

**Network Information Services Manager(s) for NSFNET
and the NREN: INTERNIC Registration Services**

COOPERATIVE AGREEMENT NO. NCR-9218742

Parties:

**National Science Foundation
1800 G Street, N.W.
Washington, D.C. 20550**

and

**Network Solutions, Incorporated
505 Huntmar Park Drive
Herndon, VA 22070**

COOPERATIVE AGREEMENT NO. NCR-9218742

Parties: **National Science Foundation**

and

Network Solutions, Incorporated

Title: **Network Information Services Manager(s) for NSFNET and the
NREN: INTERNIC Registration Services**

Type of Award: **Cost-Plus-Fixed-Fee Cooperative Agreement**

**Estimated Total
Amount:** **\$5,219,339**

Effective Date: **January 1, 1993**

Expiration Date: **September 30, 1998**

Authority: **This agreement is awarded under the authority of the National
Science Foundation Act (42 U.S.C. 1861 *et seq.*) and the Federal
Grant and Cooperative Agreement Act (31 U.S.C. 6301 *et seq.*)**

**This agreement is entered into between the United States of America, Hereinafter called the
Government, represented by the National Science Foundation, hereinafter called the
Foundation or NSF, and Network Solutions, Incorporated, hereinafter called the Awardee.**

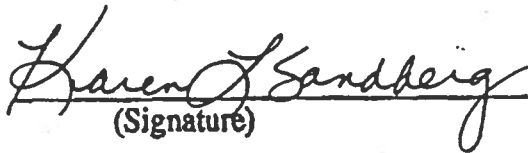
NSF Program Official: **Donald R. Mitchell
Telephone: 202-357-9717
e-mail: dmitchel@nsf.gov**

NSF Administrative Official: **Altie H. Metcalf
Telephone: 202-357-9843
e-mail: ametcalf@nsf.gov**

IN WITNESS WHEREOF, the parties have executed Cooperative Agreement No.
NCR-9218742, Network Information Services Manager(s) for NSFNET and the NREN:
INTERNIC Registration Services.

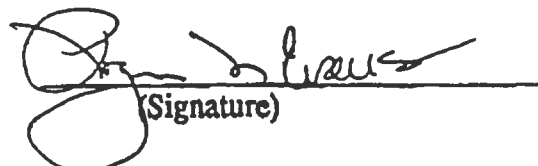
UNITED STATES OF AMERICA

ACCEPTANCE


(Signature)

for AARON R. ASRAEL
GRANTS AND CONTRACTS OFFICER

12-31-92
(Date)


(Signature)

Roger L. Evans
Chief Financial Officer

29 Dec 92
(Date)

NATIONAL SCIENCE FOUNDATION
Washington, D.C. 20550

Network Solutions, Incorporated
Herndon, VA 22070

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II. GENERAL CONDITIONS

Grant General Conditions - GC-1 (10/91)

Cooperative Agreement General Conditions - CA-1 (12/91)

ARTICLE 1. BACKGROUND AND PURPOSE OF AGREEMENT

During the past two decades computer networks have facilitated collaboration among members of many research and education communities and provided them with remote access to information and computing resources. These networks have continued to grow both in the number of users connected and in the capabilities provided to the individual users. It is anticipated that such networks will become essential to research and education during this decade. In particular, the collection of interconnected networks known as the Internet has become important for many research communities. It is also of increasing importance for education.

Today more than 5,000 networks comprise the Internet. These networks link together hundreds of thousands of computers and millions of users throughout the world. The domestic, non-military portion of the Internet includes NSFNET. It also includes other federally sponsored networks such as NASA Science Internet (NSI) and Energy Sciences Network (ESnet). NSFNET, NSI, and ESnet, as well as some other networks of the Internet, are related to the National Research and Education Network (NREN) which was defined in the President's Fiscal 1992 budget and which has been authorized by the passage in December, 1991, of the High Performance Computing and Communications Act, Public Law 102-194.

The NREN is projected to evolve from a part of the Internet containing portions of NSFNET, NSI, and ESnet. This evolution will reflect the legal and technical requirements of the various sponsoring agencies. For example, NASA and DOE are mission agencies whose networks' traffic must relate to the agencies' missions. NSF, on the other hand, is chartered to support science and engineering research and education; hence NSFNET can carry all traffic contemplated for the NREN and may in fact support additional traffic as well.

Because of the breadth of the charter of the NSFNET, it is projected that it will continue to serve an expanding base of research and education users. The provision of enhanced network information services for NSFNET will be an important part of the expansion in user base.

In cooperation with the Internet community, the National Science Foundation developed and released, in the spring of 1992, Project Solicitation NSF92-24 for one or more Network Information Services Managers (NIS Manager(s)) to provide and/or coordinate (i) Registration Services, (ii) Directory and Database Services, and (iii) Information Services for the NSFNET. As a result of this solicitation, three separate organizations were selected to receive cooperative agreements in the areas of (i) Registration Services, (ii) Directory and Database Services, and (iii) Information Services. Together, these three awards constitute the NIS Manager(s) Project.

It is essential that the three project participants selected work closely together to provide a seamless interface for users in need of services. For this reason, the three awardees, at the request of the Foundation, have developed a detailed concept and plan to provide this seamless interface called the "INTERNIC," have revised their proposals to reflect the implementation of this "INTERNIC" concept, and have agreed to the structuring of their three (separate) awards as one collaborative project. This Cooperative Agreement for Registration Services is one of the three (3) collaborative awards resulting from the NIS Manager(s) Project solicitation.

It is anticipated that all registration services required during the period of this Agreement will be obtained and furnished under the terms of this Agreement and that the definition and provision of these services will help facilitate the evolution of the NSFNET and the development of the NREN. References to NSFNET in this Agreement should in general be understood to include the NREN as well.

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ARTICLE 2. SPECIAL REQUIREMENTS

A. Collaborative Proposals and Effort(s)

1. An important aspect of the Awardee's work is coordination with the Network Information Service Managers for (i) Database and Directory Services (AT&T under Cooperative Agreement NCR-9218179) and (ii) Information Services (General Atomics under Cooperative Agreement NCR-9218749) to provide a "seamless interface" for internet users in accordance with the "INTERNIC" concept explicated in the Awardee's revised proposal dated October 19, 1992. Hereafter in this agreement, Awardee's two collaborating partners, General Atomics and AT&T, shall be referred to as *Collaborators* and Awardee shall coordinate its performance hereunder with the efforts of its Collaborators in accordance with the "INTERNIC" concept explicated in the Awardee's revised proposal dated October 19, 1992. The NSF Program Official reserves the authority to resolve technical, managerial, or scheduling disputes.
2. This requirement for close collaboration and coordination among the three aspects of the Network Information Services Management Project shall be stated in each of the three awards. Such collateral agreements and fund transfers consistent with the currently approved Program Plan (see Article 9) as may be necessary to effect the coordination, collaboration and seamless interface to users called for by the "INTERNIC" concept or improve the overall integration of the NIS Manager(s) Project may be entered into by, between and among the Awardee and its Collaborators without further Foundation approvals. Absent a specific inclusion in the approved Program Plan, Awardee fund transfers made pursuant to this Article may not exceed \$50,000 in any Program Year.

B. Directed Activities

At the request of the NSF Program Director, as set forth in Article 13(below), the Awardee shall attend such meetings, seminars, conferences and planning and other events and shall provide such related supplies and services as necessary to promulgate information regarding registration activity to the worldwide internet community and to facilitate the most effective, efficient and ubiquitous registration services possible.

ARTICLE 3. STATEMENT OF WORK

- A. The Awardee shall provide to non-military internet users and networks all necessary registration services (which were) previously provided by the Defense Information Systems Agency Network Information Center (the DISA NIC).
- B. The work will be performed in general accordance with NSF Project Solicitation NSF 92-24 for *Network Information Services Manager(s) for the NSFNET and the NREN*, the Awardee's proposal No. NCR-9218742, dated September 23, 1992, amended by Awardee's supplemental proposal addressing collaborative INTERNIC activity, dated October 19, 1992, hereinafter referred to cumulatively as *Awardee's Proposal*, and in conformance with the technical and/or performance requirements contained therein and set forth below.

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- C. The Awardee shall provide registration services in accordance with the provisions of RFC 1174. As stated in RFC 1174:

[T]he Internet system has employed a central Internet Assigned Numbers Authority (IANA) for the allocation and assignment of various numeric identifiers needed for the operation of the Internet. The IANA function is currently performed by the University of Southern California's Information Sciences Institute. The IANA has the discretionary authority to delegate portions of this responsibility and, with respect to numeric network and autonomous system identifiers, has lodged this responsibility with an Internet Registry (IR).

- D. Moreover, in cooperation with the IANA, the IR may create delegate registries to carry out registration services for specified domains.
- E. The Awardee shall work with the DISA NIC to design and implement a transition plan, as outlined in Awardees Proposal, that will minimize inconvenience to the networking community during and after the transition.
- F. The Non-military internet registration services to be provided under this agreement will initially include, but not be limited to, the following:
1. Domain name registration
 2. Domain name server registration
 3. Network number assignment
 4. Autonomous system number assignment
- G. Possible future changes in the registration services provided under this Agreement may include, but shall be not limited to, the use of alternate registration/numbering systems or schemes and the imposition of a user based fee structure. However, in no case shall any user based fee structure be imposed or changed without the express direction/approval of the NSF Program Official.

ARTICLE 4. TURNAROUND AND PERFORMANCE MEASURES

- A. The following describes the required turnaround and availability of Registration data:
1. 3 working days/Class C
 2. 5 working days/Class B
 3. 22 working days/Class A
- B. Turnaround is the time from receipt of a completed template, and any information pertaining to network topology and usage of previously assigned address space as may be specifically requested in individual cases, to the assignment of a number. Availability is the provision of the registration data to the INTERNIC Database and Directory Services Awardee.
- C. The quality of Awardees registration services will be measured in accordance with the formulas contained in Section J of Awardees revised proposal of September 23, 1992 and in light of the turnaround times specified above.

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ARTICLE 5. ESTIMATED REQUIREMENTS AND REVIEW

A. Estimated Requirements

The registration services currently required for the performance of this Cooperative Agreement are described above. The registration services described above are only an estimate of the immediate and long-term requirements of the scientific research and education community and are furnished for planning purposes only. Since the future needs of the scientific research and education community are unknown at this time, the Foundation reserves the right to increase, decrease or modify the quantity, quality, content or nature of the registration services to be provided hereunder. Should the Foundation exercise the right to increase, decrease or modify the quantity, quality, content or nature of the registration services provided hereunder, appropriate change to estimated costs, fees, and funding schedules shall be negotiated and incorporated into the Agreement.

B. Performance Review

By December 31, 1994, the Foundation will review the project to determine whether to continue funding and to provide general direction as to the continuation and contemplated level of future support to be provided for the remainder of the agreement.

ARTICLE 6. RESPONSIBILITIES

A. Awardee

The Awardee has primary responsibility for ensuring the quality, timeliness and effective management of the registration services provided under this agreement. To the extent that NSF does not reserve specific responsibility for accomplishing the purposes of this Agreement, by either special condition or general condition of this Agreement, all such responsibilities remain with the Awardee.

B. National Science Foundation

1. General

NSF has responsibility for registration services support, support planning, oversight, monitoring, and evaluation. NSF will make approvals required under the General Conditions and, where necessary and appropriate, NSF will contact and negotiate with Federal agencies and other national and International members of the Internet community to further the efforts of this project.

2. Technical

a. Program Officer Authority

Performance of work under this Cooperative Agreement shall be subject to the general oversight and monitoring of the NSF Program Officer. This involvement may include, but is not limited to:

- (1) review of the Quarterly and Annual Reports, Program Plans and Budget.

