

ATTACHMENT A - SCHEDULE

A.1 PURPOSE OF GRANT

The purpose of this Grant is to provide support to the "Nuclear Engineering Faculty Development Project" as described in Attachment B entitled "Program Description."

A.2 PERIOD OF GRANT

1. The effective date of this Grant is May 1, 2010. The estimated completion date of this Grant is April 30, 2013.

2. Funds obligated hereunder are available for program expenditures for the estimated period: May 1, 2010 – April 30, 2013.

A. GENERAL

- | | |
|--------------------------------|---|
| 1. Total Estimated NRC Amount: | \$450,000 |
| 2. Total Obligated Amount: | \$450,000 |
| 3. Cost-Sharing Amount: | \$150,000 |
| 4. Activity Title: | Nuclear Engineering Faculty Development Project |
| 5. NRC Project Officer: | John Gutteridge |
| 6. DUNS No.: | 004514360 |

B. SPECIFIC

- | | |
|-------------------|---------------|
| RFPA No.: | HR-10-924 |
| FFS: | N/A |
| Job Code: | T8460 |
| BOC: | 4110 |
| B&R Number: | 0-8415-5C1115 |
| Appropriation #: | 31X0200 |
| Amount Obligated: | \$450,000 |

A.3 BUDGET

Revisions to the budget shall be made in accordance with Revision of Grant Budget in accordance with 2 CFR 215.25.

	Year 1	Year 2	Year 3
Direct Participant Cost	\$103,089.00	\$103,089.00	\$103,089.00
Indirect Cost	\$ 46,911.00	\$ 46,911.00	\$ 46,911.00
NRC Yearly Total	\$150,000.00	\$150,000.00	\$150,000.00

All travel must be in accordance with the University of Pittsburgh Travel Regulations or the US Government Travel Policy absent Grantee's travel regulation.

A.4 AMOUNT OF AWARD AND PAYMENT PROCEDURES

1. The total estimated amount of this Award is \$450,000 for the three year period.

2. NRC hereby obligates the amount of \$450,000 for program expenditures during the period set forth above and in support of the Budget above. The Grantee will be given written notice by the Contracting Officer when additional funds will be added. NRC is not obligated to reimburse the Grantee for the expenditure of amounts in excess of the total obligated amount.

3. Payment shall be made to the Grantee in accordance with procedures set forth in the Automated Standard Application For Payments (ASAP) Procedures set forth below.

Attachment B – Program Description

PROGRAM DESCRIPTION

Swanson School of Engineering, University of Pittsburgh

A.1 Background

The Southwestern Pennsylvania region has played a leading role in the development of nuclear power technology through the presence of Westinghouse, the nuclear navy (Bettis Atomic Laboratory and Bechtel Plant & Machinery) and FirstEnergy's Beaver Valley Power Plant (home to two of Pennsylvania's nine operating nuclear reactors). In 2006, these companies and their counterparts in the Electric Power and Coal Mining industries approached the Swanson School of Engineering for assistance in addressing current and projected workforce development challenges. The Swanson School responded positively, developing new undergraduate and graduate certificate programs in Nuclear Engineering, Electric Power Engineering, and Mining Engineering under a comprehensive Power and Energy Initiative. Undergraduate and Graduate Certificates in Nuclear Engineering were approved by the University of Pittsburgh in 2007, and the first undergraduate certificates were awarded in December of 2007.

The five-course undergraduate certificate program includes three nuclear engineering courses plus two approved discipline-specific electives related to nuclear engineering. Students completing this program graduate with a BS in one of the nine traditional engineering disciplines, along with the Undergraduate Certificate in Nuclear Engineering. The Graduate Certificate offers a nine-course portfolio with focus on operations and safety, at least five of which must be completed, and is compatible with the academic requirements of all other engineering programs in the Swanson School of Engineering. Students successfully completing this program obtain a MS or PhD in a traditional engineering discipline along with the Graduate Certificate in Nuclear Engineering.

A.2 Proposed Program Characteristics

As we expand our nuclear engineering programs, we recognize the need to further develop our faculty in this area. We currently supply seed grants for young faculty members to develop nuclear applications within their area of expertise. However, we believe that developing a cadre of junior engineering faculty capable of making significant contributions to the nuclear power sector will require more. *We propose to provide junior faculty with a first-hand experience of the technical challenges facing the nuclear industry, as well as a development of a network of peers in the nuclear industry for future technical guidance, collaboration and support.* Building upon previous financial support from NRC and other partners, the University in this grant application proposes to specifically support junior faculty conducting long-term (one semester or longer) **Visiting Faculty** residence research with a nuclear power organization. Potential host organizations include industry (Westinghouse, FirstEnergy, Bettis Atomic Power Laboratory), Department of Energy National Labs (Oak Ridge, Idaho) and the NRC (through the Visiting Faculty program). The Faculty Development Program presented in this proposal will have the following characteristics:

- Two Faculty Development Grants will be awarded per year over the three year period of

the program (6 Faculty Grants total).

