

ATTACHMENT A - SCHEDULE

A.1 PURPOSE OF GRANT

The purpose of this Grant is to provide support to the "University of Wisconsin – Madison Nuclear Engineering and Engineering Physics Program" 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, 2014.
2. Funds obligated hereunder are available for program expenditures for the estimated period: May 1, 2010 – April 30, 2014.

A. GENERAL

1. Total Estimated NRC Amount: \$370,849.00
2. Total Obligated Amount: \$370,849.00
3. Cost-Sharing Amount: \$0
4. Activity Title: University of Wisconsin – Madison Nuclear Engineering and Engineering Physics Program
5. NRC Project Officer: John Gutteridge
6. DUNS No.: 161202122

B. SPECIFIC

- RFPA No.: HR-10-954
FFS: N/A
Job Code: T8460
BOC: 4110
B&R Number: 0-8415-5C1115
Appropriation #: 31X0200
Amount Obligated: \$370,849.00

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	Year 4
Direct Participant Cost	\$82,267.00	\$85,398.00	\$88,648.00	\$92,025.00
Indirect Cost	<u>\$5,301.00</u>	<u>\$5,513.00</u>	<u>\$5,734.00</u>	<u>\$5,963.00</u>
Total	\$87,568.00	\$90,911.00	\$94,382.00	\$97,988.00

All travel must be in accordance with the University of Wisconsin 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 \$370,849.00 for the four year period.
2. NRC hereby obligates the amount of \$370,849.00 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 UW-Madison Graduate Fellowship in Nuclear Engineering

1. Proposed Fellowship Program

The Nuclear Engineering and Engineering Physics (NEEP) Program in the Engineering Physics (EP) Department at the University of Wisconsin (UW)-Madison proposes a Graduate Fellowship Program in Nuclear Engineering (NE), in support of outstanding doctoral students interested in nuclear power systems engineering, a career in the nuclear power industry, employment with institutions involved in the nuclear power industry, or employment in academia. Recipients will serve 6 months after graduation for each year of academic support. The proposed program will recruit and enroll top-notch, diverse undergraduates from physics and engineering disciplines of interest to power engineering and NE specifically (e.g., Chemical Engineering, Civil Engineering, Materials Science, Engineering Mechanics, Mechanical Engineering). Doctoral fellowships will be awarded to qualifying candidates to obtain a Ph.D. degree in NEEP; i.e., two doctoral fellowships over four years.

The recruitment and selection process will use proven techniques from the NEEP program in the EP department and the Graduate Engineering Research Scholars (GERS) program. Each selected student will become a NRC Fellow for up to four years, and, to complete their degree, will be supplemented by funds from the NEEP department or the GERS program, assuming the candidate meets the UW-Madison's eligibility criteria for under-represented minority (URM) students. Each student is expected to be a full-time student (12 credits/semester), maintain the requirements of the fellowship (3.3 GPA minimum), and make timely progress toward a degree. Each student will be assigned a faculty advisor upon entry into the program and will be expected to contribute to the faculty member's research program, which, in addition to building and shaping the student's basic skills, will enhance the student's educational experience and allow them to explore their subject matter of interest. A concerted effort will be made to recruit traditionally URM students into the program.

Nuclear Engineering Program Capabilities and Commitments: The NE Program is housed in the Department of Engineering Physics, which also administers the Engineering Mechanics Program. In 1995, when the Engineering Mechanics Program was merged into the Department of Nuclear Engineering and Engineering Physics, the department name was changed to better represent the broader mission of the department.

The department continues to offer the full set of NE degrees and is committed to maintaining these for the long term. Specifically, the department offers the B.S. in NE, which is fully

accredited by the Accreditation Board for Engineering and Technology (ABET), and the M.S. and Ph.D. in NE and Engineering Physics.

The department is one of the oldest in the U.S.; it started as a program in 1956, became a department in 1963, and has been consistently ranked over the last 45 years in the top five of NE programs. Notable characteristics of the program include:

- The department is one of the major suppliers of nuclear engineers in the upper Midwest.
- The department has a 1 MW TRIGA reactor in which first priority is given to education and teaching rather than research. The recent \$45 million renovation of the Mechanical Engineering Building has improved the UW reactor and its laboratory facilities.
- The department has 25 professors, 16 of which are in the NE area (see Appendix of Supplemental Information, Table A); this includes four outstanding young professors in the areas of materials, radiation damage, neutron transport, reactor theory, plasma physics and thermal-fluids.
- Three professors are members of the National Academy of Engineering, five hold Wisconsin Chaired Professorships, and five are former or current NSF Presidential Young Investigators or CAREER award winners.