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- (2) participation in resolution of technical, managerial and scheduling concerns; review and, where required by the Agreement, approval of technical reports and information to be delivered by Awardee.

b. Limitations

NSF technical involvement will be consistent with the general statement of work as stated in this Agreement. The Program Officer does not have the authority to and may not:

- (1) request additional work outside the Statement of Work;
- (2) issue instructions which constitute a change as defined in Article 8 of GC-I (10/91);
- (3) require an increase in the Agreement's estimated cost or extension to the Agreement's period of performance; or
- (4) change any of the expressed terms, conditions or specifications of the Agreement.

c. Awardee Notifications

If, in the opinion of the Awardee, any instructions or requests issued by the Program Officer are within one of the categories as defined in (1) through (4) in the above paragraph, the Awardee shall not proceed but shall notify the NSF Grants and Contracts Officer and shall request, if appropriate, amendment of the Agreement in accordance with Article 37, "Changes—Limitation of Funds," of the Attached Cooperative Agreement General Conditions.

3. Approvals

Unless stated otherwise, all NSF approvals, authorizations, notifications and instructions required pursuant to the terms of this agreement must be set forth in writing by the NSF Grants and Contracts Officer.

ARTICLE 7. PERIOD OF PERFORMANCE

This Agreement, effective January 1, 1993, shall include a three month phase in period, a five (5) year period of operational support (commencing April 1, 1993), and a six month (no additional cost) flexibility period and shall continue through September 30, 1998.

ARTICLE 8. FUNDING

A. Agreement Amount

The current total estimated amount of this Cooperative Agreement, exclusive of such amounts as may be provided in connection with Directed Activities provided pursuant to Article 11 (below) is \$5,219,339 of which \$4,854,061 is estimated cost and \$365,278 is fixed fee.

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[Signature]
3/2/93

B. Allotted Amount(s)

1. There is currently allotted and available for expenditure for provision of registration services under this agreement, exclusive of amounts allotted for Directed Activities (as shown in paragraph 3, below), \$1,162,245, of which \$1,076,532 is estimated cost and \$85,713 is fixed fee.
2. Amounts anticipated to be needed for reimbursement of costs incurred in connection with Directed Activities as provided pursuant to Article 11 (below) are not included in the allotted amount(s) shown in paragraph 8.C, below. Amounts for directed activities may be allotted from time to time throughout the period of this agreement
3. There is currently allotted and available for expenditure in connection with reimbursement for directed activities under this agreement \$ 0.

C. Obligation

For purposes of payment of the Foundation's portion of all allowable costs (including those incurred in connection with the performance of Directed Activities in accordance with Article 11 below) pursuant to the terms outlined in this Agreement, the total amount currently allotted by the Government to this Cooperative Agreement is \$1,162,245. This allotment covers performance through March 31, 1994.

D. Limitation of Funds

1. The parties estimate that performance of this Cooperative Agreement will not cost the Government more than the estimated amount specified in Article 8.A, *Agreement Amount*, above. The Awardee shall use its best efforts to perform the work specified in Article 3 and all obligations under this award within the allotted funds.
2. Paragraph C of this Article specifies the cumulative amount presently available for payment by the Government and allotted to this award. The parties contemplate that the Government will allot additional funds incrementally to the award up to the full estimate specified in Article 8.A, *Agreement Amount*, above.
3. The Awardee shall notify the NSF Grants and Contracts Officer in writing whenever it has reason to believe that the costs it expects to incur under this Agreement in the next 60 days, when added to all costs previously incurred, will exceed 85% of the total amount so far allotted to the Agreement by the Government.
4. When and to the extent that the amount allotted by the Government is increased, any costs the Awardee incurs before the increase that are in excess of the amount previously allotted by the Government, shall be allowable to the same extent as if incurred afterward.

E. Compensation and Expenditures

1. As compensation for its performance under this agreement, Awardee shall be compensated for its direct and indirect costs (see Article 8.E.3) and shall be paid a fixed fee as provided in this agreement.

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3/2/93

2. The Awardee shall also be reimbursed for such travel and related costs as may be specifically required and approved by the NSF Program Director pursuant to Article 11 (below). Expenditures under this agreement must be in accordance with a current Budget or Program Plan which has been approved by the NSF Grants Officer and no reallocation of funds in excess of \$10,000 between budget line items is permitted without prior written (or e-mail) approval of the NSF Program Official.
3. The amount currently allotted includes an indirect cost allowance at the following maximum provisional rates, subject to downward adjustment only:

Internet Services	99.4 %
Material Burden	5.78 %
G&A	11.0 %

F. Future Allotments

The actual level of continued NSF support for future years will be negotiated annually with the Awardee and will depend upon annual review of progress, the proposed Program Plan and the availability of funds. The actual funding of such allotments may be provided unilaterally by NSF on an incremental basis.

ARTICLE 9. ANNUAL REPORT, PROGRAM PLAN AND BUDGET

By December 31 each year, the Awardee shall submit both electronically and in 10 hard copies an Annual Report, Program Plan and Budget to the Foundation for approval. These Program Plans and Budgets shall be submitted in a format and level of detail approved by the Foundation but shall, as a minimum, contain project goals and objectives specified with sufficient technical criteria, milestones, and timetables to measure the progress of the effort toward the attainment of objectives during the time period for which it is being submitted. This Program Plan will be the basis for the performance goals and funding for succeeding twelve month operational period beginning April 1. Each submission should contain narrative information indicating (for the past year's activities) by functional area and overall: any goals accomplished, exceeded, or missed and explaining any significant deviations from the previous year's plan; any educational achievements; patents, copyrights, or other innovations resulting from the activities; industrial and other funding, income and contributions. Each annual submission should also contain information on actual line charges and expenditures (both annual and cumulative) by functional area and overall, in the same level of detail for which it projects the succeeding year's costs, and a summary budget in accordance with NSF Form 1030. The Awardee will receive formal approval of the Program Plan from the NSF Grants Officer. The Foundation accepts (i) the Awardee's proposal as the Program Plan covering the period April 1, 1993, through March 31, 1994; and (ii) the budgets dated October 19, 1992, as the approved budgets for the period January 1, 1993, through March 31, 1994.

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ARTICLE 10. OTHER REPORTING REQUIREMENTS

A. Timely Notification of Significant Problems

The Awardee shall inform the NSF Program Official (either by e-mail or in writing) in a timely manner of any significant problems or events that could affect the overall schedule or progress in the program.

B. Verbal Reports, Collaboration Briefings and Liaison

1. The Awardee shall meet on an informal basis, as necessary or requested, with the NSF Program Director to review progress to date and to exchange views, ideas, and information concerning the program. During the initial three (3) month phase in period, and thereafter until notified by the NSF Program Director, a weekly status review meeting shall be held to discuss the progress of the transition/phase in, including any problems or delays encountered and changes occasioned by same. (Such weekly status review meetings may be held by telephone and the substance thereof confirmed via e-mail when agreed.
2. The Awardee and Collaborators shall jointly meet, as requested, with the NSF Program Director to detail the progress and discuss the status of the collaboration effort and any difficulties being encountered in providing to the Internet community the seamless interface service envisioned by their collaborative proposal and called for in Article 2 in (above). It is currently contemplated that, at least during the first twelve (12) months of the award, such meetings shall be held quarterly at either NSF, the Awardee's or Collaborators' facilities.
3. When requested by the NSF Program Director, Awardee shall arrange to have its subawardees in attendance at meetings which deal with their areas of activity. In addition, at the request of the NSF Program Director, the Awardee shall arrange on-site meetings for the Program Officer, other Federal staff and/or representatives of the world-wide Internet community and the Awardee's professional personnel, and/or those of its subawardees.

C. Monthly Letter Progress Reports

Monthly letter progress reports may be submitted electronically to the NSF Program Official and NSF Administrative Official at the address shown on the cover page. These (monthly letter progress) reports shall be submitted in such detail and format as required by the Foundation's Program Director and shall contain statistical and narrative information on the performance of the Awardee during the preceding month.

D. Quarterly Status Report

1. Awardee shall prepare and furnish electronically and in four hard (4) copies quarterly letter status reports; the first quarterly status report will be for the period from January 1, 1993, through March 31, 1993. These reports shall show the status of all major events and summaries and major work performed during the quarter, including technical status, accomplishments, problems, collaboration activities, changes in future plans, and any pending requests for NSF approval and should be fully reconciled with the information, goals and projections contained in the Annual Report and Program Plan. The report shall also include a summary of award expenditures and line charges both cumulative and for the current quarter.

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2. The report shall be prepared on a quarterly basis and shall be submitted within thirty (30) days after the reporting period ends. No quarterly report need be submitted for the quarter in which the Annual reports are submitted, but, Awardee must insure that any germane information for the quarter not contained in the Annual Report (i.e, list of pending requests for NSF approval) are submitted by separate letter.

B. Final Report

The Awardee shall submit electronically and in ten hard (10) copies a final report to NSF at the conclusion of the Cooperative Agreement. The final report shall contain a description of all work performed and problems encountered (and if requested a copy and documentation of any and all software and data generated) in such form and sufficient detail as to permit replication of the work by a reasonably knowledgeable party or organization.

F. Submission of Reports

All reports and Program Plans are to be forwarded to the Foundation electronically. Hard copies of reports are indicated to be forwarded in the specified number of copies to the following destinations:

No. of Copies	Addressee
1	National Science Foundation Attn: Altie H. Metcalf Division of Grants and Contracts, Room 1138 Washington, D. C. 20550
Remainder	National Science Foundation Attn: Donald R. Mitchell Division of Networking and Communications Research, Room 416 Washington, D. C. 20550

ARTICLE 11. DIRECTED ACTIVITIES

From time to time the NSF Program Director may require the Awardee to attend such meetings, seminars, conferences and planning and other events and/or to provide related supplies and services as necessary to disseminate information regarding registration services activity to the worldwide Internet community and/or to facilitate the most effective, efficient and ubiquitous registration services possible on an expedited basis. In such a case, the following procedures will be followed:

- A. the NSF Program Director shall request, by e-mail, the Awardee's attendance or special services required and an estimate by the Awardee of any reimbursable costs involved;
- B. Awardee shall submit to the NSF Program director, by e-mail, its estimate of any such reimbursable costs involved; and

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- C. the NSF Program Director shall forward to the Awardee a letter directive requesting that the travel be performed and/or the special services be provided and specifying the maximum amount that Awardee will be reimbursed for its efforts pursuant to the letter directive.
- D. Pursuant to such a letter directive, Awardee may incur costs against the "Directed Activities" amounts included in the approved budget provided (i) that the costs so incurred do not exceed the maximum amount specified in the letter directive and (ii) provided also that the awardee may not incur costs under a letter directive if such costs, when combined with costs incurred under other letter directives will exceed the amount allotted for directed activities as set forth in Article 8.B.2.(above).

ARTICLE 12. KEY PERSONNEL

- A. The following individuals are considered key personnel and essential to the work:

Alan S. Williamson
John Zabluski

- B. Any changes in the individual(s) or significant changes in their proposed level of effort as set forth in the approved Program Plan for any period requires the prior written approval of the NSF Grants and Contracts Officer.

ARTICLE 13. ORDER OF PRECEDENCE

Any inconsistency in this Cooperative Agreement shall be resolved by giving precedence in the following order (a) the Special Provisions; and (b) Grant General Conditions (10/91) and Cooperative Agreement General Conditions (12/91).

ARTICLE 14. PUBLICITY, PUBLIC INFORMATION, AND PUBLICATIONS

- A. All news releases, public information brochures, publications and other similar items (not limited to printed media, and including video, etc., prepared by Awardee, subawardees, and/or their employees or contractors which describe activities or results under this Registration Services Agreement shall:
 - 1. acknowledge the sponsorship of NSF;
 - 2. be sent to NSF in reasonable quantities for project and related NSF distribution before being distributed or shown to the public; and
 - 3. in the case of news releases or public information, be coordinated with and have the approval of the NSF Program Official before release.
- B. An acknowledgement of NSF support must appear in any publication of any material, whether copyrighted or not, based upon or developed under this project, in substantially the following terms:

This material is based on work sponsored by the National Science Foundation under Cooperative Agreement No. NCR-9218742. The Government has certain rights in this material.

