



## 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:	\$162,342
2. Total Obligated Amount:	\$162,342
3. Cost-Sharing Amount:	\$0
4. Activity Title:	Nuclear Engineering Faculty Development Project
5. NRC Project Officer:	John Gutteridge
6. DUNS No.:	0502298975

### B. SPECIFIC

RFPA No.:	HR-10-935
FFS:	N/A
Job Code:	T8460
BOC:	4110
B&R Number:	0-8415-5C1115
Appropriation #:	31X0200
Amount Obligated:	\$162,342

### 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
Personnel Costs	\$31,139.00	\$37,389.00	\$10,000.00
Fringe Benefits	\$6,927.00	\$8,848.00	\$2,650.00
Equipment	<u>\$19,821.00</u>	<u>\$0.00</u>	<u>\$0.00</u>
<b>Total Direct Costs</b>	<b>\$57,887.00</b>	<b>\$46,237.00</b>	<b>\$12,650.00</b>
Indirect Cost (47%)	<u>\$17,891.00</u>	<u>\$21,731.00</u>	<u>\$ 5,946.00</u>
<b>NRC Yearly Total</b>	<b>\$75,778.00</b>	<b>\$67,968.00</b>	<b>\$18,596.00</b>

All travel must be in accordance with Texas Southern University 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 \$162,342 for the three year period.

2. NRC hereby obligates the amount of \$162,342 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 The Health Physics Program at TSU**

Texas Southern University (TSU), located in Houston, Texas, is one of the nation's largest Historically Black Colleges and Universities. The existing Environmental Health Physics program has been funded through various NRC awards initiated in 2007 involving: one continuing education grant from the NRC (-38-07-495), a second Faculty Development award from the NRC (-38-08-973, funded at a low level due to a misunderstanding on our part), and a scholarship grant funded through a UT-Austin led consortium from the Office of Naval Research (\$180K/3 years, 2009 - 2012). The Texas Higher Education Coordinating Board approved the curriculum in the Fall of 2008. The TSU health physics program is the only Health Physics Program in the Greater Houston area. Moreover, it is currently the only radiation related program in the area at the undergraduate level. The Health Physics program is housed within the physics department and will grant a B.S. in honor's level health physics with emphasis in environmental health physics. The first cohort of graduates will be realized in 2010. The program has a comprehensive curriculum (nearly graduate level) and combines core nuclear physics education and radiation detection with very practical skills. It includes courses such as: a) concepts of atomic and radiation physics, b) environmental radioactivity, c) introduction to nuclear physics, d) radiation detection, e) nuclear radiation detection laboratory, and f) radiation protection and dosimetry. Courses in nuclear magnetic resonance laboratory and radiation biology are currently listed as optional. The curriculum has been approved and fully implemented with a complete set of textbooks and syllabi since the Fall 2008.

##### **B.1.1 The program website is: <http://physics.tsu.edu/Academics/BSHealth.php>.**

Thanks to the current grant support from the NRC, three semesters of nuclear radiation detection laboratory have been offered. This laboratory is regarded as a core component of the program. It is a basic nuclear physics laboratory, where students will become familiar with the principles of radiation detection before using more sophisticated and automated counting and spectroscopic systems. Very few Universities have such laboratories. The laboratory sequence of our environmental health physics program begins in the second semester of the junior year, introducing basic nuclear physics experiments exploiting Geiger Mueller (GM) counters, enabling students to better understand the physics of nuclear radioactivity. During the following semester (first half of the senior year), the laboratory courses emphasize the health physics and nuclear spectroscopy components of the program. The health physics oriented experiments utilize an ion chamber, GM counter, well detector, proportional counter and scintillation detector. The spectroscopy experiments focus on alpha and gamma spectroscopy. In the third semester (second half of the senior year), the laboratory emphasis is on nuclear electronics, specifically exploiting the principles of NIM modules.

The primary emphasis of the curriculum is on comprehensive radiation measurement,

dosimetry and radiochemistry. Through NRC funding opportunity HR-FN1207-EDU2 a grant was received (2008 - 2009), which led to a curriculum in Radiochemistry. We are now submitting a curriculum proposal to the Texas Higher Education Coordinating Board (THECB) to approve the new course in Radiochemistry. This radiochemistry course will be offered in close collaboration with the University of Texas (UT) Austin. The existing grant NRC-38-07-495 will enable us to offer some online support for this, in addition to online support for other Health Physics courses and activities. We are also planning further improvement of the program by both redesigning and upgrading the laboratories. Our program will be further strengthened through Summer schools, on-campus research in health physics and internship programs at reactor and accelerator sites. The latter already took place this past summer (Summer 2009), through the ongoing collaboration with UT-Austin.