We know of no other department that has such a strong contingent of young faculty with the resultant expectation of vigorous strength as older members retire. In addition, three Emeritus Professors (Carbon, Callen, and Emmert) remain active in the department and professionally. The CoE Dean recognizes the department's strong reputation and top ranking and has approved our next priority for faculty hiring; i.e., a professor in the nuclear systems engineering area.

The campus reviews all departments at UW-Madison every 10 years. We were reviewed during Fall 1999; the review process included an internal committee, which engaged in extensive meetings with faculty and students and compared the department with others in the CoE. A committee composed of department chairs and deans from our peer universities (MIT, Michigan, and Illinois) was then formed and brought to Madison to review the results of the internal review committee. Both committees affirmed that the department is one of the stronger departments in the CoE and made specific recommendations for improvement. These improvements included enhancements to our undergraduate laboratories and our senior capstone design classes.

After this internal UW review and accompanying external review, the department prepared for ourself-study for ABET accreditation. The Accreditation Board reviewed all engineering programs at Wisconsin for Engineering and Technology (ABET) in Fall 2000 and again in Fall 2006, as part of the normal six year review cycle. By official action in July 2007, our NE B.S. degree was reaccredited for 6 more years, with no weaknesses or deficiencies.

Since 2000 the job market for nuclear engineers has turned around, so that the demand for NE graduates has exceeded supply at the B.S. as well as the M.S. and Ph.D. levels. If this situation continues, the nuclear industry will face serious shortages of nuclear-trained manpower in the near future. As part of our strategic plan we have been very successful in our efforts at marketing NE to incoming engineering freshmen, with almost 100 undergraduates (including freshman professing intended NE majors together with upper class students who have officially declared NE majors.) In fact, the number of freshmen pre-engineering students enrolled in our 'Introduction to Nuclear Engineering' course (NEEP 231) has been over 40 students per year in the last 5 years.

Similarly, we have been quite successful in recruiting top-notch students to our graduate M.S. and Ph.D. programs. Our fission-related NE graduate program has shown a tremendous increase in interest in the last few years. Since the start of the 2002 academic year, we hired Prof. Paul Wilson and Prof. Todd Allen as new additions to our nuclear power faculty. Prof. Wilson's expertise is neutronics and Prof. Allen's is materials, corrosion and radiation damage. Their addition has improved the graduate student enrollment, which in the last 6 years has increased from about 40 to 82 in Fall 2009.

The NE faculty have been quite successful in obtaining new research funding from the DOE Nuclear Energy Research Initiative (NERI) programs and the former NEER program for advanced reactor and associated fundamental nuclear science and engineering areas. In addition, the UW was part of the Big 10 INIE Consortium and this has led to substantial upgrades to our Research and Training Nuclear Reactor. The INIE grant was combined with a major renovation for the ME building and our UW Reactor nuclear instrumentation and analysis labs. This grant involves all six Big 10 nuclear engineering schools and the consortium is one of the largest supported by the DOE. These recent successes have allowed us to increase the number of graduate students in the nuclear systems engineering area and improve our experimental and computational research facilities.

The campus has formally submitted the application to the USNRC to renew the UW nuclear reactor license through 2020. The action to do this was supported at the highest levels, i.e. former Chancellor Wiley and the Vice Chancellor for Finance, Bazzel. The NRC has ruled the application timely and extended the current license until the NRC can rule on the renewal application. The conversion to LEU has taken place and our license renewal application is for an additional twenty years, beginning 2000.