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- C. All writings such as reports, books, journal articles, software, data bases, sound recordings, video tapes and video discs, except scientific articles or papers published in scientific, technical or professional journals, must also contain the following disclaimer:

Any opinions, findings and conclusions or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.

ARTICLE 15. ~~PROJECT INCOME FROM REGISTRATION FEES~~

- A. If, and to the extent that Awardee is authorized and/or directed to charge and collect user fees for the Registration Services provided hereunder, any user fees so collected shall be placed in an interest bearing account, and shall be used to defray the Awardee's and the Foundation's Project expenses in the following descending order of priority:
1. Project expenses incurred by Awardee as a result of the imposition of such fees.
 2. Project expenses of the Awardee charged to the Foundation under this award. (Program Plans and future year funding requests should reflect any such Income.
 3. Project expenses of Awardee's Collaborators charged to the Foundation under their respective Awards. (Program Plans and future year funding requests should reflect any such income and projected fund transfers.
 4. The provisions of this Article shall apply only to any Project Income which is generated from the imposition of user based fees on registration services. Article 18, Project Income, of the General Conditions shall apply to project related revenues from any other source.

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COOPERATIVE AGREEMENT GENERAL CONDITIONS

Unless otherwise specified in any special conditions or below, the attached "Grant General Conditions" (GC-1) are applicable to this cooperative agreement. Where the terms *grant* and *grantee* are used, the terms *agreement* and *awardee* should be read, respectively. Where the term *NSF Grants Officer* appears, the term *NSF Grants and Contracts Officer* should be used.

The following additional general terms and conditions apply to NSF cooperative agreements:

40. Suspension or Termination for Convenience

NSF reserves the right to suspend or to terminate the performance of work under this agreement, in whole or in part, whenever, for any reason, the NSF Grants and Contracts Officer shall determine that such suspension or termination is in the best interest of the Government. Such suspension or termination shall be subject to the conditions specified in paragraphs c and d of Article 28 of the attached General Conditions.

41. Changes--Limitation of Funds

Either party to this agreement may request changes or additions to the agreement. Any such changes must be agreed to by both parties, set forth in writing, and approved by the NSF Grants and Contracts Officer. No changes shall be considered as an authorization to the awardee to exceed the amount of funds awarded under this agreement. This agreement, however, may be formally amended to modify the amount of funds awarded.

42. Resolution of Disagreements and Disputes

Disagreements and disputes of fact arising under this agreement which are not resolved through informal discussions will be subject to the written decision of the NSF Grants and Contracts Officer. This decision will be final unless, within 30 days of receipt of the decision, the awardee makes a written request for review to NSF's Assistant Director for Administration. The request for review must contain a full statement of the awardee's position and the pertinent facts and reasons in support of the position.

The Assistant Director for Administration will promptly acknowledge receipt of the request for review and appoint a review committee. The committee will consist of at least three persons, none of whom will be either from the NSF Program responsible for recommending and/or monitoring the technical aspects of the project or the Branch of the NSF Division of Grants and Contracts responsible for monitoring the administrative aspects of the award.

The review committee will ask the NSF Grants and Contracts Officer who made the written decision to provide copies of all relevant background materials and documents. It may invite representatives of the awardee, the cognizant NSF Program, and the NSF Grants and Contracts Officer to discuss pertinent issues and to submit information it deems appropriate. The chairman of the review committee will insure that all review activities or proceedings are adequately documented.

Based on its review, the committee will forward its recommendations to the Assistant Director for Administration, who will advise the parties concerned of NSF's final decision.

43. Resolution of Conflicting Conditions

Should there be any inconsistency between the Special Conditions contained in this award and the General Conditions (Grant General Conditions and Cooperative Agreement General Conditions), the Special Conditions shall control.

Should there be any inconsistency between the General Conditions, the Special Conditions contained in this award, and any NSF guides, brochures, or other materials cited or included by reference in the award, the matter should be referred to the NSF Grants Officer for guidance.

44. GC-1 Exceptions

The following articles in GC-1, "Grant General Conditions", are not applicable to this cooperative agreement:

- 4 No-Cost Extensions
- 5 Expenditures for Related Projects
- 37 Resolution of Conflicting Conditions
- 39 Limitation on Rate of Pay

COOPERATIVE AGREEMENT GENERAL CONDITIONS

Unless otherwise specified in any special conditions or below, the attached "Grant General Conditions" (GC-1) are applicable to this cooperative agreement. Where the terms *grant* and *grantee* are used, the terms *agreement* and *awardee* should be read, respectively. Where the term *NSF Grants Officer* appears, the term *NSF Grants and Contracts Officer* should be used.

The following additional general terms and conditions apply to NSF cooperative agreements:

36. Suspension or Termination for Convenience

NSF reserves the right to suspend or to terminate the performance of work under this agreement, in whole or in part, whenever, for any reason, the NSF Grants and Contracts Officer shall determine that such suspension or termination is in the best interest of the Government. Such suspension or termination shall be subject to the conditions specified in paragraphs c and d of Article 24 of the attached General Conditions.

37. Changes-Limitation of Funds

Either party to this agreement may request changes or additions to the agreement. Any such changes must be agreed to by both parties, set forth in writing, and approved by the NSF Grants and Contracts Officer. No changes shall be considered as an authorization to the awardee to exceed the amount of funds awarded under this agreement. This agreement, however, may be formally amended to modify the amount of funds awarded.

38. Resolution of Disagreements and Disputes

Disagreements and disputes of fact arising under this agreement which are not resolved through informal

discussions will be subject to the written decision of the NSF Grants and Contracts Officer. This decision will be final unless, within 30 days of receipt of the decision, the awardee makes a written request for review to NSF's Director, Division of Grants and Contracts. The request for review must contain a full statement of the awardee's position and the pertinent facts and reasons in support of the position. Review will follow the procedure stipulated under *Grant Policy Manual*, Section 693.

39. Resolution of Conflicting Conditions

Should there be any inconsistency between the Special Conditions contained in this award and the General Conditions (Grant General Conditions and Cooperative Agreement General Conditions), the Special Conditions shall control.

Should there be any inconsistency between the General Conditions, the Special Conditions contained in this award, and any NSF guides, brochures or other materials cited or included by reference in the award, the matter should be referred to the NSF Grants and Contracts Officer for guidance.

40. GC-1 Exceptions

The following articles in GC-1, "Grant General Conditions", are not applicable to this cooperative agreement:

- 4 No-Cost Extensions
- 5 Expenditures for Related Projects
- 32 Resolution of Conflicting Conditions

GRANT GENERAL CONDITIONS

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OTHER CONSIDERATIONS

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Article 1. Grantee Responsibilities and Federal Requirements

a. The grantee has full responsibility for the conduct of the project or activity supported under this award and for adherence to the award conditions. Although the grantee is encouraged to seek the advice and opinion of the Foundation on special problems that may arise, such advice does not diminish the grantee's responsibility for making sound scientific and administrative judgments and should not imply that the responsibility for operating decisions has shifted to the Foundation. The grantee is responsible for notifying NSF about (1) any allegation of scientific misconduct that it concludes has substance and requires an investigation in accordance with NSF misconduct regulations published at 45 CFR 689, and (2) any significant problems relating to the administrative or financial aspects of the grant.

b. Administrative Requirements. The requirements of this award are contained in these Grant General Conditions unless otherwise specified in the grant instrument. Certain applicable Federal administrative standards are incorporated by reference. The applicable requirements are contained in:

- (1) OMB Circular A-110, for grantees that are institutions of higher education, hospitals, and non-profit organizations;
- (2) 45 CFR 602 (the Common Rule implementing OMB Circular A-102), for units of State and local government; and
- (3) Attachments F (excluding subparagraphs 2.d and 2.h), N, and O to OMB Circular A-110 for commercial organizations, including small businesses.

c. By acceptance of this grant, the grantee agrees to comply with the applicable Federal requirements for grants and cooperative agreements and to the prudent management of all expenditures and actions affecting the grant. Documentation for each expenditure or action affecting this grant must reflect appropriate institutional reviews or approvals which

should be made in advance of the action. Institutional reviews are intended to help assure that expenditures are allowable, necessary and reasonable for the conduct of the project, and that the proposed action:

- (1) is consistent with grant terms and conditions;
- (2) is consistent with NSF and grantee policies;
- (3) represents effective utilization of resources; and
- (4) does not constitute a change in scope.

Nothing in this article shall be construed to require administrative reviews or documentation which duplicates those already required by existing institutional systems or by applicable Federal standards, e.g., OMB Circular A-110.

2. Prior Approval Requirements

Unless otherwise specified in the grant, provisions of the applicable Federal cost principles and other Federal administrative requirements for prior agency approval apply only to the activities and expenditures specified below.

a. Written prior approval from the NSF Grants Officer:

- (1) Significant Project Changes (see Article 8);
 - (a) Transfer of the project effort
 - (b) Change in objectives or scope
 - (c) Absence or change of PI

(2) Establishing relatedness of projects under the direction of collaborating Principal Investigators (see Article 5); or

(3) Rearrangements/Alterations \$10,000 or over (see Article 10).

b. Written prior approval from the cognizant NSF Program Officer is necessary to reallocate funds budgeted for participant or trainee support costs (see *Grant Policy Manual* Section 518).

3. Pre-Award Costs

a. Grantees may approve pre-award costs incurred within the ninety-day period immediately preceding the effective date of the grant. Requests for preaward costs for periods exceeding 90 days must be submitted in writing to the cognizant Grants Officer. Preaward expenditures prior to funding of an increment within a continuing grant are not subject to this limitation or approval requirement, but are subject to paragraph c. below.

b. Preaward costs must be necessary for the effective and economical conduct of the project and the costs must be otherwise allowable in accordance with Article 11.

c. Pre-award expenditures are made at the grantee's risk. Grantee authority to approve pre-award costs does not impose an obligation on the Foundation (1) in the absence of appropriations; (2) if an award is not subsequently made; or (3) if an award is made for a lesser amount than the grantee expected.

4. No-Cost Extensions

a. Grantees may extend the expiration date of the grant if additional time beyond the established expiration date is required to assure adequate completion of the original scope of work within the funds already made available. A single extension, which shall not exceed six (6) months, may be made for this purpose and must be made prior to the originally established expiration date. The grantee shall notify the NSF Grants Officer in writing within ten (10) days of approval of the extension to ensure accuracy of the Foundation's award data.

b. Requests for no-cost extensions beyond the above-referenced authority must follow the procedures set forth in *Grant Policy Manual* Section 244.3.

5. Expenditures for Related Projects

a. During the grant period, grant funds may be committed or expended for otherwise allowable costs of related projects under the direction of one Principal Investigator, and charged to this or another NSF grant, provided the grants are scientifically or technically related.

b. Relatedness must be established and documented by the grantee on the basis of scientific or technical commonality of the work being supported. All determinations of relatedness must be initiated by or agreed to by all affected principal investigators. Examples of scientific or technical commonality include:

- (1) the theoretical approaches of projects are interrelated;
- (2) studies of the same phenomena are conducted by the same or different techniques; or
- (3) specific instrumentation, which is central to the work being performed, is used.

c. The scientific or technical relatedness of grants under the direction of two or more collaborating Principal Investigators must be approved in writing by the NSF Grants Officer with the concurrence of the appropriate NSF Program Officer(s).

d. Nothing in this article is intended to require additional determinations, documentation, or approvals in cases in which common costs are allocated among two or more grants on the basis of use or benefit in accordance with the applicable Federal cost principles.

e. Notwithstanding the above, no significant change in the objectives or scope of an individual NSF grant may be made unless the Foundation approves such a change in writing in accordance with Article 8.

