

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: \$345,000
- 2. Total Obligated Amount: \$345,000
- 3. Cost-Sharing Amount: \$45,000
- 4. Activity Title: Nuclear Engineering Faculty Development Project
- 5. NRC Project Officer: John Gutteridge
- 6. DUNS No.: 929773554

B. SPECIFIC

- RFPA No.: HR-10-931
- FFS: N/A
- Job Code: T8460
- BOC: 4110
- B&R Number: 0-8415-5C1115
- Appropriation #: 31X0200
- Amount Obligated: \$345,000

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	\$82,907.66	\$82,907.66	\$82,907.69
Indirect Cost	<u>\$32,092.33</u>	<u>\$32,092.33</u>	<u>\$32,092.33</u>
NRC Yearly Total	\$114,999.99	\$114,999.99	\$115,000.02

All travel must be in accordance with the Kansas State University 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 \$345,000 for the three year period.

2. NRC hereby obligates the amount of \$345,000 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

B.1 Introduction

Kansas State University (KSU) has a rich history in Nuclear Engineering (NE) education. The KSU NE Department, formed in 1958, was the third in the United States (US) and, in 1964, was the first NE program in the US to become accredited. In 1997, the KSU NE Department merged with the Mechanical Engineering Department, forming the Mechanical and Nuclear Engineering (MNE) Department. At the undergraduate level, the Department awards a B.S. in Mechanical Engineering with a Nuclear Option (which requires that five 3-credit NE courses be completed), and, at the graduate level, the Department awards M.S. and Ph.D. degrees in NE. All MNE undergraduates are required to take an introductory NE course, Elements of Nuclear Engineering, based on a text by Shultis and Faw, which helps to attract about 10% of the approximately 700 MNE students into the Nuclear Option.

It is essential that more engineers trained in NE be graduated. KSU is addressing this need through its undergraduate Nuclear Option program, which has seen a six-fold increase over the past six years. Likewise, the NE graduate program has seen over a ten-fold increase in the past eight years and extramural support has grown spectacularly. Because of such growth, new young tenure-track NE faculty members are needed at KSU.

B.2 Proposal

The proposed project involves establishment of a Nuclear Engineering Faculty Development and Assistance (NEFDA) program at KSU, whose purpose is to attract, encourage, mentor, and support talented young nuclear engineers with Ph.D. degrees so that they can become effective and career-oriented NE faculty members at KSU. The NEFDA program will be established within the MNE Department at KSU. The MNE Department already provides "start-up" packages for new tenure-track faculty members in order to help them develop into productive tenured professors. In addition, KSU provides new-employee programs to welcome, inform, motivate, and assist new faculty members. The KSU Foundation also provides funds to underwrite some faculty activities, such as attending national professional meetings. However, a new program that is specifically targeted to provide financial support to attract and, on a competitive basis, to develop, enrich, and retain talented young NE faculty members is proposed. It is envisioned that the NEFDA program will contain the following components:

- A faculty recruitment program
- Funding to initiate or enhance targeted research programs
- Travel support for professional and research development

- Support to take advantage of unusual or unanticipated opportunities
- Each of these components is addressed briefly below.

B.2.1 Recruitment

As KSU sees its NE program expand, it will be necessary to add additional faculty members. A young tenure-track Assistant Professor recently was hired and more will be needed if NE growth trends continue. Before a new position is announced, we would like to bring promising young nuclear engineers to campus to give seminars and tour the NE facilities, which include a TRIGA Mark II research reactor, the extensive Semiconductor Materials and Radiological Technologies (SMART) laboratory, and the Radiation Measurement Applications (RMA) laboratory. Thus, funding of \$5,000 per year is requested to invite and host promising young Ph.D. engineers or scientists. Each will be asked to give at least one presentation within the College of Engineering but each also will have the opportunity to meet faculty and students, tour the NE facilities, and become familiar with the local community. Although the NE program at KSU is long-standing and has been successful, many people who visit the University now are surprised at the scope and activity of the program. We have one of the larger research reactors in the country, a Triga Mark II reactor that is licensed to operate at up to 1.25 MW. Perhaps more impressive, however, is the SMART lab, which occupies thirteen rooms in Ward Hall. This extensive laboratory is devoted to design, construction, and testing of various types of radiation detectors. The SMART lab has a class- 1000 clean room, where radiation detectors are fabricated, and an extensive list of equipment. The Radiation Measurement Applications lab is constructing a prototype standoff bomb detection system that will incorporate a D-T generator that emits 10^{11} neutrons s⁻¹. In addition, the Manhattan, KS, community is an attractive and sociable place to live and raise a family. Thus, it is believed that bringing young potential faculty members to visit will increase the number of quality applicants when open positions become available.