- Assistant Professors from any Department within the Swanson School of Engineering, in the first six years of their academic career will be eligible to apply for these grants.
- Each Faculty Development Grant will provide \$75,000 from the NRC for a one year period. Each NRC Grant will be supplemented by \$25,000 in matching funds from the University. Over the three year period of the program, the total request to NRC is thus \$450,000 which will be supplemented by \$150,000 in University matching funds.
- Grant funds will be used to support the selected faculty members as they conduct a one semester (or longer) residence research within a nuclear power organization. Westinghouse and FirstEnergy have expressed their interest in hosting a faculty member under this program (see support letters in Attachment 1.) The NRC and the DoE National Laboratories also have formal programs for hosting visiting faculty for relatively short term (summer) assignments.
- Qualified faculty members will submit an application to an internal review committee. The application will state the faculty member's qualifications, planned use of grant funding (research project, host organization for assignment), and expected impact of their work on the field of Nuclear Engineering.
- The review committee will make recommendations to the Dean of the Swanson School of Engineering, who will select the two NRC Faculty Development Grant awardees each year.

The first years of an Assistant Professor's career are a critical time. As they seek to establish themselves and their research programs, they are under pressure to obtain research funding that will support their salary, support their graduate students, and provide them with the necessary equipment and facilities. The financial resources requested under this NRC Faculty Development Award program, along with the financial support of Westinghouse, FirstEnergy and the University's other partners will provide additional incentive to attract our best and brightest young faculty to deploy their skills in the nuclear engineering field via a rigorous **Visiting Faculty** research program in the nuclear power sector.

A.3 Capacity and Ability to Effectively Conduct Program

The University of Pittsburgh ranks in the uppermost tier of U.S. public research universities according to *The Top American Research Universities*, the most recently issued (2008) annual report of The Center for Measuring University. The University has a track record of successfully implementing large, externally funded programs, including:

- Two (2) National Science Foundation Engineering Research Centers (ERCs) - The Quality of Life Technology Center and the ERC for Revolutionizing Metallic Biomaterials.
- The Institute for Advanced Energy Studies (IAES), a \$26 million activity funded by DoE National Energy Technology Laboratory (in collaboration with Carnegie Mellon and West Virginia University.)

As an integral part of the University, the Swanson School of Engineering has the resources and expertise necessary to manage and administer the NRC Faculty Development Program.

B. SELECTION CRITERIA & PROCESS

B.1 Selection Criteria

Faculty eligible to apply for NRC Faculty Development Grants will be Assistant Professors in the Swanson School of Engineering that are in the first six years of their academic career. Qualified faculty members will submit an application to an internal review committee. The application will state the faculty member's qualifications, planned use of grant funding (research project), and expected impact of their work on the field of nuclear engineering. The

applications will be evaluated based on the following criteria:

- Significance and feasibility of proposed research project and objectives
- Demonstrated interest of the host nuclear power sector organization in collaborating on the proposed research project
- Faculty member's previous experience conducting research activities relevant to the nuclear power sector
- Potential for long-term research in the area beyond the funding period
- Leveraging of additional external resources in support of the proposed project (industry, federal, state)
- Opportunities to integrate proposed research project and faculty expertise into the courses offered as part of the Swanson School's Nuclear Engineering Certificate programs (as described in Section A.1 above)

B.2. Selection Process

The applications will be reviewed by an internal committee comprised of the following Swanson School of Engineering personnel:

- Dr. Minking Chyu (Committee Chair) *Chair, Mechanical Engineering & Materials Science Department*
- Dr. Larry Foulke, Director of *Nuclear Programs*
- Dr. Mark Redfern, *Associate Dean for Research*
- Dr. Larry Shuman Sr., *Associate Dean for Academic Affairs*

Each year, the committee will review applications and recommend two Faculty Development Grant nominees for final selection by the Dean of the Swanson School. Unsuccessful applicants may resubmit applications in subsequent years. NRC Faculty Development Awards are provided for a one-year period.

B.3 Quality of Faculty Served by Program -- Example *Visiting Faculty* Research Projects

In 2008, the University received a Faculty Development grant from the NRC (NRC-38-08-937). Year 1 (2008-2009) Faculty Development award recipients are:

Dr. Mark Kimber - Assistant Professor Mechanical Engineering & Materials Science
Experimental data to validate computational models of complex thermal-fluid phenomena in current and next generation nuclear power plants.

Dr. Joseph Marriott - Assistant Professor Civil & Environmental Engineering
Comparative hybrid life cycle assessment of carbon-reduced baseload power generation options.

Faculty Development grants awarded under this proposal will ***not*** be limited to those faculty members that have received support under the previous NRC grant (NRC-38-08-937). Given the selection criteria presented in this proposal, however, a junior faculty member who has successfully implemented a project under NRC-38-08-937 and then proposes a compelling idea for a ***Visiting Faculty*** project with an interested host organization from the nuclear sector will certainly be viewed favorably under the program presented in this proposal.

For purposes of this proposal, the current recipients of Faculty Development grants under NRC- 38-08-937 were asked to describe how they might expand their current research through a ***Visiting Faculty*** program with a host organization in the nuclear power sector. The sections below present Professor Kimber's and Professor Marriott's ideas in this regard, if they were to

be selected for a Faculty Development grant as described in this proposal.

Professor Kimber's nuclear-related research goals consist of providing experimental data to help validate computational models of complex thermal-fluid phenomena in current and next generation nuclear power plants. Of particular interest to Professor Kimber would be the Bettis Atomic Power Laboratory, Westinghouse, or the Idaho National Laboratory as each of these has a large emphasis on computational modeling of next generation nuclear power plants.