Through the requested funding, health physics and radiochemistry research components are being planned to be developed, and include collaboration possibilities with UT Austin. Radiation dosimetry calculations, which employ Monte Carlo techniques will likely be the initial research project undertaken toward a health physics research initiative on the TSU campus. To do so, we intend to expand our research capabilities by collaborating with a company, Rapisan Laboratories, which has developed an advanced air-cargo screening capability called the Pulsed Fast Neutron Analysis (PFNA) system using neutrons as the primary probe to locate potential threats by the elemental components of the cargo contents. Of note is that we view this as an opportunity to use the PFNA system, which is located at the George Bush Intercontinental Airport, as a training resource, in which our faculty develops research projects on neutron-based dosimetry for students in our health physics program. The main impetus is to develop a radiation dosimetry program inherently coupled with our existing health physics program to offer advanced training to our students in radiation detection and radiation safety in a work place setting. For being seriously involved in environmental pollution detection we need to build the HPGe detector shielding and purchase a professional alpha spectroscopy system.

### **B.1.2 The Physics Department at TSU and the Institutional Support**

The new Physics Department at TSU is intensely focused on improving and expanding the quality of its program. Dr. Carlos R. Handy, who moved from Clark Atlanta University (CAU) in Atlanta, Georgia, has led it since 2005. His area of research is convex optimization theory as applied to computational methods for quantum operators. At CAU, Dr. Handy raised over \$16,000,000 in research grants over a period of 22 years, helping this Historically Black University become more research competitive in various physics related areas. It culminated in his co-directing one of the most successful minority led research centers in the nation: the Center for Theoretical Studies of Physical Systems. These leadership skills are being redirected to suit TSU's physics program. Specifically, the program has managed to attract nationally recognized scholars in various disciplines including Prof. C.J. Tymczak (from Los Alamos National Lab) and Prof. Daniel Bessis (a recipient of the French gold medal in theoretical physics for pioneering work in Pade approximants in field theory). Consistent with this tradition of excellence, he hired Dr. Stefanova, an experimental nuclear physicist with post-doctoral experiences, in 2007. She proposed and implemented the current health physics program. This past semester, he hired Dr. Mark Harvey with the purpose to continue developing the health physics program.

The primary thrust of TSU's physics program will be to develop graduates that can contribute to the health physics, nuclear engineering and in some cases, pursue medical health physics professions. All of the researchers cited above are doing work that overlaps these areas. The rigorous demands and expectations of the new program resonate well with the new institutional thrusts articulated by TSU's President, Dr. John Rudley, former Interim President of the University of Houston's central campus. Both he and the current Provost, Dr. Sunny Ohia, have

identified the Health Physics program as a major new academic resource for the University. The quality of our faculty and curriculum, and emerging resources, should make our program competitive with any other in the nation. TSU has managed to attract some very good students. We are giving them expanded options within a supportive, but rigorous, program. An important concern to many external to the University has been allayed through the appointment of Dr. John Rudley as TSU's President. With approval from the Board of Regents and the Texas Higher Education Coordinating Board, TSU is no longer an open admissions institution, but instead requires rigorous admissions standards. It is consistently raising these standard, and in addition, with the pending transition of the University of Houston to a tier 1 institution, in two years, TSU will become the only comprehensive Houston based University to fill the void for highly capable students wishing to pursue competitive scientific professions.

The proximity to the NASA Johnson Space Center and the Texas Medical Center, gives added importance to the physics program developing a capability in radiation physics. The increasing importance of nuclear related basic and applied research has made the program reassess its potentially unique position in the area represented by this proposal: nuclear environmental protection health physics.

Presently, TSU is part of a consortium with Prairie View A&M University, Johnson Space Center, and the Langley Research Center referred to as the Radiation Interuniversity Science and Engineering Program supported through NASA. Its aim is to enhance the education and research of student training in radiation areas of interest to NASA. Our program matches exactly these requirements. Indeed, through the educational capabilities we are building, research in both radiation dosimetry (using a combination of Monte Carlo techniques and measurements) and gamma ray spectroscopy measurements (using a High-Purity Germanium (HPGe) detector) will be made available. We have HPGe detector system set up by Dr. Stefanova already. We do not have, however, the shielding for low level radioactivity measurements. For radioactive pollution measurements we will need a professional alpha spectroscopy system. We have an alpha detector for the student's education, but the system is not suitable for research. As it is needed for our research capabilities, we request it from the present grant. To that end, the TSU health physics program is in a unique situation in the Greater Houston area, and therefore, receives strong support and focus from the University.