B.2.2 Targeted Research

The life-blood of any strong graduate-level NE program is its research program. It is extremely important for a young faculty member to have opportunities to initiate new, or to advance existing, research programs. Thus, as part of the NEFDA program, a Growing Research Initiative Program (GRIP) will be established. Young faculty members will be able to apply, on a competitive basis, for GRIP funding, which must supplement other funding. Each applying faculty member will qualify for GRIP funding only if he or she matches at least \$15,000 per year of GRIP funding. New faculty members can use funds from their start-up packages, but these funds must be directed toward the research targeted in their GRIP application. Untenured faculty members who have exhausted their start-up funds will be required to match at least \$15,000 with other funding, such as sponsored research funding or funds obtained from internal university sources, KSU Foundation sources, industrial sources, or the like. This matching assures that the faculty member is using GRIP funding to leverage other sources. Thus, a young faculty member who has an existing sponsored research project with at least \$15,000 in a given year can supplement that funding with additional GRIP funding. This arrangement augments both sources of funding. The GRIP funding will be on an annual basis only. Separate requests will be required each year a faculty member seeks GRIP funding and a new match will be required.

B.2.3 Travel Support

Young faculty members will be able to request travel funds to visit prospective sponsors, to attend professional meetings, to visit colleagues with whom they are collaborating at other institutions, or for similar career-enhancing purposes. Meeting face-to-face with Program Managers at sponsoring agencies can be extremely important for young faculty members who have yet to develop a strong research reputation. Thus, those faculty members who take the initiative to visit sponsoring agencies, and make a compelling argument that this may prove useful, may receive travel funds from NEFDA. For travel to meetings, travel requests for presenting papers rather than simply attending meetings will be viewed more favorably. The travel funds will be provided only on a competitive basis, which will be based on formal requests that describe the purpose of travel and the anticipated benefits.

B.2.4 Unanticipated Opportunities

There will be other ways in which a young faculty member can benefit from NEFDA funding. For instance, there may be opportunities for young faculty members to learn about effective advising by attending national meetings or local programs. In this regard, it is noted that the National Academic Advising Association (NACADA) is located at KSU (web site: <http://www.nacada.ksu.edu>). NACADA conducts various programs and services that may be of use to young faculty members. Other opportunities arise during summer months when a faculty member is unsupported. It might be appropriate for a young faculty member to request a week's summer support in order to attend a particularly important professional conference, to visit potential collaborators, or to prepare a distance NE course (KSU is a member of the Big 12 Engineering Consortium, which offers distance NE courses to all the Big 12 institutions).

B.3 Faculty Selection Process

A primary element of the NEFDA program is to attract and select the best qualified applicants to the KSU NE program. A well qualified applicant should:

- Hold a PhD degree in nuclear engineering or a closely related field.
- Be expert in an area of research that aligns with the current critical NE research topics such as reactor physics, Gen III and IV reactors, AFSI, and homeland-security.
- Display scholarly promise in teaching, research, proposal writing, and publishing.
- Possess team-player and leadership skills and thus be able to collaborate effectively with colleagues in the program as well as to lead existing and future research.

Potential applicants to become tenured or research professors will be evaluated based on the above criteria. A worksheet rating all applicants, based on the above criteria, will be prepared by the NEFDA Review Committee (see next section) and presented to the MNE faculty before it votes on which faculty applicants are acceptable. The same worksheet will be provided to the MNE Department Head, who actually negotiates new hires. This process supplements, in a formal way, current faculty hiring procedures.