Professor Marriott is interested in a **Visiting Faculty** assignment which would allow for a system-wide analysis of the costs, environmental and social implications of large-scale nuclear fuel reprocessing in the United States. Analyzing current and next generation nuclear power looks much different from both a cost/kWh and CO₂/kWh when we consider the possibility of re-enriching uranium. Current studies look at this possibility in isolation, not within the context of the full fuel cycle of nuclear power.

C. MANAGEMENT & ADMINISTRATIVE STRUCTURE

C.1. Program Management

The program will be managed by Dr. Minking Chyu, Chair of the Mechanical Engineering & Materials Science Department in the Swanson School of Engineering. Dr. Chyu will have overall responsibility for the execution of the NRC Faculty Development Grant selection process, and will organize all internal and external participation on the Selection and Evaluation committees. He will be assisted by Dr. Larry Foulke (Director of Nuclear Programs) and Mr. Donald Shields (Co-Director Swanson Institute for Technical Excellence). Dr. Foulke, a Past-President of the American Nuclear Society (ANS), will maintain a connection between the activities of the grant recipients and the Swanson School's Nuclear Engineering Certificate Programs. Mr. Shields will assist in the coordination of external partners (NRC, industry, federal, state).

D. EVALUATION PLAN

Each NRC Faculty Development Grant recipient shall complete a final report summarizing the results of their research project and a plan for future nuclear-related research based upon the experience. This report will be submitted within 60 days of grant completion (one-year grant period). The report will be reviewed by an Evaluation Committee comprised of University and invited external participants (industry, government agencies). Members of the Selection Committee (Drs. Chyu, Foulke, Redfern, and Shuman) shall also serve on the Evaluation Committee. The combination of internal and external participants on the Evaluation Committee will allow for a thorough evaluation of each grant to insure that the originally proposed objectives were met and that the results of each research project have the greatest possible positive impact on the nuclear engineering field. When a program weakness is discovered, the appropriate changes will be made with the guidance of the Evaluation Committee. Measurement metrics associated with the **Visiting Faculty** assignments that will be utilized by the Evaluation Committee include:

Publications

- Graduate student theses/dissertations
- Host organization funded collaborative research projects
- Other externally funded collaborative research projects
- Technology transfer (patent disclosures, patents awarded, licenses), and
- Faculty contributions to curriculum development and delivery within the Swanson School of Engineering Nuclear Engineering Certificate programs.

The Evaluation Committee will produce a written report summarizing their evaluation of each NRC Faculty Development Grant recipient.

E. INTEGRATION WITH REGIONAL EFFORTS & LEVERAGED FINANCIAL SUPPORT

The Commonwealth of Pennsylvania, through its Department of Community and Economic Development (DCED) and the Three Rivers Workforce Investment Board (TRWIB) has provided significant financial support for the Swanson School of Engineering's Power & Energy Initiative, including the Nuclear Engineering program. They have been joined in the financial support of this initiative by the Heinz Endowments and the leading companies in the Southwestern Pennsylvania energy industry. Letters summarizing the leveraged financial support received for this initiative since 2006 are included in Attachment 1. This support is summarized as follows:

Commonwealth of PA (DCED & TRWIB)	\$950,000
Heinz Endowments	\$300,000
Westinghouse	\$355,000
FirstEnergy Beaver Valley	\$ 15,000

The University also receives more than \$4 million per year in research funding from the Pittsburgh-based DoE National Energy Technologies Laboratory (NETL) under a major partnership that includes the participation of Carnegie Mellon and West Virginia University. While DoE NETL's focus is on fossil energy, a portion of the basic science and engineering research funding received by the University under this program supports technical activities that are beneficial to the nuclear power sector as well (heat transfer, advanced materials, and computer simulation and modeling)

F. INSTITUTIONAL SUPPORT AND PROGRAM SUSTAINABILITY

A letter from the Swanson School's Dean Gerald D. Holder outlining the University's support for the Nuclear Engineering Program in general, and the NRC Faculty Development program specifically, is provided in Attachment 1. This letter also documents the University's commitment to match the proposed NRC Faculty Development Grant (\$450,000 requested from NRC spread over 3 years) with a \$150,000 internal commitment spread over the same 3 year period.

The Swanson School of Engineering has established power and energy as a major priority area. Nuclear engineering is an important component of this focus, and the School will continue to grow the program in response to both student demands and the interest of the nuclear industry, especially those companies and agencies who hire our graduates. Another determinant will be the extent that sufficient sponsored research funds will be available to justify the hiring of tenure stream faculty.

Attachment C – Standard Terms and Conditions

The Nuclear Regulatory Commission's Standard Terms and Conditions for U.S. Nongovernmental Grantees

Preface

This award is based on the application submitted to, and as approved by, the Nuclear Regulatory Commission (NRC) under the authorization 42 USC 2051(b) pursuant to section 31b

and 141b of the Atomic Energy Act of 1954, as amended, and is subject to the terms and conditions incorporated either directly or by reference in the following:

- Grant program legislation and program regulation cited in this Notice of Grant Award.
- Restrictions on the expenditure of Federal funds in appropriation acts, to the extent those restrictions are pertinent to the award.
- Code of Federal Regulations/Regulatory Requirements - 2 CFR 215 Uniform Administrative Requirements For Grants And Agreements With Institutions Of Higher Education, Hospitals, And Other Non-Profit Organizations (OMB Circulars), as applicable.