6. Consultant Services

Payments to individuals for consultant services under this grant shall not exceed the daily equivalent of the then current maximum rate paid to a GS-18 Federal employee (exclusive of indirect cost, travel, per

diem, clerical services, vacation, fringe benefits, and supplies). As of January 13, 1991, this rate is \$373 per day.

7. Equipment

a. Unless otherwise specified in the grant, title to equipment purchased or fabricated with NSF grant funds by all grantees except small businesses and commercial organizations (as defined in *Grant Policy Manual* Section 340) 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.

b. Unless otherwise specified in the grant, title to equipment purchased or fabricated with NSF grant funds by a small business or other commercial firm will vest in the Government. Such equipment will be managed in accordance with *Grant Policy Manual* Section 333.

c. The grantee will assure that each purchase of equipment is:

- (1) necessary for the research supported by the grant;
- (2) not reasonably available and accessible;
- (3) of the type normally charged as a direct cost to sponsored agreements; and
- (4) purchased in accordance with institutional practice.

d. Expenditures for general purpose equipment (see *Grant Policy Manual* Section 512.2(c)) are unallowable unless the equipment is primarily or exclusively used in the actual conduct of scientific research.

e. By acquiring equipment having a unit acquisition cost of \$10,000 or more, the grantee assures the Foundation that the equipment will be subject to reasonable inventory controls and maintenance procedures and, to the extent possible, will be shared for work on other projects.

8. Significant Project Changes

The grantee is required to obtain prior written approval from the NSF Grants Officer whenever there are significant changes in the project or its direction.

a. **Transfer of the Project Effort.** If it becomes necessary to transfer, by contract or other means, a significant part of the research or substantive effort after an award has been made, the grantee must inform the NSF Program Officer in writing, including description of the scientific/technical impact on the project, and a budget estimate. Approval of such arrangements that are disclosed in the proposal is not needed, unless specifically withheld in the award letter.

b. **Change in Objectives or Scope.** A proposed change in the phenomenon or phenomena under study or the objectives of the project stated in the proposal or agreed modifications thereto should be communicated in writing to the NSF Program Officer by the Principal Investigator and countersigned by the Authorized Organizational Representative. NSF approval of such changes will be by an amendment to the grant signed by the NSF Grants Officer.

c. **Absence or Change of Principal Investigator.** If a named Principal Investigator or Project Director plans to or becomes aware that he or she will (1) devote substantially less effort to the work than anticipated in the approved proposal, (2) sever his or her connection with the grantee organization, or (3) be absent for a continuous period of three months or more, or otherwise relinquish active direction of the project, he or she shall advise both the NSF Program Officer and the grantee's Authorized Organizational Representative. Action appropriate to the situation will be initiated in accordance with the guidelines described in *Grant Policy Manual* Section 622.

9. Travel

a. Expenses for transportation, lodging, subsistence, and related items incurred by project personnel and by outside consultants employed on the project (*Grant Policy Manual* Section 516.1) who are in travel status

on business related to an NSF-supported project are allowable as prescribed in the governing cost principles. The requirements for prior approval detailed in the governing cost principles are waived.

b. Support for the foreign travel of an investigator's dependents is allowable only under the following conditions:

(1) the investigator is a key person whose full-time presence is essential to the research; and

(2) the investigator's residence away from home and in a foreign country for a continuous period of six months or more is essential for the effective performance of the project.

c. Use of U.S.-Flag Air Carriers

(1) The Comptroller General of the United States, by Decision B-138942 of June 17, 1975, as amended March 31, 1981, provided guidelines for implementation of Section 5 of the International Air Transportation Fair Competitive Practices Act of 1974 (49 U.S.C. 1517).

(2) Any air transportation to, from, between, or within a country other than the United States of persons or property, the expense of which will be assisted by NSF funding, must be performed by a U.S.-flag air carrier if service provided by such a carrier is available.

(3) For the purposes of this requirement, U.S.-flag air carrier service is considered available even though:

(a) comparable or a different kind of service can be provided at less cost by a foreign-flag air carrier;

(b) foreign-flag air carrier service is preferred by, or is more convenient for, the Foundation or traveler; or

(c) service by a foreign-flag air carrier can be paid for in excess foreign currency.

(4) The following rules apply unless their application would result in the first or last leg of travel from or to the United States being performed by a foreign-flag air carrier:

(a) A U.S.-flag air carrier shall be used to destination or, in the absence of direct or through service, to the farthest interchange point on a usually traveled route.

(b) If a U.S.-flag air carrier does not serve an origin or interchange point, a foreign-flag air carrier shall be used only to the nearest interchange point on a usually traveled route to connect with a U.S. flag air carrier.

(c) If a U.S.-flag air carrier involuntarily reroutes the traveler via a foreign-flag air carrier, the foreign-flag air carrier may be used notwithstanding the availability of alternative U.S.-flag air carrier service.

d. Use of Foreign-Flag Air Carriers.

(1) Travel To and From the United States. Use of a foreign-flag air carrier is permissible if:

(a) the airport abroad is the traveler's origin or destination airport, and use of U.S.-flag air carrier service would extend the time in a travel status by at least 24 hours more than travel by a foreign-flag air carrier; or

(b) the airport abroad is an interchange point, and use of U.S.-flag air carrier service would require the traveler to wait 6 hours or more to make connections at that point, or would extend the time in a travel status by at least 6 hours more than travel by a foreign-flag air carrier.

(2) Travel Between Points Outside the United States. Use of a foreign-flag air carrier is permissible if:

(a) travel by a foreign-flag air carrier would eliminate two or more aircraft changes en route;

(b) travel by a U.S.-flag air carrier would extend the time in a travel status by at least 6 hours more than travel by a foreign-flag air carrier; or

(c) the travel is not part of the trip to or from the United States, and use of a U.S.-flag air carrier would extend the time in a travel status by at least 6 hours more than travel by a foreign-flag air carrier.

(3) Short Distance Travel. For all short distance travel, regardless of origin and destination, use of a foreign-flag air carrier is permissible if the elapsed travel time on a scheduled flight from origin to destination airport by a foreign-flag air carrier is 3 hours or less and service by a U.S.-flag air carrier would double the travel time.

10. Rearrangements and Alterations

a. Rearrangement and alteration costs that do not constitute construction (i.e., rearrangements and alterations aggregating less than \$10,000) to adapt space or utilities within a completed structure to accomplish the objectives of the grant are allowable, provided:

(1) the building has a usable life consistent with project purposes and is architecturally suitable for conversion;

(2) the rearrangements and alterations are essential to the project; and

(3) the space involved will be occupied by the project.

b. In situations in which the space is rented because laboratory facilities or other work areas of a type of coverage not normally available to the grantee are required, the grantee must secure a lease for the length of the project using the space in order for the cost of rearrangements and alterations to be allowable. Rental charges may be made in conformance with the grantee's policies and in the same manner that similar charges are made to any account, provided that such rental costs are reasonable and otherwise conform to the governing cost principles.

11. 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, 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 contained in:

(1) OMB Circular A-21 for both public and private institutions of higher education;

(2) OMB Circular A-122 for other nonprofit organizations, except those organizations specifically exempted by the Circular, or DHHS publication, Guide for Hospitals, OASC-3; as appropriate;

(3) Federal Acquisition Regulation 31.2 (48 CFR 31.2) for commercial firms and those nonprofit organizations specifically exempted from the provisions of OMB Circular A-122; and

(4) OMB Circular A-87 for State and Local Governments.

c. Certain prior approval requirements contained in these Federal cost principles have been modified by Article 2.

12. Payments

a. Unless otherwise specified in the grant, the grantee shall receive payments under this grant through cash advance by U.S. Treasury check drawn in amounts necessary to meet current needs, pursuant to the procedures contained in Treasury Department Circular No. 1075, revised. If the grantee does not qualify for advance payments by Line of Credit, advances shall be requested by submission of a Request for Advance or Reimbursement, SF 270 [see Chapter IV of the *Grant Policy Manual*]. For new grantees, a copy of SF 270 should have been provided by the Foundation along with a copy of the *Grant Policy Manual*. The grantee will arrange with the NSF Division of Financial Management for payment on a regular cycle or as required. The grantee agrees to comply with all applicable Treasury regulations and National Science Foundation implementing and reporting procedures, which are outlined in Chapter IV and Chapter VI of the *Grant Policy Manual*.

b. In accordance with a revision to Attachment I to OMB Circular A-110, affected grantees are required to maintain advances of Federal funds in interest-bearing accounts and submit the interest earned to the Federal agency that provided the funds. Interest earned on advance payments to other than State agencies shall be reported to the Foundation on the Federal Cash Transactions Report, SF 272 (if payments are made in accordance with Paragraph a above) and remitted by check made payable to the National Science Foundation.

13. Continuing Grants

Unless otherwise specified, each successive increment of a continuing grant will be funded at the level indicated in the original grant letter without a formal request from the grantee, provided the required annual progress report from the PI(s) has been received and contingent on (1) availability of funds; (2) satisfactory scientific/technical progress; and (3) any special conditions of the grant.

14. Progress Reports

a. For standard grants of two or more years and for incrementally funded grants, an annual progress report is required.

b. Content of Progress Reports. Unless otherwise specified in the grant, progress reports shall include:

(1) a summary of overall progress, including results obtained to date, and a comparison of actual accomplishments with proposed goals for the period;

(2) an indication of any current problems or favorable or unusual developments;

(3) a summary of work to be performed during the succeeding budget period; and

(4) other information pertinent to the type of project being supported or as specified in the terms and conditions of the grant.

(5) For grants involving human subjects (see *Grant Policy Manual* Section 711) or vertebrate animals (see *Grant Policy Manual* Section 713), an updated annual certification is required by the Foundation if protocols have been changed substantively from those originally proposed and approved.

(6) For continuing grants, the following information should be included, only if applicable:

(a) a proposal budget for the ensuing year (see *Grant Policy Manual* Section 253 for circumstances);

(b) a statement of funds estimated to remain unobligated at the end of the current support year if the amount exceeds 20% of the current increment; and

(c) current information about other support of senior personnel, if changed from the previous submission.

c. Timing of Progress Reports. Unless otherwise specified in the grant, one signed copy of the progress report shall be submitted to the cognizant NSF Program Officer according to the following schedule:

(1) For continuing grants, the required progress report shall be submitted to the cognizant NSF Program Officer at least 3 months prior to the end of the current budget period.

(2) For standard grants with an award duration of 2 years or more, the first report shall be submitted no later than 90 days after the anniversary of the effective date of the grant, with succeeding reports annually thereafter, except after the final year.

15. Final Report Requirements

Unless otherwise specified in the grant, within 90 days following the expiration of the grant the grantee must:

a. send one signed Final Project Report (NSF Form 98A (5/90)) to the cognizant NSF Program Officer, along with any technical information items listed in Part III of the Form 98A, as appropriate;

b. furnish the NSF Division of Financial Management with final disbursement information on the Federal Cash Transactions Report, SF 272; and

c. provide any unique reports or other end products in accord with the grant, including reporting requirements set forth in any NSF brochure, guide, solicitation, etc., referenced in the grant as being directly related to either the award or administration of this grant.

16. Information Collection

Information collection activities performed under this grant are the responsibility of the grantee, and NSF support of the project does not constitute NSF approval of the survey design, questionnaire content, or information collection procedures. The grantee shall not represent to respondents that such information is being collected for or in association with the National Science Foundation or any other Government agency without the specific written approval of such information collection plan or device by the Foundation. However, this requirement is not intended to preclude mention of NSF support of the project in response to an inquiry or acknowledgment of such support in any publication of this information.