B.4 Management Structure

The NEFDA program will be managed by a three-person team that consists of the following:

- The NEFDA Program Director, currently the PI Dr. William L. Dunn

- The KSU NE Program Director, currently the Co-PI Dr. J. Kenneth Shultis
- The Big 12 Engineering Consortium Director, currently Dr. Mo Hosni

Additional input will be solicited from time to time from other MNE faculty members. The NEFDA Program Director will call meetings with the other team members on an as-needed basis but at least three times a year, once near the beginning of the fall semester, once near the end of the fall semester or near the beginning of the spring semester, and once near the end of the spring semester. The management team will monitor the program and make changes as it deems appropriate. The PI and Co-PI will work together to prepare and submit semiannual reports to the Nuclear Regulatory Commission.

The management team will appoint a NEFDA Review Committee (the Committee), whose purpose will be to review and make decisions about applications from young faculty members for NEFDA funding in the targeted research, travel, or unanticipated opportunities categories. The Committee will consist of three senior faculty members. The members of this committee will be selected from among the currently 21 MNE faculty members. It is noted that several of the Mechanical Engineering faculty members within the MNE Department have some background in Nuclear Engineering. Nevertheless, at least one NE-trained faculty member will be on the Committee in order to provide appropriate technical input. After the best qualified applicants are hired, another internal selection process for distribution of NEFDA funds, which will involve the following steps, will be performed:

- Formal application by a young faculty member to NEFDA in a written document that identifies, at a minimum, the activity, the funding requested, the matching funding (required for GRIP awards), and the anticipated benefits.
- Consideration of applications by the NEFDA Review Committee; the Committee will be expected to consider the appropriateness of the suggested activity, the anticipated benefits of the funding, and the likelihood that those benefits will be achieved.
- A formal vote of the Review Committee will be taken and funds will be awarded only if a majority of the committee approves the application for funding.
- A record of the process will be maintained, so that the effectiveness of NEFDA funding can be evaluated at a later date.

The entire process will favor untenured professors. Preference for travel funding will be given to faculty members who are presenting at meetings rather than simply attending them. Similarly, requests for GRIP funding will require matching funds and preference will be given to projects that provide the most matching funds, other things being equal.

Faculty members may apply for NEFDA funding at any time. This flexibility is needed because opportunities may arise with little advance notice and require relatively quick action. For the sake of expediency, the NEFDA Review Committee will be expected to meet within one month of receiving any application, if possible. If summer absence or other circumstances make this difficult or impossible, then the Committee will meet as soon as practicable after the academic calendar and/or the Committee members' schedules permit. If only one application is received prior to a meeting, that single application will be reviewed on its merits. If several applications have been submitted, then they will be reviewed and selections will be made on the basis of the relative merits of the competing application and availability of funds. The Committee will be expected to notify the NEFDA Program Director as soon as practicable after it receives

an application. The Director can then, if it is deemed appropriate, notify all eligible NE faculty members that the Committee will be meeting soon. This will permit eligible faculty members to submit competing applications before funds have been depleted. Thus, the intent is to be both as responsive as reasonable but as competitive as possible. The members of the Committee will be expected to commit to serving at least one year but may serve longer. If vacancies arise, the management team will appoint new members. It is conceivable that all three members could serve all three years; however, as this will be an additional unfunded burden, it is expected that there may be some turnover.

B.5 Evaluation Plan

Evaluation of the faculty members supervised by the NEFDA program will be performed using:

- The MNE department tenure-track faculty evaluation criteria
- The NEFDA program Review Committee
- An external advisory panel.