To assist with finding additional guidance for selected items of cost as required in 2 CFR 220, 2 CFR 225, and 2 CFR 230 these URLs to the Office of Management and Budget Cost Circulars are included for reference:

A-21 (now 2CFR 220): <http://www.whitehouse.gov/omb/circulars/a021/print/a021.html>

A-87 (now 2CFR 225): <http://www.whitehouse.gov/omb/circulars/a087/print/a087-all.html>

A-122 now 2 CFR 230): <http://www.whitehouse.gov/omb/circulars/a122/print/a122.html>

A-102, SF 424: <http://www.whitehouse.gov/omb/circulars/a102/print/a102.html>

Form 990: <http://www.irs.gov/pub/irs-pdf/i990-ez.pdf>

Any inconsistency or conflict in terms and conditions specified in the award will be resolved according to the following order of precedence: public laws, regulations, applicable notices published in the Federal Register, Executive Orders (EOs), Office of Management and Budget (OMB) Circulars, the Nuclear Regulatory Commission's (NRC) Mandatory Standard Provisions, special award conditions, and standard award conditions.

By drawing funds from the Automated Standard Application for Payment system (ASAP), the recipient agrees to the terms and conditions of an award.

Certifications and representations. These terms incorporate the certifications and representations required by statute, executive order, or regulation that were submitted with the SF424B application through Grants.gov.

I. Mandatory General Requirements

The order of these requirements does not make one requirement more important than any other requirement.

1. Applicability of 2 CFR Part 215

a. All provisions of 2 CFR Part 215 and all Standard Provisions attached to this grant/cooperative agreement are applicable to the Grantee and to sub-recipients which meet the definition of "Grantee" in Part 215, unless a section specifically excludes a sub-recipient from coverage. The Grantee and any sub-recipients must, in addition to the assurances made as part of the application, comply and require each of its sub-awardees employed in the completion of the project to comply with Subpart C of 2 CFR 215 Part 180 and include this term in lower-tier (subaward) covered transactions.

b. Grantees must comply with monitoring procedures and audit requirements in accordance with OMB Circular A-133. <

http://www.whitehouse.gov/omb/circulars/a133_compliance/08/08toc.aspx >

2. Award Package

Grant Performance Metrics:

The Office of Management and Budget requires all Federal Agencies providing funding for educational scholarships and fellowships as well as other educational related funding to report on specific metrics. These metrics are part of the Academic Competitiveness Council's (ACC) 2007 report and specifically relates to Science, Technology, Engineering, and Mathematics (STEM) curricula.

As part of the FY 2010 HR grant awards, in addition to the customary performance progress report requested on the SF-PPR, SF-PPR-B, and SF-PPR-E forms, HR requires the following metrics to be reported on by the awardees as follows:

Faculty Development Awards

1. Number of new faculty hired and currently eligible faculty supported in NRC designated STEM areas.

§ 215.41 Grantee responsibilities.

The Grantee is obligated to conduct such project oversight as may be appropriate, to manage the funds with prudence, and to comply with the provisions outlined in 2 CFR 215.41. Within this framework, the Principal Investigator (PI) named on the award face page, Block 11, is responsible for the scientific or technical direction of the project and for preparation of the project performance reports. This award is funded on a cost reimbursement basis not to exceed the amount awarded as indicated on the face page, Block 16., and is subject to a refund of unexpended funds to NRC.

The standards contained in this section do not relieve the Grantee of the contractual responsibilities arising under its contract(s). The Grantee is the responsible authority, without recourse to the NRC, regarding the settlement and satisfaction of all contractual and administrative issues arising out of procurements entered into in support of an award or other agreement. This includes disputes, claims, protests of award, source evaluation or other matters of a contractual nature. Matters concerning violation of statute are to be referred to such Federal, State or local authority as may have proper jurisdiction.

Subgrants

Appendix A to Part 215—Contract Provisions

Sub-recipients, sub-awardees, and contractors have no relationship with NRC under the terms of this grant/cooperative agreement. All required NRC approvals must be directed through the Grantee to NRC. See 2 CFR 215.180 and 215.41.

Nondiscrimination

(This provision is applicable when work under the grant/cooperative agreement is performed in the U.S. or when employees are recruited in the U.S.)

No U.S. citizen or legal resident shall be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity funded by this award on the basis of race, color, national origin, age, religion, handicap, or sex. The Grantee agrees to comply with the non-discrimination requirements below:

Title VI of the Civil Rights Act of 1964 (42 USC §§ 2000d et seq)
Title IX of the Education Amendments of 1972 (20 USC §§ 1681 et seq)
Section 504 of the Rehabilitation Act of 1973, as amended (29 USC § 794)
The Age Discrimination Act of 1975, as amended (42 USC §§ 6101 et seq)
The Americans with Disabilities Act of 1990 (42 USC §§ 12101 et seq)
Parts II and III of EO 11246 as amended by EO 11375 and 12086.
EO 13166, "Improving Access to Services for Persons with Limited English Proficiency."
Any other applicable non-discrimination law(s).

