

ATTACHMENT A - SCHEDULE

A.1 PURPOSE OF GRANT

The purpose of this Grant is to provide support to the "Colorado State University Health Physics Fellowship 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:	\$358,771.00
2. Total Obligated Amount:	\$358,771.00
3. Cost-Sharing Amount:	\$10,000.000
4. Activity Title:	Colorado State University Health Physics Fellowship Program
5. NRC Project Officer:	John Gutteridge
6. DUNS No.:	78597618

B. SPECIFIC

RFPA No.:	HR-10-951
FFS:	N/A
Job Code:	T8460
BOC:	4110
B&R Number:	0-8415-5C1115
Appropriation #:	31X0200
Amount Obligated:	\$358,771.00

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	\$76,577.00	\$81,595.00	\$86,914.00	\$92,954.00
Indirect Cost	<u>\$4,862.00</u>	<u>\$5,600.00</u>	<u>\$5,281.00</u>	<u>\$5,514.00</u>
Total	\$81,439.00	\$86,669.00	\$92,195.00	\$98,468.00

All travel must be in accordance with the Colorado State 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 \$358,771.00 for the four year period.

2. NRC hereby obligates the amount of \$358,771.00 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

Project Description: The Principal Investigator (PI) has overall responsibility for the administration of the institution's award, project management, and interactions with the NRC. The PI will interact directly with the fellowship recipients, fellow faculty members and NRC staff to ensure that the program achieves the desired goals and our students receive a superior educational experience. Colorado State University (CSU) will provide fellowship support to recipients who successfully compete in a selection process in compliance with NRC-developed guidelines.

1. Describe the proposed program: The goals of this training grant in Health Physics are to:

1. *Provide tuition support for two graduate students each year for four years in the grant period.*
2. Enhance the current ABET-accredited curriculum to meet the challenges and changing responsibilities of health physicists in the 21st Century, such as new uranium mines, new enrichment facilities, and construction of new reactors.
3. Extend current collaborations for practicum studies and summer internships to include the NRC, commercial nuclear power plants and other regional fuel cycle facilities.

The NRC fellowship program at CSU will be used to support Masters of Science in Health Physics students over the next four years (approximately two per year). Students will be provided with a stipend of \$1,748 per month (See Table 8 for stipend specifics). During the summer, students will be encouraged and assisted in securing internship opportunities with the NRC and other facilities, such as those listed in table 1. Past CSU health physics student summer employers have been Oak Ridge Associated Universities (2008), McGuire and Catawba nuclear plants (2008) and Tetra Tech (2009).

The CSU Health Physics program has been in place for over 40 years, and has been ABET accredited since 2007. Our graduates hold leadership positions in the NRC (such as George Kuzo and Audrey Hays) as well as other regulatory agencies. Two of our most recent graduates, Ken Walter (May 2008) and Jerri Walters (May 2009) are now employed at Nuclear Power Plants as a health physicists. Margaret Cervera (May 2009) was funded under a previous NRC fellowship program and is currently working at NRC headquarters in Maryland.

Table 1. Sites that have agreed to and/or have hosted summer students

Facility	Company	HP Activity	Supervisor
ISL Uranium Mine	Cameco	Uranium Mining	Krista Wenzel, CHP
National Enrichment Facility	Urenco	Uranium Enrichment	Guy Crawford
TRIGA Reactor	USGS	Nuclear Reactor	Tim Debey
Catawba Nuclear Station	Duke Energy	Nuclear Reactor	Tim Wright

The technical content of the CSU health physics program is exceptional. Our External Health Physics Advisory Board represents nuclear reactor facilities, mining and milling operations, consulting experts and national laboratories. They review the program's content annually, and provide suggestions as to where the program can be improved, and help guide curriculum direction and content (Table 2). The CSU program is unique in offering classes in Radiochemistry and Radioecology. Both areas are useful for evaluation and periodic revision of environmental regulations concerning nuclear power and other nuclear activities. One of the desired outcomes of the CSU health physics program is to have graduates take and pass the Certified Health Physicist (CHP) exam. Since accreditation, two of our graduates have passed part one of the exam (David Farrar and Deirdre Elder). Students assist in teaching an on-line CHP review class every spring (EDLL 2005). The students benefit by interactions with professionals who take the class, building valuable government and industry contacts while reinforcing the practical aspects of the master's program.