The evaluation will be based on several performance metrics similar to those used during the department tenure track evaluation process. Those metrics have the following components:

- Educational component: The educational metric is designed to measure and evaluate the teaching, advising and supervision of undergraduate and graduate courses and students respectively. The teaching section evaluation will be based on the in-class student evaluation of the performance of the faculty member, the development of new courses, peer evaluation, and teaching awards. The advising and supervision evaluation section will be based on the successful number of graduate degree students supervised by the faculty member and the industrial and academic placement of his or her previous students after graduation.
- Research component: The research metric is designed to measure and evaluate the research scholarship in areas of quality of research, publications in peer-reviewed journals, national and international recognition in the field, research expenditures and funded projects, and awards received by the faculty member from highly reputed societies and institutions.
- Services component: The services metric is designed to measure and evaluate the services performed by the faculty member to the university, local, national, and international communities.

The evaluation will be performed annually and concurrently with the department tenure track evaluation. The evaluation of the performance of the faculty supported by the NEFDA program will be used to evaluate the effectiveness of the NEFDA program.

B.6 Additional Support

The current economic crisis has severely affected many programs at local to international levels. Nevertheless, KSU offers to provide at least \$15,000 per year in GRIP matching funds, requiring at least a total of \$45,000 in matching funds from applying faculty members. The total funding request is for \$390,000 over three years, \$345,000 from NRC and at least \$45,000 from

matching funds. In this regard, it is noted that the youngest NE faculty member at KSU, Dr. Ali Abdou, has a background in dense plasma focus devices as neutron and X-ray sources. He joined KSU in March 2009 and is initiating collaborative research with the other NE faculty members. He already has identified several possible areas of collaborative research. One among several possible areas is in the use of small plasma devices as X-ray sources for nondestructive analysis. Another area is in plasma etching of semiconductors, which directly supports detector research within the Semiconductor Materials and Radiological Technologies (SMART) laboratory at KSU. There are several other such areas but these two serve only to indicate that there are already promising opportunities for awarding GRIP funding through the NEFDA program.

B.7 Review Criteria

The proposed KSU NEFDA program has been identified and all required elements addressed. Next, the specific review criteria are briefly addressed below.

B.7.1 Capacity to Conduct the NEFDA Program

The 21-member MNE faculty at KSU will establish a NEFDA management team that consists of full or associate professors each of whom has a demonstrated record of success in research and academia. The management team will be a formal group established within the MNE Department who are dedicated to making the NEFDA program succeed. The management team will have the capacity to conduct the NEFDAA program.

B.7.2 Quality of the Faculty Served by the Program

A primary emphasis is to attract and retain top-notch young faculty to KSU. The recruitment component will seek to invite young NE potential candidates before faculty searches are begun. This will inform potential candidates of the opportunities at KSU and will allow the KSU faculty to identify desirable candidates in advance of actual searches. Once a faculty member has been hired by KSU, he or she will be able to apply for internal funding through the NEFDA program. Travel, research and other funding awards will be competitive and thus, the program will serve the best young faculty, mentored by the best established faculty, at KSU.

B.7.3 Completeness of Evaluation Plan to Measure the Effectiveness of the NEFDA program

A detailed plan to evaluate the faculty applicants has been described and commitments have been made to formally evaluate requests for funding through the NEFDA program. This will provide documented evidence on which to base evaluation of the effectiveness of the NEFDA program. Comparison of the achievements of the faculty members hired and supported by NEFDA funds with historical data will be made in order to estimate the effectiveness of the NEFDA program. Specific metrics, such as number of hires from among recruited candidates, number of GRIP awards from among applications, and number of publications resulting from GRIP awards will be included in the Evaluation section of the project final report.

B.7.4 Institutional Support and Sustainability

Matching funds of \$45,000 from KSU have been pledged toward the NEFDA program. In addition, KSU is a member of the Big 12 Engineering Consortium, a multi-state consortium that offers distance courses in Engineering. In response to increasing employer demand for

employees with some nuclear training, the Consortium is offering students access to NE courses. The courses are delivered via the Internet by the four Big 12 universities, including KSU, that have NE programs. The NEFDA program will attempt to involve young NE faculty in this outreach program, which is expected to survive beyond the three-year funding period.

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).

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- 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 is 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

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."