## **B.2 Faculty Development Request**

The next important step after developing the program and recruiting the students would be toward relevant research, which would apply to health physics and/or radiochemistry projects. A research component in a department that strongly focuses on a complete health physics education, which includes classroom and laboratory research, is of utmost importance. The possible recipients of the development grant are expected to develop projects centered on radioactive environmental pollution monitoring and Monte Carlo calculations in radiation dosimetry as a predictive measure of contamination encountered by radiological workers. Taking into account that the air pollution in Houston has attracted very strong attention recently and TSU offers the only health physics program in Houston, our involvement in such research is mandatory. Also, the near proximity of the city of Houston to the South Texas Project Nuclear Power Plants (90 miles south), makes this a very relevant research activity. Furthermore, possibilities for developing a radiochemistry research collaboration with UT Austin was discussed, and has been worked towards an initiation phase with students and faculty attending a two-week summer workshop in 2009.

We are asking a support for faculty and several visiting faculties/consultants who will assist in the implementation of the above activities. They will investigate the best

strategies and topics for developing a research health physics/radiochemistry and Monte Carlo radiation dosimetry program capability at TSU. The current NRC supported environmental health physics program was proposed and implemented by Dr. Stefanova who recently accepted an appointment at the major nuclear physics facility (Sofia) in her home country of Bulgaria. Dr. Carlos R. Handy, Chair of the Physics Department, will be managing the new requested funding. A faculty member has also been recruited to support the continuation of this program, Dr. Mark Harvey, who obtained a PhD in middle-energy nuclear physics and has two post-doctoral experiences - one in high- energy nuclear physics at the Brookhaven National Laboratory (Upton, NY) and one in medical physics at the M.D. Anderson Cancer Center (Houston, TX). Before joining the TSU physics department in September 2009, he was awarded an NIH grant to determine the secondary neutron dose pediatric cancer patients receive during proton radiotherapy, while a post-doctoral research fellow at M.D. Anderson Cancer Center. The general agenda is that Dr. Harvey will lead this health physics program.

Three researchers will be supported to expand the existing program in the proposed radioactive pollution detection, radiochemistry and Monte Carlo radiation dosimetry components. Dr. Harvey will be the main executer of the research program in all fields. Dr. Stefanova will consult the research projects in health physics and radiochemistry (especially the spectroscopy part). She also will build up the shielding of the HpGe detector and set up the professional alpha spectroscopy system for which we request support here. The radiochemistry research capability will be developed through collaboration with Dr. Sheldon Landsberger of the University of Texas (UT) Austin. Our radiochemistry laboratory is almost fully equipped. However, we will need some support for additional supplies. Dr. Paul Gueye will be a consultant on our health physics research program by also collaborating in the radiochemistry research as well as developing Monte Carlo projects in environmental radiation dosimetry at TSU. He holds a Ph.D. degree in nuclear physics from Clermont-Ferrand (France) with research experiences in nuclear and high energy physics, medical physics, radiation biology, radiochemistry and accelerator physics. Our collaboration with UT Austin will be a perfect opportunity for such a research. He has also strong undergraduate background in chemistry, which will be of a great benefit for the very chemistry part of the radiochemistry. It is to be stressed that all of these non- TSU personnel will contribute towards TSU faculty's professional development in these areas that impact the existing Health Physics program.

Starting September 2010, we request support for 33% release time for 1 faculty member for 9 months plus 2 summer-months support and travel. In addition, we request support for Dr. Paul Gueye to collaborate in on-campus research projects in radiochemistry and radiation dosimetry as applied to health physics using small scale experiments and Monte Carlo methods. We also request support for Dr. Stefanova for research projects in health physics and radiochemistry for 2 summer-months, which include support for travel, lodging and supplies, and Dr. Landsberger for consultation and collaboration.

## **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](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](http://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](http://www.gsa.gov/federaltravelregulation) and the per diem rates set forth at: [www.gsa.gov/perdiem](http://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.

The Grantee shall submit a "Federal Financial Report" (SF-425) on a quarterly basis for the periods ending 3/31, 6/30, 9/30 and 12/31, or any portion thereof, unless otherwise specified in a special award condition. Reports are due no later than 30 days following the end of each reporting period. A final SF-425 shall be submitted within 90 days after expiration of the award.

**Period of Availability of Funds 2 CFR § 215.28**

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

**Automated Standard Application For Payments (ASAP) Procedures**

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

**Audit Requirements**

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

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

1. Create your online report ID at <http://harvester.census.gov/fac/collect/ddeindex.html>
2. Complete the Form SF-SAC

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.
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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 31<sup>st</sup> is due by April 30<sup>th</sup>. The submission for the six month period ending September 30<sup>th</sup> is due by October 31<sup>st</sup>.

#### **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."