Generally, Title VII of the Civil Rights Act of 1964, 42 USC § 2000e et seq, provides that it shall be an unlawful employment practice for an employer to discharge any individual or otherwise to discriminate against an individual with respect to compensation, terms, conditions, or privileges of employment because of such individual's race, color, religion, sex, or national origin. However, Title VII, 42 USC § 2000e-1(a), expressly exempts from the prohibition against discrimination on the basis of religion, a religious corporation, association, educational institution, or society with respect to the employment of individuals of a particular religion to perform work connected with the carrying on by such corporation, association, educational institution, or society of its activities.

Modifications/Prior Approval

NRC prior written approval may be required before a Grantee makes certain budget modifications or undertakes particular activities. If NRC approval is required for changes in the grant or cooperative agreement, it must be requested of, and obtained from, the NRC Grants Officer in advance of the change or obligation of funds. All requests for NRC prior approval must be made, in writing (which includes submission by e-mail), to the designated Grants Specialist and Program Office no later than 30 days before the proposed change. The request must be signed by both the PI and the authorized organizational official. Failure to obtain prior approval, when required, from the NRC Grants Officer may result in the disallowance of costs, termination of the award, or other enforcement action within NRC's authority.

Lobbying Restrictions

The Grantee will comply, as applicable, with provisions of the Hatch Act (5 U.S.C. §§1501-1508 and 7324-7328) which limit the political activities of employees whose principal employment activities are funded in whole or in part with Federal funds.

The Grantee shall comply with provisions of 31 USC § 1352. This provision generally prohibits the use of Federal funds for lobbying in the Executive or Legislative Branches of the Federal Government in connection with the award, and requires disclosure of the use of non-Federal funds for lobbying.

The Grantee receiving in excess of \$100,000 in Federal funding shall submit a completed Standard Form (SF) LLL, "Disclosure of Lobbying Activities," regarding the use of non-Federal funds for lobbying within 30 days following the end of the calendar quarter in which there occurs any event that requires disclosure or that materially affects the accuracy of the information contained in any disclosure form previously filed. The Grantee must submit the SF-LLL, including those received from sub-recipients, contractors, and subcontractors, to the Grants Officer.

§ 215.13 Debarment And Suspension.

The Grantee agrees to notify the Grants Officer immediately upon learning that it or any of its principals:

(1) Are presently excluded or disqualified from covered transactions by any Federal department or agency;

(2) Have been convicted within the preceding three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, tax evasion, receiving stolen property, making false claims, or obstruction of justice; commission of any other offense indicating a lack of business integrity or business honesty that seriously and directly affects your present responsibility;

(3) Are presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State, or local) with commission of any of the offenses enumerated in paragraph (1)(b); and

(4) Have had one or more public transactions (Federal, State, or local) terminated for cause or default within the preceding three years.

b. The Grantee agrees that, unless authorized by the Grants Officer, it will not knowingly enter into any subgrant or contracts under this grant/cooperative agreement with a person or entity that is included on the Excluded Parties List System (<http://epls.arnet.gov>).

The Grantee further agrees to include the following provision in any subgrant or contracts entered into under this award:

'Debarment, Suspension, Ineligibility, and Voluntary Exclusion

The Grantee certifies that neither it nor its principals is presently excluded or disqualified from participation in this transaction by any Federal department or agency. The policies and procedures applicable to debarment, suspension, and ineligibility under NRC-financed transactions are set forth in 2 CFR Part 180.'

Drug-Free Workplace

The Grantee must be in compliance with The Federal Drug Free Workplace Act of 1988. The policies and procedures applicable to violations of these requirements are set forth in 41 USC 702.

Implementation of E.O. 13224 -- Executive Order On Terrorist Financing

The Grantee is reminded that U.S. Executive Orders and U.S. law prohibits transactions with, and the provision of resources and support to, individuals and organizations associated with terrorism. It is the legal responsibility of the Grantee to ensure compliance with these Executive Orders and laws. This provision must be included in all contracts/sub-awards issued under this grant/cooperative agreement.

Award Grantees must comply with Executive Order 13224, Blocking Property and Prohibiting Transactions with Persons who Commit, Threaten to Commit, or Support Terrorism. Information about this Executive Order can be found at: www.fas.org/irp/offdocs/eo/eo-13224.htm.

Procurement Standards. § 215.40

Sections 215.41 through 215.48 set forth standards for use by Grantees in establishing procedures for the procurement of supplies and other expendable property, equipment, real property and other services with Federal funds. These standards are furnished to ensure that such materials and services are obtained in an effective manner and in compliance with the provisions of applicable Federal statutes and executive orders. No additional procurement standards or requirements shall be imposed by the Federal awarding agencies upon Grantees, unless specifically required by Federal statute or executive order or approved by OMB.

Travel

Travel is an appropriate charge to this award and prior authorization for specific trips are not required, as long as the trip is identified in the Grantee's original program description and original budget. All other travel, domestic or international, must not increase the total estimated award amount. Trips that have not been identified in the approved budget require the written prior approval of the Grants Officer.