Table 2. List of required and elective classes for M.S. in health physics.

Course No.	Title	Course No.	Title
ERHS 530	Radiological Physics & Dosimetry I	ERHS 502	Fundamentals of Toxicology
ERHS 532	Nuclear Instruments & Measurements	ERHS 515	Non-ionizing Radiation Safety
ERHS 550	Principles of Radiation Biology	ERHS 520	Advanced Environmental Health**
ERHS 561	Radiation Public Health	ERHS 526	Industrial Hygiene**
ERHS 563	Environmental Contaminant Modeling*	ERHS 527	Industrial Hygiene-Lab**
ERHS 570	Radioecology*	ERHS 544	Biostatistical Methods*
ERHS 630	Radiological Physics & Dosimetry II	ERHS 712	Physics of Diagnostic Imaging
ERHS 632	Techniques in Radiation Dosimetry	ERHS 714	Radiation Therapy Physics
ERHS 665	Radiochemistry	ERHS 726	Aerosols & Occupational Health**
ERHS 693D	Seminar	ST 511	Design & Analysis for Researchers I*
ERHS 446	Environmental Tox.**	ST 547	Statistics for Env. Monitoring**

*Two of these four classes must be taken, ** At least one of these electives must be taken

Fellowship recipients shall be selected through a competitive process primarily on the basis of academic merit, with consideration given to financial need and the goal of promoting the participation of individuals identified in section 33 or 34 of the Science and Engineering Equal Opportunities Act (42 U.S.C. 1885a, 1885b).

2. Describe the recruitment activities: CSU is a part of the Colorado Louis Stokes Alliance for Minority Participation (CO-AMP). This program's purpose is to attract and prepare minority population students for careers in Science, Technology, Engineering, and Mathematics (STEM). Within the College of Veterinary Medicine and Biomedical Sciences (the home college for our department) there is the RADAR program (Recruitment, Advising, Diversity, and Retention) that also seeks to increase student population diversity and the number of under-represented students in the department.

The health physics program has undertaken specific recruiting activities in addition to the university and college activities. These activities include, but are not limited to:

- 1. Health physics faculty and graduate students visit and give presentations at undergraduate programs in other schools to increase awareness of our health physics program and discuss graduate school opportunities in health physics. During the 2007-2010 school years, multiple presentations were made at the University of Northern Colorado, Fossil Ridge High School and Poudre High School. Presentations were made at the health professions day for minorities in 2007, 2008, 2009 at the University of Colorado in Denver and at CSU. These presentations showcase the opportunities available for minorities in health physics, along with highlighting the unique aspects of the CSU health physics program.*
- 2. CSU has obtained a booth at the Health Physics Society Annual meeting in 2007, 2008, and in 2009 for the express purpose of recruiting, and hosts an alumni reception at this meeting as well. Our goal is to attract well qualified individuals via our extensive alumni network.*
- 3. CSU initiated the first online Health Physics Board (CHP) Review Class in the United States in 2006 to raise awareness of the program among those interested in advancing professionally and to attract those with ambitions of obtaining an advanced degree.*
4. The health physics program website, <http://www.cvmb.colostate.edu/erhs/healthphysics.htm>, includes class syllabi, the CSU Student Branch of the Health Physics Society webpage, and details on the program which are continuously updated.
5. CSU has implemented a "Track III" program. This unique program identifies outstanding students as undergraduates, and provides a means for these students to obtain both their BS and MS degrees in five years.

Our health physics recruiting program is not static. We are constantly evaluating our current practices and seeking new means of attracting superior students that are representative of the population of the United States.

3. Describe the selection process: The minimum cumulative undergraduate GPA for consideration is 3.0/4.0, while fellowship recipients will typically have 3.6/4.0 or better. The candidate's three letters of recommendation and statement of purpose are also reviewed and an assessment is made based upon academic skills, work experience, financial needs, and overall qualifications.