17. Copyrightable Material

a. Subject writing means any material that:

(1) is or may be copyrightable under Title 17 of the United States Code; and

(2) is produced by the grantee or its employees in the performance of work under this grant.

Subject writings include such items as reports, books, journal articles, software, databases, sound recordings, video tapes, and video discs.

b. Copyright Ownership, Government License. Except as otherwise specified in the grant or by this paragraph, the grantee may own or permit others to own copyright in all subject writings. The grantee agrees that if it or anyone else does own copyright in a subject writing, the Federal government will have a nonexclusive, nontransferable, irrevocable, royalty-free license to exercise or have exercised for or on behalf of the United States throughout the world all the exclusive rights provided by copyright. Such license, however, will not include the right to sell copies or phonorecords of the copyrighted works to the public.

c. Grants Affected by International Agreements. If the grant indicates it is subject to an identified international agreement or treaty, the Foundation may direct the grantee to convey to any foreign participant or otherwise dispose of such rights to subject writings as required to comply with that agreement or treaty.

d. Grantee Action to Protect Government Interests. The grantee agrees to acquire, through written agreement or an employment relationship, the ability to comply with the requirements of the preceding paragraphs and, in particular, to acquire the ability to convey rights in a subject writing to a foreign participant if directed by the Foundation under the previous paragraph. The grantee further agrees that any transfer of copyright or any other rights to a subject writing, by it or anyone whom it has allowed to own such rights, will be made subject to the requirements of this article.

18. Project Income

a. Definition. Project income refers to that portion of gross revenues, including royalties, received by or accruing to the grantee through activities undertaken under this grant, whether received during or after the grant period. It includes, but is not limited to, proceeds from the sale, licensing, lease, rental, or other arrangement for the use, release, dissemination, or other disposal of copyrightable or noncopyrightable materials, properties, and inventions developed or produced under the

grant. Income also includes any interest earned on all such revenues and proceeds.

b. **Standard Treatment.** Unless otherwise specified in the grant, project income received or accruing to the grantee during the period of this grant shall be retained and added to the funds committed to the project by the Foundation and used to further project objectives. The grantee shall have no obligation to the Foundation with respect to (1) copyright or patent royalties; or (2) project income received after the period of this grant.

c. **Records Retention.** The grantee is required to retain appropriate financial and other records relating to project income earned during the grant period and for three years beyond the end of the grant period.

19. Publications

a. **Acknowledgement of Support.** The grantee is responsible for assuring that an acknowledgement of NSF support will appear in any publication of any material based on or developed under this project, in the following terms:

"This material is based upon work supported by the National Science Foundation under Grant No. (NSF grant number)."

b. **Disclaimer.** The grantee is responsible for assuring that every publication of material based on or developed under this grant, except scientific articles or papers appearing in scientific, technical or professional journals, contains the following disclaimer:

"Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation."

c. **Copies for NSF.** The grantee is responsible for assuring that two copies of every publication of material based on or developed under this grant, clearly labeled with the grant number and other appropriate identifying information, are sent to the cognizant NSF Program Officer promptly after publication.

d. **Metric System.** All reports and publications resulting from this NSF grant shall use the metric system of weights and measures, unless its use is impractical or is likely to cause significant inefficiencies or loss of markets to the grantee, such as when foreign competitors are producing competing products in non-metric units.

20. Patent Rights

Unless otherwise provided in the grant letter, if this grant is for experimental, developmental, or research work, the clause found in the NSF *Grant Policy Manual* (implementing the Bayh-Dole Act, 35 U.S.C. 200 et seq.) applies [see *Grant Policy Manual* Section 751.3.]. The grantee will include that clause in all subawards for experimental, developmental, or research activities.

21. Cost Sharing and Cost Sharing Records

a. The grantee must cost share under this grant in accordance with any specific requirements contained in or referenced by the grant. If the grant has no specific requirements and if the work supported by this grant is for research resulting from an unsolicited proposal, the grantee may meet the statutory cost sharing requirement by choosing either of two alternative methods: (1) by cost sharing a minimum of 1 percent on this project; or (2) by cost sharing a minimum of 1 percent on the aggregate total costs of all NSF-supported projects requiring cost sharing. [See *Grant Policy Manual* Section 640 for further guidance.]

b. The grantee must maintain records of all project costs that are claimed by the grantee as cost sharing as well as records of costs to be paid by the Government. Such records are subject to audit. If the grantee's cost participation includes in-kind contributions, the basis for determining the valuation for volunteer services and donated property must be documented.

c. If the grant does not contain or reference any specific cost sharing requirements and provides funds solely for the following purposes (not considered to be in support of "research"), statutory cost sharing is not required [see *Grant Policy Manual* Section 643.1]:

- (1) international travel;
- (2) construction, improvement or operation of facilities;
- (3) acquisition of research equipment;
- (4) ship operations;
- (5) education and training;
- (6) publication, distribution and translation of scientific data and information;
- (7) symposia, conferences and workshops; and
- (8) special studies authorized or required by Subsections 3a(5) through 3a(7) of the NSF Act, as amended.

22. Audit and Records

a. Financial records, supporting documents, statistical records, and other records pertinent to this award shall be retained by the grantee for a period of 3 years from submission of the Final Project Reports specified in Article 15.

(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.

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

b. Unless court action or audit proceedings have been initiated, the grantee may substitute microfilm copies of original records.

c. The Director of the National Science Foundation and the 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 negotiated contract in excess of \$10,000 made by the grantee shall include a provision to the effect that the grantee, the Director of the National Science Foundation, the Comptroller General of the United States, or any of their duly authorized representatives shall have access to pertinent records for similar purposes.

d. In order to avoid duplicate recordkeeping, the Foundation may make special arrangements with the grantee to retain any records that are needed for joint use. The Foundation may request transfer to its custody of records not needed by the grantee when it determines that the records possess long-term retention value. When the records are transferred to or maintained by the Foundation, the 3-year retention requirement is not applicable to the grantee. In the rare event that this provision is exercised, the Foundation will negotiate a mutually agreeable arrangement with the grantee regarding reimbursement of costs.

e. Grantees that are institutions of higher education or nonprofit organizations shall arrange for the conduct of audits as required by OMB Circular A-133, "Audits of Institutions of Higher Education and Other Nonprofit Organizations," except those institutions audited as part of single audits in accordance with OMB Circular A-128, "Audits of State and Local Governments." The grantee shall provide copies of the reports of these audits to the Federal Audit Agency assigned cognizance under OMB Circular A-88. Any Federal Audit of this project deemed necessary by NSF shall build upon the results of such audit(s).

23. Site Visits

The Foundation, 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

on the premises of the grantee or a contractor under a grant, the grantee shall provide and shall require its 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.

24. Suspension or Termination

a. The grant may be suspended or terminated in whole or in part, when the Foundation believes that the grantee has materially failed to comply with the terms and conditions of the grant, or when the Foundation has other reasonable cause, or for any reason by mutual agreement between the Foundation and the grantee upon the request of either party, or when the parties cannot mutually agree to a termination.

b. Normally, action by the Foundation to suspend or terminate a grant will be taken only after the grantee has been informed by the Foundation, or informed of any deficiency on its part and given an opportunity to correct it; but the Foundation may immediately suspend or terminate the grant without notice when it believes such action is reasonable to protect the interests of the Government.

c. No costs incurred during a suspension period or after the effective date of a termination will be allowable, except those costs which, in the opinion of the Foundation, the grantee could not reasonably avoid or eliminate, or which were otherwise authorized by the suspension or termination notice, provided such costs would otherwise be allowable under the terms of the grant and the appropriate Federal cost principles.

d. Within 30 days of the termination date, the grantee will furnish a summary of progress under the grant and an itemized accounting of costs incurred prior to the termination date or pursuant to c, above. Final allowable costs under a termination settlement shall be in accordance with the terms of the grant, including this article, and the appropriate Federal cost principles, giving due consideration to the progress under the grant. In no event will the total of NSF payments under a terminated grant exceed the grant amount, or the NSF rata share when cost sharing was anticipated, whichever is less.

e. A notice of termination other than by mutual agreement and/or the final settlement amount may be subject to review pursuant to Article 25.

f. Any suspension or termination action will be in accordance with this article and *Grant Policy Manual* Section 660.

25. Termination Review Procedure

a. A request for review of a notice of termination should be addressed to the Director, Division of Grants and Contracts, National Science Foundation, 1800 G Street, N.W., Washington, D.C. 20550. It must be postmarked no later than 30 days after the postmark 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. Review of a notice of termination will be conducted in accordance with *Grant Policy Manual* Section 693.

d. Pending resolution of the request for review, the notice of termination shall remain in effect.

26. Nondiscrimination

a. The grant and any program assisted thereby are subject to the provisions of Title VI of the Civil Rights Act of 1964 (PL 88-352), the regulations issued pursuant thereto by the Foundation (45 CFR 611), and the Assurance of Compliance which the grantee has filed with the Foundation. No person on the basis of race, color, national origin, or handicap shall be excluded from participation in, be denied benefits of, or otherwise be subjected to discrimination under the grant. In addition, if the project involves an education activity or program, as defined by

1681-1686), no person on the basis of sex shall be excluded participation in the project. Further, by acceptance of the grant, the grantee assures the Foundation that it will comply with Section 5 of the Rehabilitation Act of 1973 (29 U.S.C. 194) and the Foundation implementing regulations (45 CFR 605, as amended at 55 *Federal Register* 52142).

b. The grantee shall obtain from each organization that applies or serves as a subrecipient, subgrantee or subcontractor under the (for other than the provision of commercially available supplies, materials, equipment, or general support services) an Assurance of Compliance with Title VI of the Civil Rights Act of 1964. Civil Rights Act assurances may be filed with the grantee in one of two ways: by written notification that the appropriate Assurance of Compliance form has been executed and filed either with the Foundation or the Department of Health and Human Services; or (2) by executing filing with the grantee an NSF Assurance of Compliance Form. The grantee shall obtain assurances pursuant to Section 504 of the Rehabilitation Act of 1973, as amended, from subrecipients by incorporating into the subagreement a provision that acceptance of subagreement constitutes assurance.

c. The grantee agrees to comply with the Age Discrimination Act of 1975 as implemented by the Department of Health and Human Services regulations at 45 CFR 90 and the regulations of the Foundation at 45 CFR 617. In the event the grantee passes on NSF financial assistance to subrecipients, this provision shall apply to the subrecipients, and the instrument under which the Federal financial assistance is passed to a subrecipient shall contain a provision identical to this provision.

27. National Security: Classifiable Results Originating Under NSF Grants

a. The Foundation does not have original classification authority and does not normally support classified projects. It therefore does not expect that results of NSF-supported research projects will be classified, except in very rare instances.

b. Executive Order 12356 [47 *Federal Register* 14874 (1982)] states that basic scientific research information not clearly related to national security may not be classified [Section 1.6(b)]. Nevertheless, some information concerning (among other things) scientific, technological, or economic matters relating to the national security cryptology may require classification [Section 1.3(a)].

c. There may therefore be cases when an NSF grantee originates information during the course of an NSF-supported project that the grantee believes requires classification under Executive Order 12356 [Section 1.2(e)].

d. In such a case, the grantee has the responsibility promptly to:

(1) submit the information directly to the U.S. Government agency with appropriate subject matter interest and classification authority, if uncertain which agency should receive the information, to the Director of the Information Security Oversight Office, General Services Administration;

(2) protect the information as though it were classified until the grantee is informed that the information does not require classification but not longer than thirty (30) days after receipt by the agency with subject matter interest or by the General Services Administration; and

(3) notify the cognizant NSF Program Officer.

e. The Executive Order requires the agency with appropriate subject matter interest and classification authority to decide within thirty (30) days whether to classify the material. If it determines the information requires classification, the grantee shall cooperate with that agency, the Foundation, or other appropriate agencies in securing all relevant project notes and papers.

