduction of effort would be so substantial as to impair the successful prosecution of the research, it may request a change of principal investigator or other appropriate modification of the grant or may suspend or terminate the grant pursuant to clauses 4 and 5 herein entitled, Suspension or Termination for Cause and Termination by Mutual Agreement, respectively.

22. Site Visits

The NRC, through authorized representatives, has the right, at all reasonable times, to make site visits to review project accomplishments and management control systems and to provide such technical assistance as may be required. If any site visit is made by the NRC on the premises of the grantee or a contractor under a grant, the grantee shall provide and shall require his contractors to provide all reasonable facilities and assistance for the safety and convenience of the Government representatives in the performance of their duties. All site visits and evaluations shall be performed in such a manner as will not unduly delay the work.

23. Title to Equipment

Unless otherwise specified in the grant instrument, title to equipment purchased or fabricated with NRC grant funds by a college or university, other nonprofit organization, or a unit of State or local Government shall vest in the grantee institution, with the understanding that such equipment (or a suitable replacement obtained as a trade in) will remain in use for the specific project for which it was obtained.

24. Organizational Prior Approval System

- a. In order to carry out its responsibilities for monitoring project performance and for adhering to grant terms and conditions, each performing organization shall have a system to ensure that appropriate authorized officials provide necessary organizational reviews and approvals in advance of any action that would result in either the performance or modification of an NRC-supported activity where such approvals are required by the grant instrument, including the obligation or expenditure of funds where the governing cost principles either prescribe conditions or require approvals.
- b. The organization shall designate an appropriate official or officials to review and approve the types of actions described in a, above. Preferably, the official(s) should be the same official(s) who sign(s) or countersign(s) those types of requests that require submission to and approval by NRC. The designated official(s) shall not be the principal investigator or any official having direct responsibility for the actual conduct of the project, or a subordinate of such individual.

25. Audit and Records

- a. Financial records, supporting documents, statistical records, and other records pertinent to this grant shall be retained by the grantee for a period of 3 years from submission of the Final Report.
  - (1) Records that relate to audits, appeals, litigation, or the settlement of claims arising out of the performance of the project shall be retained until such audits, appeals, litigation, or claims have been disposed of, but in any event not less than 3 years after final report submission.

(2) Records relating to projects subject to special project team provisions shall be retained until 3 years from the end of the grantee's fiscal year in which the grant instrument requirement for reporting income expires.

b. The NRC and Comptroller General of the United States, or any of their duly authorized representatives, shall have access to any pertinent books, documents, papers, and records of the grantee organization, and of the performing organization, if different, to make audits, examinations, excerpts and transcripts. Further, any contract in excess of \$10,000, made by the grantee shall include a provision to the effect that the grantee, NRC, the Comptroller General, or any of their duly authorized representatives, shall have access to pertinent records for similar purposes.

26. Standard for Financial Management Systems

NRC grantees shall have financial management systems that meet the requirements of Attachment F to OMB Circular A-110.