Travel will be in accordance with the US Government Travel Regulations at: www.gsa.gov/federaltravelregulation and the per diem rates set forth at: www.gsa.gov/perdiem.

Travel costs to the grant must be consistent with provisions as established in Appendix A to 2 CFR 220 (J.53)

Property Management Standards

Property standards of this award shall follow provisions as established in 2 CFR 215.30.

Equipment procedures shall follow provision established in 2 CFR 215.34.

Procurement Standards

Procurement standards of this award shall follow provisions as established in 2 CFR 215.40.

Intangible and Intellectual Property

Intangible and intellectual property of this award shall generally follow provisions established in 2 CFR 215.36.

Inventions Report - The Bayh-Dole Act (P.L. 96-517) affords Grantees the right to elect title and retain ownership to inventions they develop with funding under an NRC grant award ("subject inventions"). In accepting an award, the Grantee agrees to comply with applicable NRC policies, the Bayh-Dole Act, and its Government-wide implementing regulations found at Title 37, Code of Federal Regulations (CFR) Part 401. A significant part of the regulations require that the Grantee report all subject inventions to the awarding agency (NRC) as well as include an acknowledgement of federal support in any patents. NRC participates in the trans-government Interagency Edison system (<http://www.iedison.gov>) and expects NRC funding Grantees to use this system to comply with Bayh-Dole and related intellectual property reporting requirements. The system allows for Grantees to submit reports electronically via the Internet. In addition, the invention must be reported in continuation applications (competing or non-competing).

Patent Notification Procedures- Pursuant to EO 12889, NRC is required to notify the owner of any valid patent covering technology whenever the NRC or its financial assistance Grantees, without making a patent search, knows (or has demonstrable reasonable grounds to know) that technology covered by a valid United States patent has been or will be used without a license from the owner. To ensure proper notification, if the Grantee uses or has used patented

technology under this award without license or permission from the owner, the Grantee must notify the Grants Officer. This notice does not necessarily mean that the Government authorizes and consents to any copyright or patent infringement occurring under the financial assistance.

Data, Databases, and Software - The rights to any work produced or purchased under a NRC federal financial assistance award are determined by 2 CFR 215.36. Such works may include data, databases or software. The Grantee owns any work produced or purchased under a NRC federal financial assistance award subject to NRC's right to obtain, reproduce, publish or otherwise use the work or authorize others to receive, reproduce, publish or otherwise use the data for Government purposes.

Copyright - The Grantee may copyright any work produced under a NRC federal financial assistance award subject to NRC's royalty-free nonexclusive and irrevocable right to reproduce, publish or otherwise use the work or authorize others to do so for Government purposes. Works jointly authored by NRC and Grantee employees may be copyrighted but only the part authored by the Grantee is protected because, under 17 USC § 105, works produced by Government employees are not copyrightable in the United States. On occasion, NRC may ask the Grantee to transfer to NRC its copyright in a particular work when NRC is undertaking the primary dissemination of the work. Ownership of copyright by the Government through assignment is permitted under 17 USC § 105.

Records retention and access requirements for records of the Grantee shall follow established provisions in 2 CFR 215.53.

Organizational Prior Approval System

In order to carry out its responsibilities for monitoring project performance and for adhering to award terms and conditions, each Grantee organization shall have a system to ensure that appropriate authorized officials provide necessary organizational reviews and approvals in advance of any action that would result in either the performance or modification of an NRC supported activity where prior approvals are required, including the obligation or expenditure of funds where the governing cost principles either prescribe conditions or require approvals.

The Grantee shall designate an appropriate official or officials to review and approve the actions requiring NRC prior approval. Preferably, the authorized official(s) should be the same official(s) who sign(s) or countersign(s) those types of requests that require prior approval by NRC. The authorized organization official(s) shall not be the principal investigator or any official having direct responsibility for the actual conduct of the project, or a subordinate of such individual.

Conflict Of Interest Standards of this award shall follow provisions as established in 2 CFR 215.42 Codes of Conduct.

Dispute Review Procedures

a. Any request for review of a notice of termination or other adverse decision should be addressed to the Grants Officer. It must be postmarked or transmitted electronically no later than 30 days after the postmarked date of such termination or adverse decision from the Grants Officer.

b. The request for review must contain a full statement of the Grantee's position and the pertinent facts and reasons in support of such position.

- c. The Grants Officer will promptly acknowledge receipt of the request for review and shall forward it to the Director, Office of Administration, who shall appoint a review committee consisting of a minimum of three persons.
- d. Pending resolution of the request for review, the NRC may withhold or defer payments under the award during the review proceedings.
- e. The review committee will request the Grants Officer who issued the notice of termination or adverse action to provide copies of all relevant background materials and documents. The committee may, at its discretion, invite representatives of the Grantee and the NRC program office to discuss pertinent issues and to submit such additional information as it deems appropriate. The chairman of the review committee will insure that all review activities or proceedings are adequately documented.
- f. Based on its review, the committee will prepare its recommendation to the Director, Office of Administration, who will advise the parties concerned of his/her decision.

Termination and Enforcement. Termination of this award by default or by mutual consent shall follow provisions as established in 2 CFR 215.60.