28. Animal Welfare

Any grantee performing research on vertebrate animals shall comply with the Animal Welfare Act (PL 89-544, 1966, as amended, 7 U.S.C. 2131 *et seq.*) and the regulations promulgated thereunder by the Secretary of Agriculture (9 CFR, Subchapter A, Parts 1, 2, 3, and 4) pertaining to the humane care, handling, and treatment of vertebrate animals held or used for research, teaching, or other activities supported by Federal awards. The grantee is expected to ensure that the guidelines described in NIH Publication No. 85-23 (Revised 1985), *Guide for the Care and Use of Laboratory Animals*, are followed; and to comply with the "U.S. Government Principles for the Utilization and Care of Vertebrate Animals Used in Testing, Research, and Training" (included as an appendix to the NIH Guide).

NOTE--The grantee may request registration of its facility and a current listing of licensed dealers from the Regional Office of the Animal and Plant Health Inspection Service (APHIS), USDA, for the region in which its research facility is located. The location of the appropriate APHIS Regional Office, as well as information concerning this program, may be obtained by contacting the Chief Staff Officer, Animal Care Staff, USDA/APHIS, Federal Center Building, Hyattsville, MD 20782.

29. Research Involving Recombinant DNA Molecules

If this grant supports research involving recombinant DNA molecules, the grantee agrees to comply with the requirements of *Grant Policy Manual* Section 712.

30. Clean Air and 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, or the grant is not otherwise exempt.)

The grantee agrees as follows:

a. To comply with all the requirements of Section 114 of the Clean Air Act [42 U.S.C. 1857 *et seq.*, as amended by PL 91-604] and Section 308 of the Federal Water Pollution Control Act [33 U.S.C. 1251 *et seq.*, as amended by PL 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 Federal Water Pollution Control Act, respectively, and all regulations and guidelines issued thereunder before the award of the grant.

b. That no portion of the work required by the grant will be performed in a facility listed on the Environmental Protection Agency List of Violating Facilities on the date that the grant was awarded unless and until EPA eliminates the name of such facility or facilities from such listing.

c. To use its best efforts to comply with clean air standards and clean water standards at the facility in which the grant is being performed.

d. To insert the substance of the provisions of this article into any nonexempt subcontract.

31. Human Research Subjects

The grantee is responsible for the protection of the rights and welfare of any human subjects involved in research, development and related activities supported by this grant. The grantee agrees to comply with the NSF regulations, entitled, "Federal Policy for the Protection of Human Subjects," published in the *Federal Register*, June 18, 1991, and at 45 CFR 690.

Should there be any inconsistency between any special conditions contained in the grant and these Grant General Conditions (GC-1), the special conditions in the grant shall control.

Should there be any inconsistency between these Grant General Conditions (GC-1), any special conditions contained in the grant, or any NSF guides, brochures, etc., cited or included by reference in the grant, the matter should be referred to the NSF Grants Officer for guidance.

OTHER CONSIDERATIONS

33. Liability

The Foundation cannot assume any liability for accidents, illnesses or claims arising out of any work supported by a grant or for unauthorized use of patented or copyrighted materials. The grantee institution is advised to take such steps as may be deemed necessary to insure or protect itself, its employees and its property.

34. Sharing of Findings, Data, and Other Research Products

a. NSF expects significant findings from research and education activities it supports to be promptly submitted for publication, with authorship that accurately reflects the contributions of those involved. It expects investigators to share with other researchers, at no more than incremental cost and within a reasonable time, the data, sample, physical collections, and other supporting materials created or gathered in the course of the work. It also encourages grantees to share software and inventions or otherwise act to make the innovations they embody widely useful and usable.

b. Adjustments and, where essential, exceptions may be allowed to safeguard the rights of individuals and subjects, the validity of results or the integrity of collections or to accommodate legitimate interests of investigators.

35. Activities Abroad

The grantee should assure that grant activities carried on outside the United States are coordinated as necessary with appropriate Government authorities and that appropriate licenses, permits or approvals are obtained prior to undertaking proposed activities. The Foundation does not assume responsibility for grantee compliance with the laws and regulations of the country in which the work is to be conducted.

GRANT GENERAL CONDITIONS

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Article 1. Grantee Responsibilities and Federal Requirements

a. The grantee has full responsibility for the conduct of the project or activity supported under this award and for adherence to the award conditions. Although the grantee is encouraged to seek the advice and opinion of the Foundation on special problems that may arise, such advice does not diminish the grantee's responsibility for making sound scientific and administrative judgments and should not imply that the responsibility for operating decisions has shifted to the Foundation.

b. The requirements of this award are contained in these Grant General Conditions unless otherwise specified in the grant instrument. Certain applicable Federal administrative standards are incorporated by reference. The applicable requirements are contained in:

(1) OMB Circular A-110, for all grantees except units of State and local government and

(2) 45 CFR 602 (the Common Rule implementing OMB Circular A-102), for units of State and local government.

c. By acceptance of this grant, the grantee agrees to comply with the applicable Federal requirements for grants and cooperative agreements and to the prudent management of all expenditures and actions affecting the grant. Documentation for each expenditure or action affecting this grant must reflect appropriate institutional reviews or approvals which should be made in advance of the action. Institutional reviews are intended to help assure that expenditures are allowable, necessary and reasonable for the conduct of the project, and that the proposed action:

- (1) is consistent with grant terms and conditions;
- (2) is consistent with NSF and grantee policies;
- (3) represents effective utilization of resources; and
- (4) does not constitute a change in scope.

Nothing in this article shall be construed to require administrative reviews or documentation which duplicates those already required by existing institutional systems or by applicable Federal standards [e.g. A-110].

2. Prior Approval Requirements

a. The activities and expenditures below require written prior approval from the NSF Grants Officer:

(1) Establishing relatedness of projects under the direction of collaborating Principal Investigators (see Article 5);

(2) Contractual arrangements (see Article 8);

(3) Rearrangements/Alterations \$10,000 or over (see Article 10);

(4) Changes in objectives/scope (see Article 13); or

(5) Changes in PI or level of effort (see Article 14).

b. Written prior approval from the cognizant NSF Program Officer is necessary to rebudget funds budgeted for participant or trainee support costs (see *Grant Policy Manual* Section 518).

c. Unless otherwise specified in the grant, provisions of the applicable Federal cost principles and other Federal administrative requirements for prior agency approval apply to this grant only to the extent specified above.

3. Pre-Award Costs

a. Grantees may incur pre-award costs within the ninety-day period immediately preceding the effective date of the grant providing: the approval of pre-award spending is made and documented in accordance with the grantee's procedures prior to the incurrence of the costs; the advanced funding is necessary for the effective and economical conduct of the project; and the costs are otherwise allowable.

b. Pre-award expenditures are made at the grantee's risk. Grantee authority to approve pre-award costs does not impose an obligation on the Foundation prior to the availability of appropriations.

4. No-Cost Extensions

a. Grantees may extend the expiration date of the grant if additional time beyond the established expiration date is required to assure adequate completion of the original scope of work within the funds already

made available. A single extension, which shall not exceed six (6) months, may be made for this purpose and must be made prior to the originally established expiration date. The grantee shall notify the NSF Grants Officer in writing within ten (10) days of approval of the extension to ensure accuracy of the Foundation's award data.

b. Requests for no-cost extensions beyond the above referenced authority must follow the procedures set forth in *Grant Policy Manual* Section 244.3.

5. Expenditures for Related Projects

a. During the grant period, grant funds may be committed or expended for otherwise allowable costs of related projects under the direction of one Principal Investigator, and charged to this or another NSF grant, provided the grants are scientifically or technically related.

b. Relatedness must be established and documented by the grantee on the basis of scientific or technical commonality of the work being supported. All determinations of relatedness must be initiated by or agreed to by all affected principal investigators. Examples of scientific or technical commonality include:

- (1) the theoretical approaches of projects are interrelated;
- (2) studies of the same phenomena are conducted by the same or different techniques; or
- (3) specific instrumentation, which is central to the work being performed, is used.

c. The scientific or technical relatedness of grants under the direction of two or more collaborating Principal Investigators must be approved in writing by the NSF Grants Officer with the concurrence of the appropriate NSF Program Officer(s).

d. Nothing in this article is intended to require additional determinations, documentation, or approvals in cases in which common costs are allocated among two or more grants on the basis of use or benefit in accordance with the applicable Federal cost principles.

e. Notwithstanding the above, no significant change in the objectives or scope of an individual NSF grant may be made unless the Foundation approves such a change in writing in accordance with Article 13.

6. Consultant Services

Payments to individuals for consultant services under this grant shall not exceed the daily equivalent of the then current maximum rate paid to a GS-18 Federal employee (exclusive of indirect cost, travel, per diem, clerical services, vacation, fringe benefits, and supplies). As of February 15, 1987, this rate is \$277 per day.

7. Equipment

a. Unless otherwise specified in the grant, title to equipment purchased or fabricated with NSF grant funds by all grantees except small businesses and commercial organizations [as defined in *Grant Policy Manual* Section 340] 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.

b. Unless otherwise specified in the grant, title to equipment purchased or fabricated with NSF grant funds by a small business or other commercial firm will vest in the Government. Such equipment will be managed in accordance with *Grant Policy Manual* Section 333.

c. The grantee will assure that each purchase of equipment is:

- (1) necessary for the research supported by the grant;
- (2) not reasonably available and accessible;
- (3) of the type normally charged as a direct cost to sponsored agreements; and
- (4) purchased in accordance with institutional practice.

d. Expenditures for general purpose equipment [see *Grant Policy Manual* Section 512.2(c)] are unallowable unless the equipment is primarily or exclusively used in the actual conduct of scientific research.

e. By acquiring equipment having a unit acquisition cost of \$10,000 or more, the grantee assures the Foundation that the equipment will be subject to reasonable inventory controls and maintenance procedures and, to the extent possible, will be shared for work on other projects.

8. Procurement Standards

a. NSF grantees shall follow the requirements of the applicable Federal standards for procurement contained in

(1) Attachment O to OMB Circular A-110, for all grantees except State and local governments;

(2) Subpart C, 45 CFR 602, for units of State and local governments.

b. No significant part of the research or substantive effort may be contracted or otherwise transferred without prior approval of the NSF Grants Officer. Approval of such arrangements, which have been previously detailed in the proposal, may be indicated in the grant instrument.

c. Requests for approval 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 a description of the selection process including the extent of competition.

9. Travel

a. Expenses for transportation, lodging, subsistence, and related items incurred by project personnel and by outside consultants employed on the project (*Grant Policy Manual* Section 516.1) who are in travel status on business related to an NSF-supported project are allowable as prescribed in the governing costs principles. The requirements for prior approval detailed in the governing cost principles are waived.

b. Support for the foreign travel of an investigator's dependents is allowable only under the following conditions:

(1) the investigator is a key person whose full-time presence is essential to the research; and

(2) the investigator's residence away from home and in a foreign country for a continuous period of six months or more is essential for the effective performance of the project.

c. Use of U.S.-Flag Air Carriers

(1) The Comptroller General of the United States, by Decision B-138942 of June 17, 1975, as amended March 31, 1981, provided guidelines for implementation of Section 5 of the International Air Transportation Fair Competitive Practices Act of 1974 (49 U.S.C. 1517).

(2) Any air transportation to, from, between, or within a country other than the United States of persons or property, the expense of which will be assisted by NSF funding, must be performed by a U.S.-flag air carrier if service provided by such a carrier is available.

(3) For the purposes of this requirement, U.S.-flag air carrier service is considered available even though:

- (a) comparable or a different kind of service can be provided at less cost by a foreign-flag air carrier;
- (b) foreign-flag air carrier service is preferred by, or is more convenient for, the Foundation or traveler; or
- (c) service by a foreign-flag air carrier can be paid for in excess foreign currency.