In 2007 we initiated tracking of minorities with one minority currently in the program (American Indian) and one minority graduating in 2009 (Hispanic). Specific admission information is contained in Table 4 and 5. All MS students have completed the program in <24 months since 2007 (Table 6). This fellowship program will have a great impact on the number of students that will attend CSU. The main reason cited for students declining to attend is a lack of financial support.

State the management structure: Dr. Thomas E. Johnson, CHP, will serve as director of the training program in Health Physics. It is expected that 5% of his time will be spent providing direct support to the program's success and managing all the requirements. He will be assisted by core faculty listed in Table 7. CSU is in the process of hiring an additional faculty member in health physics, with an anticipated start of Fall, 2010.

Compliance monitoring in accordance with the NRC guidelines are already in place based on our 2007-2009 award from the NRC (NRC-38-07-701). Each advisor is required to meet with students at least once per semester to discuss their progress, ensure their GPA is 3.3/4.0 or higher, and document this in the student's portfolio. Semiannual progress reports will be submitted directly to the NRC Project Manager electronically beginning 6 months after the project's start date, which will coincide with the end of each semester.

Table 4. Summary of 2009-2010 Health Physics applications and admissions 2009

Admissions to HP program	Female	Male
Admitted	4	5
Denied	6	6
Accepted, declined to attend	2	2

Table 5. Male/Female Health Physics MS Graduate Program

Year	Female	Male
2005	0	2
2006	1	2
2007	4	2
2008	1	2
2009	4	5

Table 6. Program completion information Enrollment since ABET accreditation

Year	Graduates	Average GPA
2007	3	3.5
2008	3	3.67
2009	6	3.6

Table 7. Core Faculty in the Health Physics Training

Program Faculty	Primary Appointment	Area of Competence
Joel S. Bedford, Ph.D., Professor	ERHS	Radiobiology
Thomas B. Borak, Ph.D., Professor Emeritus, CHP	ERHS	Health Physics & Dosimetry
Joseph F. Harmon, Ph.D., Asst. Professor, ABR	ERHS	Medical Physics
Shawki Ibrahim, Ph.D., Professor Emeritus	ERHS	Radiochemistry
Thomas E. Johnson, Ph.D.,	ERHS	Health Physics

Asst. Professor, CHP F. Ward Whicker, Ph.D., Professor Emeritus	ERHS	Radioecology, risk assessment
John D. Zimbrick, Ph.D., Professor	ERHS	Health Physics & Radiobiology

4. Identify an evaluation plan: Student tracking will be achieved as part of our overall existing ABET process, which requires a minimum of one meeting per semester. Our existing program also requires tracking students at 2 years and 5 years post-graduation using surveys. This process gives us the chance to obtain feedback, to improve our program and measure our program's impact in attracting, preparing and retaining students in the health physics profession. Alumni are periodically invited to return to CSU to give seminars that highlight what they have learned and how CSU's program fits into their current career. The HP Specialty Board of Directors provide direct feedback on the program regarding curriculum and course content. *We have already demonstrated that CSU can successfully fulfill all of the reporting and tracking requirements of this program based on our previous grant.* In 2007 CSU received a Fellowship Award (NRC-38-07-701) of \$9176. These funds were used to pay tuition for Margaret Cervera (Hispanic) for the 2007-2008 and 2008-2009 school years. She graduated with a 3.6 GPA in May 2009. Margaret was the President of the CSU Student Branch of the Health Physics Society, recipient of the Richard J. Burke Fellowship from the Health Physics Society, and was named a CSU International Presidential Fellow (2008-2009). During her summer internship, she co-authored "Radium Historical Items Catalog" with M.A. Buchholz at ORAU for the NRC. Margaret is currently employed at the NRC.