Monitoring and Reporting § 215.51

a. Grantee Financial Management systems must comply with the established provisions in 2 CFR 215.21

- Payment – 2 CFR 215.22
- Cost Share – 2 CFR 215.23
- Program Income – 2 CFR 215.24
 - Earned program income, if any, shall be added to funds committed to the project by the NRC and Grantee and used to further eligible project or program objectives.
- Budget Revision – 2 CFR 215.25
 - In accordance with 2 CFR 215.25(e), the NRC waives the prior approval requirement for items identified in sub-part (e)(1-4).
 - The Grantee is not authorized to rebudget between direct costs and indirect costs without written approval of the Grants Officer.
 - Allowable Costs – 2 CFR 215.27

b. Federal Financial Reports

Effective October 1, 2008, NRC transitioned from the SF-269, SF-269A, SF-272, and SF-272A to the Federal Financial Report (SF-425) as required by OMB:

http://www.whitehouse.gov/omb/fedreg/2008/081308_ffr.pdf

http://www.whitehouse.gov/omb/grants/standard_forms/ffr.pdf

http://www.whitehouse.gov/omb/grants/standard_forms/ffr_instructions.pdf

The Grantee shall submit a "Federal Financial Report" (SF-425) on a quarterly basis for the periods ending 3/31, 6/30, 9/30 and 12/31 or any portion thereof, unless otherwise specified in a special award condition. Reports are due no later than 30 days following the

end of each reporting period. A final SF-425 shall be submitted within 90 days after expiration of the award.

Period of Availability of Funds 2 CFR § 215.28

- a. Where a funding period is specified, a Grantee may charge to the grant only allowable costs resulting from obligations incurred during the funding period and any pre-award costs authorized by the NRC.
- b. Unless otherwise authorized in 2 CFR 215.25(e)(2) or a special award condition, any extension of the award period can only be authorized by the Grants Officer in writing. Verbal or written assurances of funding from other than the Grants Officer shall not constitute authority to obligate funds for programmatic activities beyond the expiration date.
- c. The NRC has no obligation to provide any additional prospective or incremental funding. Any modification of the award to increase funding and to extend the period of performance is at the sole discretion of the NRC.
- d. Requests for extensions to the period of performance shall be sent to the Grants Officer at least 30 days prior to the grant/cooperative agreement expiration date. Any request for extension after the expiration date shall not be honored.

Automated Standard Application For Payments (ASAP) Procedures

Unless otherwise provided for in the award document, payments under this award will be made using the Department of Treasury's Automated Standard Application for Payment (ASAP) system < <http://www.fms.treas.gov/asap/> >. Under the ASAP system, payments are made through preauthorized electronic funds transfers, in accordance with the requirements of the Debt Collection Improvement Act of 1996. In order to receive payments under ASAP, Grantees are required to enroll with the Department of Treasury, Financial Management Service, and Regional Financial Centers, which allows them to use the on-line method of withdrawing funds from their ASAP established accounts. The following information will be required to make withdrawals under ASAP: (1) ASAP account number – the award number found on the cover sheet of the award; (2) Agency Location Code (ALC) – 31000001; and Region Code. Grantees enrolled in the ASAP system do not need to submit a "Request for Advance or Reimbursement" (SF-270), for payments relating to their award.

Audit Requirements

Organization-wide or program-specific audits shall be performed in accordance with the Single Audit Act Amendments of 1996, as implemented by OMB Circular A-133, "Audits of States, Local Governments, and Non-Profit Organizations." <http://www.whitehouse.gov/omb/circulars/a133/a133.html> Grantees are subject to the provisions of OMB Circular A-133 if they expend \$500,000 or more in a year in Federal awards.

The Form SF-SAC and the Single Audit Reporting packages for fiscal periods ending on or after January 1, 2008 must be submitted online.

1. Create your online report ID at <http://harvester.census.gov/fac/collect/ddeindex.html>
2. Complete the Form SF-SAC
3. Upload the Single Audit
4. Certify the Submission
5. Click "Submit."

Organizations expending less than \$500,000 a year are not required to have an annual audit for that year but must make their grant-related records available to NRC or other designated officials for review or audit.

III. Programmatic Requirements

Performance (Technical) Reports

a. The Grantee shall submit performance (technical) reports electronically to the NRC Project Officer and Grants Officer as specified in the special award conditions in the same frequency as the Federal Financial Report unless otherwise authorized by the Grants Officer.

b. Unless otherwise specified in the award provisions, performance (technical) reports shall contain brief information as prescribed in the applicable uniform administrative requirements 2 CFR §215.51 which are incorporated in the award.

c. The Office of Human Resources requires the submission of the semi-annual progress report on the SF-PPR, SF-PPR-B, and the SF-PPR-E forms. The submission for the six month period ending March 31st is due by April 30th. The submission for the six month period ending September 30th is due by October 31st.

Unsatisfactory Performance

Failure to perform the work in accordance with the terms of the award and maintain at least a satisfactory performance rating or equivalent evaluation may result in designation of the Grantee as high risk and assignment of special award conditions or other further action as specified in the standard term and condition entitled "Termination".

Failure to comply with any or all of the provisions of the award may have a negative impact on future funding by NRC and may be considered grounds for any or all of the following actions: establishment of an accounts receivable, withholding of payments under any NRC award, changing the method of payment from advance to reimbursement only, or the imposition of other special award conditions, suspension of any NRC active awards, and termination of any NRC award.