(4) The following rules apply unless their application would result in the first or last leg of travel from or to the United States being performed by a foreign-flag air carrier:

any U.S.-flag air carrier shall be used to destination or, in the absence of direct or through service, to the farthest interchange point on a usually traveled route.

(b) If a U.S.-flag air carrier does not serve an origin or interchange point, a foreign-flag air carrier shall be used only to the nearest interchange point on a usually traveled route to connect with a U.S. flag air carrier.

(c) If a U.S.-flag air carrier involuntarily reroutes the traveler via a foreign-flag air carrier, the foreign-flag air carrier may be used notwithstanding the availability of alternative U.S.-flag air carrier service.

d. Use of Foreign-Flag Air Carriers.

(1) Travel To and From the United States. Use of a foreign-flag air carrier is permissible if:

(a) the airport abroad is the traveler's origin or destination airport, and use of U.S.-flag air carrier service would extend the time in a travel status by at least 24 hours more than travel by a foreign-flag air carrier; or

(b) the airport abroad is an interchange point, and use of U.S.-flag air carrier service would require the traveler to wait 6 hours or more to make connections at that point, or would extend the time in a travel status by at least 6 hours more than travel by a foreign-flag air carrier.

(2) Travel Between Points Outside the United States. Use of a foreign-flag air carrier is permissible if:

(a) travel by a foreign-flag air carrier would eliminate two or more aircraft changes en route;

(b) travel by a U.S.-flag air carrier would extend the time in a travel status by at least 6 hours more than travel by a foreign-flag air carrier; or

(c) the travel is not part of the trip to or from the United States, and use of a U.S.-flag air carrier would extend the time in a travel status by at least 6 hours more than travel by a foreign-flag air carrier.

(3) Short Distance Travel. For all short distance travel, regardless of origin and destination, use of a foreign-flag air carrier is permissible if the elapsed travel time on a scheduled flight from origin to destination airport by a foreign-flag air carrier is 3 hours or less and service by a U.S.-flag air carrier would double the travel time.

10. Rearrangements and Alterations

a. Rearrangement and alteration costs that do not constitute construction (i.e., rearrangements and alterations aggregating less than \$10,000) to adapt space or utilities within a completed structure to accomplish the objectives of the grant are allowable, provided:

(1) the building has a usable life consistent with project purposes and is architecturally suitable for conversion;

(2) the rearrangements and alterations are essential to the project; and

(3) the space involved will be occupied by the project.

b. In situations in which the space is rented because laboratory facilities or other work areas of a type of coverage not normally available to the grantee are required, the grantee must secure a lease for the length of the project using the space in order for the cost of rearrangements and alterations to be allowable. Rental charges may be made in conformance with the grantee's policies and in the same manner that similar charges are made to any account, provided that such rental costs are reasonable and otherwise conform to the governing cost principles.

11. 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, 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 and is codified in 41 CFR 1-15.3.

(2) Other Nonprofit Organizations. OMB Circular A-122, except those organizations specifically exempted by the Circular; or DHH's publication, Guide for Hospitals, OASC-3; as appropriate.

(3) Commercial Firms and Certain Nonprofit Organizations. Federal Acquisition Regulation 31.2 (48 CFR 31.2) is applicable to commercial firms and those nonprofit organizations specifically exempted from the provisions of OMB Circular A-122.

(4) State and Local Governments. OMB Circular A-87 is codified in 41 CFR 1-15.7.

c. Prior approval requirements of the above Federal cost principles have been modified by Article 2.

12. Payments

a. Unless otherwise specified in the grant, the grantee shall receive payments under this grant through cash advance by U.S. Treasury check drawn in amounts necessary to meet current needs, pursuant to the procedures contained in Treasury Department Circular No. 1075, revised. If the grantee does not qualify for advance payments by Letter of Credit, advances shall be requested by submission of a Request for Advance or Reimbursement, SF 270 [see Chapter IV of the *Grant Policy Manual*]. For new grantees, a copy of SF 270 should have been provided by the Foundation along with a copy of the *Grant Policy Manual*. The grantee will arrange with the NSF Division of Financial Management for payment on a regular cycle or as required. The grantee agrees to comply with all applicable Treasury regulations and National Science Foundation implementing and reporting procedures, which are outlined in Chapter IV and Chapter VI of the *Grant Policy Manual*.

b. In accordance with a revision to Attachment I to OMB Circular A-110, affected grantees are required to maintain advances of Federal funds in interest-bearing accounts and submit the interest earned to the Federal agency that provided the funds. Interest earned on advance payments to other than State agencies shall be reported to the Foundation on the Federal Cash Transactions Report, SF 272 (if payments are made in accordance with Paragraph a above) and remitted by check made payable to the National Science Foundation.

13. Changes in Objectives or Scope

Neither the phenomenon or phenomena under study nor the objectives of the project stated in the proposal or agreed modifications thereto shall be changed without prior NSF approval. Such changes should be proposed to the NSF Program Officer by the Principal Investigator in a written communication countersigned by the Authorized Organizational Representative. NSF approval of such changes will be by an amendment to the grant signed by the NSF Grants Officer.

14. Changes in Principal Investigator or Level of Effort

If a named Principal Investigator or Project Director plans to or becomes aware that he or she will (1) devote substantially more or less effort to the work than anticipated in the approved proposal, (2) sever his or her connection with the grantee organization, or (3) otherwise relinquish active direction of the project, he or she shall advise both the NSF Program Officer and the grantee's Authorized Organizational

Representative. They shall initiate action appropriate to the situation, under the guidelines described in *Grant Policy Manual* Section 622.

15. Continuing Grants

a. Unless otherwise specified, each successive increment of a continuing grant will be funded at the level indicated in the original grant letter without a formal request from the grantee, provided the required annual progress report from the PI(s) has been received and contingent on (1) availability of funds; (2) satisfactory scientific/technical progress; and (3) any special conditions of the grant.

b. In order to obtain a committed funding increment and ensure continuity of funding, the required progress report (see Article 16) must be forwarded to the cognizant NSF Program Officer at least 3 months prior to the end of the current budget period. If the progress report is not submitted, processing of the planned funding increment will not be initiated by the Foundation.

16. Progress Reports

a. Content of Progress Reports. Unless otherwise specified in the grant, progress reports shall include:

(1) a summary of overall progress, including results obtained to date, and a comparison of actual accomplishments with proposed goals for the period;

(2) an indication of any current problems or favorable or unusual developments;

(3) a summary of work to be performed during the succeeding budget period; and

(4) other information pertinent to the type of project being supported or as specified in the terms and conditions of the grant.

(5) For all grants (standard or continuing) involving human subjects (see *Grant Policy Manual* Section 711) or vertebrate animals (see *Grant Policy Manual* Section 713), an updated annual certification is required by the Foundation as an appendix to the report.

b. Timing of Progress Reports. Unless otherwise specified in the grant, two copies of progress reports shall be submitted to the cognizant NSF Program Officer according to the following schedule:

For grants with an award duration of 2 years or more, the first report should be submitted no later than 90 days after the anniversary of the effective date of the grant, with succeeding reports annually thereafter, except after the final year. If a request for renewed support is submitted during the final year, the progress report should be attached to such request. Otherwise, only a final project report need be submitted.

17. Final Report Requirements

Unless otherwise specified in the grant, within 90 days following the expiration of the grant the grantee must:

a. send one copy of the Final Project Report (NSF Form 98A (1-87)) to the cognizant NSF Program Officer, along with any technical information items listed in Part III of the Form 98A, as appropriate;

b. furnish the NSF Division of Financial Management with final disbursement information on the Federal Cash Transactions Report, SF 272; and

c. provide any unique reports or other end products in accord with the grant, including report requirements set forth in any NSF brochure, guide, solicitation, etc., referenced in the grant as being directly related to either the award or administration of this grant.

18. Information Collection

Information collection activities performed under this grant are the responsibility of the grantee, and NSF support of the project does not constitute NSF approval of the survey design, questionnaire content, or

information collection procedures. The grantee shall not represent respondents that such information is being collected for or in association with the National Science Foundation or any other Government agency without the specific written approval of such information collection plan or device by the Foundation. However, this requirement is not intended to preclude mention of NSF support of the project in response to inquiry or acknowledgment of such support in any publication of information.

19. Dissemination of Project Results

a. The grantee is expected to publish or otherwise make public available the results of the work conducted under the grant. Privileged or confidential information should be released only in a form that protects the rights of privacy of the individuals involved.

b. When any subject writing (as defined in Article 20) is published or distributed, the grantee will send two copies, clearly labeled with the grant number and other appropriate identifying information, to the cognizant NSF Program Officer.

20. Copyrightable Material

a. *Subject writing* means any material that:

(1) is or may be copyrightable under Title 17 of the United States Code; and

(2) is produced by the grantee or its employees in the performance of work under this grant.

Subject writings include such items as reports, books, journal articles, software, databases, sound recordings, video tapes, and video discs.

b. Copyright Ownership. Government License. Except as otherwise specified in the grant or by this paragraph, the grantee may own or permit others to own copyright in all subject writings. The grantee agrees that if it or anyone else does own copyright in a subject writing, the Federal government will have a nonexclusive, nontransferable, irrevocable, royalty-free license to exercise or have exercised for or on behalf of the United States throughout the world all the exclusive rights provided by copyright. Such license, however, will not include the right to sell copies or phonorecords of the copyrighted works to the public.

c. Grants Affected by International Agreements. If the award indicates it is subject to an identified international agreement or treaty, the Foundation can direct the grantee to convey to any foreign participant or otherwise dispose of such rights to subject writings as are required to comply with that agreement or treaty.

d. Grantee Action to Protect Government Interests. The grantee agrees to acquire, through written agreement or an employment relationship, the ability to comply with the requirements of the preceding paragraphs and, in particular, to acquire the ability to convey rights in a subject writing to a foreign participant if directed by the Foundation under the previous paragraph. The grantee further agrees that any transfer of copyright or any other rights to a subject writing, by it or anyone whom it has allowed to own such rights, will be made subject to the requirements of this article.

21. Project Income

a. Definition. Project income refers to that portion of gross revenues, including royalties, received by or accruing to the grantee through activities undertaken under this grant, whether received during or after the grant period. It includes, but is not limited to, proceeds from the sale, licensing, lease, rental, or other arrangement for the use, release, dissemination, or other disposal of copyrightable or noncopyrightable materials, properties, and inventions developed or produced under the grant. Income also includes any interest earned on all such revenues and proceeds.

b. **Standard Treatment.** Unless otherwise specified in the grant, project income received or accruing to the grantee during the period of this grant shall be retained and added to the funds committed to the project by the Foundation and used to further project objectives. The grantee shall have no obligation to the Foundation with respect to copyright or patent royalties or project income received after the period of this grant.

c. **Records Retention.** The grantee is required to retain appropriate financial and other records relating to project income earned during the grant period and for three years beyond the end of the grant period.

22. Acknowledgment of Support and Disclaimer

a. An acknowledgment of NSF support and a disclaimer must appear in any publication of any material, whether copyrighted or not, based on or developed under this project, in the following terms:

"This material is based upon work supported by the National Science Foundation under Grant No. (Grantee should enter NSF grant number). The Government has certain rights in this material."

b. All subject writings (as defined in Article 20), except scientific articles or papers published in scientific, technical or professional journals, must also contain the following disclaimer:

"Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation."

23. Patent Rights

Unless otherwise provided in the grant letter, if this grant is for experimental, developmental, or research work, the clause found in the *NSF Grant Policy Manual* (implementing the Bayh-Dole Act, 35 U.S.C. 200 *et seq.*) applies [see *Grant Policy Manual* Section 751.3.] The grantee will include that clause in all subawards for experimental, developmental, or research activities.