2. Recruitment Activities and Marketing Strategies

Department Reputation, Web site, and Recruitment Posters The NE Program at the UW Madison is one of the top nuclear programs in the country, ranked consistently as one of the top departments over the past quarter century. The strong research program in the department is a tremendous recruitment vehicle that attracts top-notch domestic and international graduate students. Advertisement of the NE program is conducted through the department web site (<http://www.engr.wisc.edu/ep/neep/>) and recruitment posters sent to major universities and colleges. Our web site highlights faculty research programs and academic degree program requirements and curricula. This web site is easily accessible and navigable to students. In addition, the department annually distributes flyers to other engineering programs in the country (30 nuclear programs, as well as over 100 non-nuclear programs in civil, electrical, mechanical, materials, and physics) to recruit students.

Discover Wisconsin Weekend The EP department hosts a two-day recruiting weekend called Discover Wisconsin Weekend, where top applicants are invited to the meet with faculty and obtain first-hand information on the program. During this event, 24 exceptional graduate applicants from around the U.S. are invited to the UW-campus to meet with NE faculty, tour our department facilities and discuss possible thesis topics. Fellowship candidates will be invited to participate in this event. Additional recruitment is done at the national and student ANS meetings, where our students advertise the program through their research presentations.

Partnerships with Minority Serving Institutions The department has a formal Articulation agreement with South Carolina State University (SCSU), a Historically Black College and University (HBCU). The department has recruited three graduate students from this University that have graduated with master's degrees. The College of Engineering also has a strong connection to the University of Puerto Rico-Mayaguez (UPRM). This connection has historical roots facilitated by several alumni who received their Ph.D. from the UW-Madison CoE and are now faculty members at UPRM. The CoE has graduated 13 M.S. and seven Ph.D. students during the past nine years who received their undergraduate degree from UPRM. The students were part of our successful GERS program. Approximately a third of the students currently in the GERS program are from UPRM and we have support from UPRM for this fellowship initiative (see attached letter). The GERS program has three major recruitment activities. The first recruitment activity is the Opportunities in Engineering Conference, which is hosted mid-fall. This is a three day event, with prospective students arriving Wednesday evening and leaving Sunday morning. The program is advertised nationally and mailings are sent to faculty at HBCUs, Minority Serving Institutions and the UPRM engineering faculty. Approximately 16 to 24 participants are selected from this national pool of candidates. The second activity is the Summer Undergraduate Research Experience program. This 10-week research program is for undergraduate students who are interested in a research experience to explore their area of interest in engineering. The third activity is recruitment at national societal conferences and meetings such as the National Society of Black Engineers, the Society of Hispanic and Professional Engineers, and the American Indian Science and Engineering Society. The NRC Fellowship Program will be advertised at these events. Announcements will be sent to SCSU and UPRM highlighting the Fellowship Program.

3. Selection Process and Program Administration

Selection Process The student selection process for the Fellowship Program begins with the recruitment process and students that have been admitted to the NE program. The selection committee will identify students based on their area of interest in nuclear science and engineering, undergraduate academic performance (> 3.3 GPA), and interest in working for the nuclear industry. Financial need is not typically a large consideration in the selection process for the Fellowship Program, since most graduate students require financial assistance. Once candidates have been identified, they will be notified that they are a candidate for the NRC Fellowship and made aware of the NRC Fellowship requirements. Interested candidates will be invited to the department's Discover Wisconsin Weekend to meet with faculty. Final selection of students will follow the recruitment weekend and will be based on research interest, acceptance of the NRC Fellowship requirements, and available research funds for completion of their Ph.D. work through the GERS program and/or NEEP academic advisors. The selection committee will strongly encourage the participation of women and traditionally URM students (this will allow access to additional graduate student research funding in GERS and at the UW).

The department has a committee for oversight of the NRC Fellowship Program, in cooperation with the GERS program in the CoE. One of the duties of the committee is selection of candidates for the program. The oversight committee is composed of the department chairperson, the director of the GERS program, and two additional NE program faculty. This committee uses criteria and policies for selection of students based on, and consistent with, the principals and procedures of the UW Graduate School Fellowship and GERS program (<http://www.grad.wisc.edu/admin/fellowships/>).

Fellowship Management and Administrative Structure The NRC Fellowship Program will be managed by the Department of Engineering Physics. The department has experience managing grants in excess of a million dollars per grant annually and this new program will not be a burden on the department administrative staff. The program will be administered by Prof. Douglass Henderson, in coordination with the chair of the EP department. The oversight committee will monitor and discuss the academic progress of the students with their individual academic advisors and the UW Graduate School, as appropriate. Each student must submit a plan of study within the first semester and will be assigned a faculty advisor upon acceptance into the program and department. The academic plan of study will be approved by the student's academic advisor and approved by the oversight committee and EP.