Other Federal Awards With Similar Programmatic Activities

The Grantee shall immediately provide written notification to the NRC Project Officer and the Grants Officer in the event that, subsequent to receipt of the NRC award, other financial assistance is received to support or fund any portion of the program description incorporated into the NRC award. NRC will not pay for costs that are funded by other sources.

Prohibition Against Assignment By The Grantee

The Grantee shall not transfer, pledge, mortgage, or otherwise assign the award, or any interest therein, or any claim arising thereunder, to any party or parties, banks, trust companies, or other financing or financial institutions without the express written approval of the Grants Officer.

Site Visits

The NRC, through authorized representatives, has the right, at all reasonable times, to make site visits to review project accomplishments and management control systems and to provide such technical assistance as may be required. If any site visit is made by the NRC on the premises of the Grantee or contractor under an award, the Grantee shall provide and shall

require his/her contractors to provide all reasonable facilities and assistance for the safety and convenience of the Government representative 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.

IV. Miscellaneous Requirements

Criminal and Prohibited Activities

- a. The Program Fraud Civil Remedies Act (31 USC §§ 3801-3812), provides for the imposition of civil penalties against persons who make false, fictitious, or fraudulent claims to the Federal government for money (including money representing grant/cooperative agreements, loans, or other benefits.)
- b. False statements (18 USC § 287), provides that whoever makes or presents any false, fictitious, or fraudulent statements, representations, or claims against the United States shall be subject to imprisonment of not more than five years and shall be subject to a fine in the amount provided by 18 USC § 287.
- c. False Claims Act (31 USC 3729 et seq), provides that suits under this Act can be brought by the government, or a person on behalf of the government, for false claims under federal assistance programs.
- d. Copeland "Anti-Kickback" Act (18 USC § 874), prohibits a person or organization engaged in a federally supported project from enticing an employee working on the project from giving up a part of his compensation under an employment contract.

American-Made Equipment And Products

Grantees are hereby notified that they are encouraged, to the greatest extent practicable, to purchase American-made equipment and products with funding provided under this award.

Increasing Seat Belt Use in the United States

Pursuant to EO 13043, Grantees should encourage employees and contractors to enforce on-the-job seat belt policies and programs when operating company-owned, rented or personally-owned vehicle.

Federal Employee Expenses

Federal agencies are generally barred from accepting funds from a Grantee to pay transportation, travel, or other expenses for any Federal employee unless specifically approved in the terms of the award. Use of award funds (Federal or non-Federal) or the Grantee's provision of in-kind goods or services, for the purposes of transportation, travel, or any other expenses for any Federal employee may raise appropriation augmentation issues. In addition, NRC policy prohibits the acceptance of gifts, including travel payments for Federal employees, from Grantees or applicants regardless of the source.

Minority Serving Institutions (MSIs) Initiative

Pursuant to EOs 13256, 13230, and 13270, NRC is strongly committed to broadening the participation of MSIs in its financial assistance program. NRC's goals include achieving full participation of MSIs in order to advance the development of human potential, strengthen the Nation's capacity to provide high-quality education, and increase opportunities for MSIs to participate in and benefit from Federal financial assistance programs. NRC encourages all applicants and Grantees to include meaningful participations of MSIs. Institutions eligible to be

considered MSIs are listed on the Department of Education website:
<http://www.ed.gov/about/offices/list/ocr/edlite-minorityinst.html>

Research Misconduct

Scientific or research misconduct refers to the fabrication, falsification, or plagiarism in proposing, performing, or reviewing research, or in reporting research results. It does not include honest errors or differences of opinions. The Grantee organization has the primary responsibility to investigate allegations and provide reports to the Federal Government. Funds expended on an activity that is determined to be invalid or unreliable because of scientific misconduct may result in a disallowance of costs for which the institution may be liable for repayment to the awarding agency. The Office of Science and Technology Policy at the White House published in the Federal Register on December 6, 2000, a final policy that addressed research misconduct. The policy was developed by the National Science and Technology Council (65 FR 76260). The NRC requires that any allegation be submitted to the Grants Officer, who will also notify the OIG of such allegation. Generally, the Grantee organization shall investigate the allegation and submit its findings to the Grants Officer. The NRC may accept the Grantee's findings or proceed with its own investigation. The Grants Officer shall inform the Grantee of the NRC's final determination.

Publications, Videos, and Acknowledgment of Sponsorship

Publication of the results or findings of a research project in appropriate professional journals and production of video or other media is encouraged as an important method of recording and reporting scientific information. It is also a constructive means to expand access to federally funded research. The Grantee is required to submit a copy to the NRC and when releasing information related to a funded project include a statement that the project or effort undertaken was or is sponsored by the NRC. The Grantee is also responsible for assuring that every publication of material (including Internet sites and videos) based on or developed under an award, except scientific articles or papers appearing in scientific, technical or professional journals, contains the following disclaimer:

"This [report/video] was prepared by [Grantee name] under award [number] from [name of operating unit], Nuclear Regulatory Commission. The statements, findings, conclusions, and recommendations are those of the author(s) and do not necessarily reflect the view of the [name of operating unit] or the US Nuclear Regulatory Commission."