24. Cost Sharing and Cost Sharing Records

a. The grantee must cost share under this grant in accordance with any specific requirements contained in or referenced by the grant. If the grant has no specific requirements and if the work supported by this grant is for research resulting from an unsolicited proposal, the grantee may meet the statutory cost sharing requirement by choosing either of two alternative methods: (1) by cost sharing a minimum of 1 percent on this project; or (2) by cost sharing a minimum of 1 percent on the aggregate total costs of all NSF-supported projects requiring cost sharing. [See *Grant Policy Manual* Section 640 for further guidance.]

b. The grantee must maintain records of all project costs that are claimed by the grantee as cost sharing as well as records of costs to be paid by the Government. Such records are subject to audit. If the grantee's cost participation includes in-kind contributions, the basis for determining the valuation for volunteer services and donated property must be documented.

c. If the grant does not contain or reference any specific cost sharing requirements and provides funds solely for the following purposes (not considered to be in support of "research"), statutory cost sharing is not required [see *Grant Policy Manual* Section 643.1]:

- (1) international travel;
- (2) construction, improvement or operation of facilities;
- (3) acquisition of research equipment;
- (4) ship operations;
- (5) education and training;
- (6) publication, distribution and translation of scientific data and information;

(7) symposia, conferences and workshops; and

(8) special studies authorized or required by Subsections 3a(5) through 3a(7) of the NSF Act as amended.

25. Standards for Financial Management Systems

NSF grantees, except State or local units of government, shall have financial management systems that meet the requirements of Attachment F to OMB Circular A-110. State and local units of government shall follow the comparable standards of Subpart C, 45 CFR 602.

26. 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 Project Reports specified in Article 17.

(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.

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

b. Unless court action or audit proceedings have been initiated, the grantee may substitute microfilm copies of original records.

c. The Director of the National Science Foundation and the 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 negotiated contract in excess of \$10,000 made by the grantee shall include a provision to the effect that the grantee, the Director of the National Science Foundation, the Comptroller General of the United States, or any of their duly authorized representatives shall have access to pertinent records for similar purposes.

d. In order to avoid duplicate recordkeeping, the Foundation may make special arrangements with the grantee to retain any records that are needed for joint use. The Foundation may request transfer to its custody of records not needed by the grantee when it determines that the records possess long-term retention value. When the records are transferred to or maintained by the Foundation, the 3-year retention requirement is not applicable to the grantee. In the rare event that this provision is exercised, the Foundation will negotiate a mutually agreeable arrangement with the grantee regarding reimbursement of costs.

27. Site Visits

The Foundation, 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 Foundation on the premises of the grantee or a contractor under a grant, the grantee shall provide and shall require its 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.

28. Suspension or Termination

a. The grant may be suspended or terminated in whole or in part, when the Foundation believes that the grantee has materially failed to comply with the terms and conditions of the grant, or when the Foundation has other reasonable cause, or for any reason by mutual agree-

ment between the Foundation and the grantee upon the request of either party, or when the parties cannot mutually agree to a termination.

b. Normally, action by the Foundation to suspend or terminate a grant will be taken only after the grantee has been informed by the Foundation, or informed of any deficiency on its part and given an opportunity to correct it; but the Foundation may immediately suspend or terminate the grant without notice when it believes such action is reasonable to protect the interests of the Government.

c. No costs incurred during a suspension period or after the effective date of a termination will be allowable, except those costs which, in the opinion of the Foundation, the grantee could not reasonably avoid or eliminate, or which were otherwise authorized by the suspension or termination notice, provided such costs would otherwise be allowable under the terms of the grant and the appropriate Federal cost principles.

d. Within 30 days of the termination date, the grantee will furnish a summary of progress under the grant and an itemized accounting of costs incurred prior to the termination date or pursuant to, above. Final allowable costs under a termination settlement shall be in accordance with the terms of the grant, including this article, and the appropriate Federal cost principles, giving due consideration to the progress under the grant. In no event will the total of NSF payments under a terminated grant exceed the grant amount, or the NSF rata share when cost sharing was anticipated, whichever is less.

e. A notice of termination other than by mutual agreement and/or the final settlement amount may be subject to review pursuant to Article 29.

f. Any suspension or termination action will be in accordance with this article and *Grant Policy Manual* Section 660.

29. Termination Review Procedure

a. Any request for review of a notice of termination should be addressed to the Assistant Director for Administration, National Science Foundation, 1800 G Street, N.W., Washington, D.C. 20550. 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 Assistant Director for Administration will promptly acknowledge receipt of the request for review and appoint a review committee consisting of a minimum of three persons, none of whom may be either from the NSF program that is responsible for recommending and/or monitoring the scientific aspects of the project or from the Branch of the NSF Division of Grants and Contracts that is responsible for monitoring the administrative aspects of the grant.

d. Pending resolution of the request for review, the notice of termination shall remain in effect.

e. The termination review committee will request the NSF 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 NSF program 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 Assistant Director for Administration, who will advise the parties concerned of the decision.

30. Nondiscrimination

a. The grant and any program assisted thereby are subject to the provisions of Title VI of the Civil Rights Act of 1964 (PL 88-352), the regulations issued pursuant thereto by the Foundation (45 CFR 611), and the Assurance of Compliance which the grantee has filed with the

Foundation. No person on the basis of race, color, national origin, or handicap shall be excluded from participation in, be denied benefits of, or otherwise be subjected to discrimination under the grant. In addition, if the project involves an education activity or program, as defined by Title IX of the Education Amendments of 1972 (PL 92-318; 20 U.S.C. 1681-1686), no person on the basis of sex shall be excluded from participation in the project. Further, by acceptance of the grant, the grantee assures the Foundation that it will comply with Section 504 of the Rehabilitation Act of 1973 (29 U.S.C. 794) and the Foundation's implementing regulations (45 CFR 605) effective March 1, 1982.

b. The grantee shall obtain from each organization that applies to be or serves as a subrecipient, subgrantee or subcontractor under the grant (for other than the provision of commercially available supplies, materials, equipment, or general support services) an Assurance of Compliance with Title VI of the Civil Rights Act of 1964. Civil Rights Act assurances may be filed with the grantee in one of two ways: (1) by written notification that the appropriate Assurance of Compliance form has been executed and filed either with the Foundation or the U.S. Department of Health and Human Services; or (2) by executing and filing with the grantee an NSF Assurance of Compliance Form. The grantee shall obtain assurances pursuant to Section 504 of the Rehabilitation Act of 1973 from subrecipients by incorporating into the subagreement a provision that acceptance of the subagreement constitutes assurance.

31. National Security: Classifiable Results Originating Under NSF Grants

a. The Foundation does not have original classification authority and does not normally support classified projects. It therefore does not expect that results of NSF-supported research projects will be classifiable, except in very rare instances.

b. Executive Order 12356 [47 *Federal Register* 14,874 (1982)] states that basic scientific research information not clearly related to the national security may not be classified [Section 1.6(b)]. Nevertheless, some information concerning (among other things) scientific, technological, or economic matters relating to the national security or cryptography may require classification [Section 1.3(a)].

c. There may therefore be cases when an NSF grantee originates information during the course of an NSF-supported project that the grantee believes requires classification under Executive Order 12356 [Section 1.2(e)].

d. In such a case, the grantee has the responsibility promptly to:

(1) submit the information directly to the U.S. Government agency with appropriate subject matter interest and classification authority, or, if uncertain which agency should receive the information, to the Director of the Information Security Oversight Office, General Services Administration;

(2) protect the information as though it were classified until the grantee is informed that the information does not require classification, but not longer than thirty (30) days after receipt by the agency with subject matter interest or by the General Services Administration; and

(3) notify the cognizant NSF Program Officer.

e. The Executive Order requires the agency with appropriate subject matter interest and classification authority to decide within thirty (30) days whether to classify the material. If it determines the information to require classification, the grantee shall cooperate with that agency, the Foundation, or other appropriate agencies in securing all related project notes and papers.

f. If the information is determined to require classification, the performing organization may wish or need to discontinue the project.

32. Animal Welfare

Any grantee performing research on vertebrate animals shall comply with the Animal Welfare Act (PL 89-544, 1966, as amended, / U.S.C. 2131 *et seq.*) and the regulations promulgated thereunder by the Secretary of Agriculture (9 CFR, Subchapter A, Parts 1, 2, 3, and 4) pertaining to the humane care, handling, and treatment of vertebrate animals held or used for research, teaching, or other activities supported by Federal awards. The grantee is expected to ensure that the guidelines described in NIH Publication No. 85-23 (Revised 1985), *Guide for the Care and Use of Laboratory Animals*, are followed; and to comply with the "U.S. Government Principles for the Utilization and Care of Vertebrate Animals Used in Testing, Research, and Training" (included as an appendix to the NIH Guide).

NOTE—The grantee may request registration of its facility and a current listing of licensed dealers from the Regional Office of the Animal and Plant Health Inspection Service (APHIS), USDA, for the region in which its research facility is located. The location of the appropriate APHIS Regional Office, as well as information concerning this program, may be obtained by contacting the Chief Staff Officer, Animal Care Staff, USDA/APHIS, Federal Center Building, Hyattsville, MD 20782.

33. Research Involving Recombinant DNA Molecules

If this grant supports research involving recombinant DNA molecules, the grantee agrees to comply with the requirements of *Grant Policy Manual* Section 712.

34. Clean Air and 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, or the grant is not otherwise exempt.)

The grantee agrees as follows:

a. To comply with all the requirements of Section 114 of the Clean Air Act [42 U.S.C. 1857 *et seq.*, as amended by PL 91-604] and Section 308 of the Federal Water Pollution Control Act [33 U.S.C. 1251 *et seq.*, as amended by PL 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 Federal Water Pollution Control Act, respectively, and all regulations and guidelines issued thereunder before the award of the grant.

b. That no portion of the work required by the grant will be performed in a facility listed on the Environmental Protection Agency List of Violating Facilities on the date that the grant was awarded unless and until EPA eliminates the name of such facility or facilities from such listing.

c. To use its best efforts to comply with clean air standards and clean water standards at the facility in which the grant is being performed.

d. To insert the substance of the provisions of this article into a nonexempt subcontract.

35. Human Research Subjects

The grantee is responsible for the protection of the rights and welfare of any human subjects involved in research, development and related activities supported by this grant. The grantee agrees to comply with the regulations published in the *Federal Register*, January 26, 1981, and revised as of March 8, 1983. Grantees are referred for guidance to 4 CFR 46, "Protection of Human Subjects," available from the Office for Protection from Research Risks, National Institutes of Health.

36. Activities Abroad

The grantee should assure that grant activities carried on outside the United States are coordinated as necessary with appropriate Government authorities and that appropriate licenses, permits or approvals are obtained prior to undertaking proposed activities. The Foundation does not assume responsibility for grantee compliance with the laws and regulations of the country in which the work is to be conducted.

37. Resolution of Conflicting Conditions

Should there be any inconsistency between any special conditions contained in the grant and these Grant General Conditions (GC-1), the special conditions in the grant shall control.

Should there be any inconsistency between these Grant General Conditions (GC-1), any special conditions contained in the grant, and any NSF guides, brochures, etc., cited or included by reference in the grant, the matter should be referred to the NSF Grants Officer for guidance.

38. Liability

The Foundation cannot assume any liability for accidents, illnesses, or claims arising out of any work supported by a grant or for unauthorized use of patented or copyrighted materials. The grantee institution is advised to take such steps as may be deemed necessary to insure or protect itself, its employees and its property.

39. Limitation on Rate of Pay

Pursuant to a congressional requirement, effective October 1, 1988, no individual shall be reimbursed from FY 89 appropriated funds as a direct cost under this grant at a rate which exceeds the equivalent of \$95,000 per annum. This limitation is also intended to apply to sub-awards for substantive work under an NSF grant. (See Article 6 for additional restrictions on payments to consultants.)