As noted earlier, the UW-Madison NE program is one of the top programs in the country. It has vibrant ongoing research and attracts top national and international students. It is a strong national program and in addition, with the LEU conversion of its nuclear reactor and the strong support of Campus and College administration, the NE program in the Department of Engineering Physics will continue to flourish for years to come. The NRC Fellowship Program plays an important role by providing support funds to top students who will enter the nuclear workforce.

4. Evaluation of Program Effectiveness

The NE program has a nearly 100% retention rate toward a degree for students entering its graduate program. Students are assigned a faculty advisor upon entry into the department and nearly all students are assigned a research project within the first four to six months into their graduate studies. This gives the students a sense of direction and focus and they develop a sense of belonging. Receiving a prestigious NRC award will increase their confidence and is a strong pillar for retention.

The UW CoE has a strong URM student recruitment and retention program that has been very successful in retaining these students through their degree program. The GERS program currently serves all URM students as defined by the National Science Foundation (NSF) and the State of Wisconsin. The GERS program (<http://studentservices.engr.wisc.edu/diversity/gers/>) was put into place to increase the minority graduate student population in the CoE and address the social and academic issues that many minority students experience at a predominately white research institution. Since its inception in the fall of 1999, the GERS program has graduated 42 master's degree students and 26 doctoral students. This program has its roots in the Alliance for Graduate Education and the Professoriate, a Human Resource Division program at NSF.

Minority students recruited and enrolling in this NRC Fellowship Program will find a strong welcoming community of students with a diversity of cultural and academic backgrounds. The Fellowship Program will use formative evaluation to allow for changes and corrective action to the program. Assessment of the program will use both quantitative and qualitative measures. These measures will include a bi-annual review of student progress with the academic advisor and a final graduation interview (and survey) to gain information on necessary corrective actions for the program. It has been tradition in the NEEP program for the faculty advisor to meet with her/his graduate students every semester to review their academic course plan (as well as to meet weekly about their research). The academic oversight committee will more formally work with the advisors for the NRC fellowship students for corrective action. In addition, we will use our department Industrial Liaison Committee (ILC) and its industrial members to review the

progress and assess the program on an annual basis. Our ILC meets annually in the spring and this NRC fellowship activity will become part of its normal functions. The overall mark of success of the program is based on the number of students entering the program compared to those that complete the program and begin their careers in the nuclear power industry. The department will summarize the ILC's review in a NRC progress report.

The first NRC Fellowship cohort arrived in the Fall of 2008. They are Msrs. Royal Elmore and Kevin Robb. Their academic progress in coursework during the first year was excellent and they are involved in research projects focused on fuel-cycle neutronics and reactor safety. Alan Kruiuzenga and Jeremy White make up the second group and have passed their preliminary exams. Their research focus areas are advanced fluid-dynamics and heat transfer for reactor systems.

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:(now2 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:

Fellowship Awards

1. The number and percentage of STEM graduates who take a job in a STEM or STEM-related field;
2. The number and percentage of students who participate in scientific activities or research experiences in industry, government, or the not-for-profit sector;
3. The number and percentage of students who present research findings at scientific meetings or student science exchange events;
4. The number of students who participate in interdisciplinary research or educational experiences;
5. The number of students who engage in research experiences in an academic, government, or non-for-profit industry;
6. The number and percentage of graduate and postdoctoral fellowships who complete a STEM graduate or postdoctoral program;

7. The number and percentage of program completers who are employed in a STEM or STEM-related field;
8. The number and percentage of students who participate in scientific activities or research experiences in industry, government, or the not-for-profit sector. This metric will include internships;
9. The number and percentage of students who present research findings at scientific meetings or student science exchange events.

Service Agreement

A signed service agreement and resume are required for all student recipients of scholarships or fellowships funded by the US Nuclear Regulatory Commission. The Service Agreement is attached to the Terms and Conditions.

§ 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 semi-annual basis for the periods ending March 31 and September 30, 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."