5. Schedule of tuition fees and other pertinent costs for students.

Table 8. Funding profile for Each Student for 2010-2011 School Year.		Totals
Expenses		
Personnel/Stipend		20,976.00
Fringe Benefits		965.00
Travel	3,000.00	
Books		500.00
Tuition		6,464.00
Fees		1,436.00
Health Insurance		1,000.00
Meeting Registration		200.00
Presentation Materials		100.00
Total		\$ 34,641.00

6. Fellowships as an element of a State or regional strategic plan: This fellowship program will be integrated with the Mountain and Plains Education and Research Center (MAP ERC) funded by the Centers for Disease Control/National Institute for Occupational Safety & Health. Health physics is an integral part of the MAP ERC long term strategic plan, with Drs. Borak and Johnson serving in key positions within the Center. The University of Colorado Denver, CSU, National Jewish Medical and Research Center, Denver Health and Hospital Authority and the University of New Mexico Health Sciences Center —have come together to provide graduate training, continuing education and outreach across a seven-state region in the area of occupational and environmental health and safety. The MAP ERC Goals are:

- To train future leaders in occupational and environmental health and safety (OEHS).
 - To implement interdisciplinary education in OEHS.
- To support applied and basic research projects that address emerging regional needs and the NIOSH NORA objectives.
 - To engage local communities in advancing OEHS in the region.
- To recruit and retain students, faculty, and professionals in OEHS who represent the diversity of the region.
- To identify and provide high impact and innovative continuing education in the region.

The MAP ERC has already demonstrated the strength of this collaboration by hosting a Uranium Technical Symposium in 2008, aimed at educating the public on the health and environmental aspects of uranium and uranium mining. In efforts to expand the knowledge base of students, the MAP ERC has funded annual trips since 2007 to tour a uranium mill and an ISL uranium mine. The MAP ERC serves as the host for online videos of our guest lecturers in health physics, such as Dr. Dan Strom and Dr. Luiz Bertelli. Featured female speakers in seminars that are open to the public include Ms. Mary Adams, Senior Project Manager at the NRC who spoke on the nuclear fuel cycle (2007). We have also featured Dr. Janet Johnson, CHP, speaking on the health physics of uranium mining (2009). Long term, the health physics portion of the regional alliance will contribute to the professional and public knowledge of radiation, uranium mining and milling and the uranium fuel cycle.

7. State any arrangements with other non-Federal entities: None currently approved

8. Institutions must require individual scholarship and fellowship students to accept the service agreement terms as defined in this FOA: All students accepting funding will sign the appropriate agreement documents.

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.”

2010 Scholarship and Fellowship Program Service Agreement

1. This service agreement is required for all student recipients of scholarships or fellowships (hereinafter referred to as the "recipient") funded by the U.S. Nuclear Regulatory Commission (NRC) through the University of _____.
2. This agreement confirms the recipient's obligations to maintain satisfactory academic progress and serve 6 months in nuclear-related employment for each year of academic support. The employment may be with NRC, other Federal agencies, State agencies, Department of Energy laboratories, nuclear-related industry, or academia in the recipients' sponsored fields of study.
3. The scholarship recipient must: (check here if scholarship)
 - a. remain matriculated in the degree program for the field of study for which the scholarship was approved,
 - b. maintain satisfactory academic progress in the recipient's field of study, as demonstrated by maintaining a 3.0 Grade Point Average both overall and within the recipient's major, and
 - c. maintain a course load of at least 12 credit hours per semester as a full-time student in good standing.
4. The fellowship recipient must: (check here if fellowship)
 - a. maintain a 3.3 GPA overall and within a field of study
 - b. maintain a course load of at least 12 credit hours per semester or be classified as a full time student
 - c. remain matriculated in a graduate degree program in a nuclear related area, preferably in the fields of Nuclear Engineering, Health Physics, and Radiochemistry.
5. If a recipient fails to maintain satisfactory academic progress, the scholarship or fellowship will be terminated and the recipient could be obligated to repay the NRC the full amount of the scholarship/fellowship.
6. If a recipient receives any subsequent scholarship(s) or fellowship(s) through this program, the service obligation periods will be consecutive.
7. At the discretion of the NRC, the service obligation period may be delayed to allow the recipient to continue a subsequent degree program immediately following that sponsored under this program. For example, a recipient who receives a fellowship to earn a Master's degree, may request and be permitted to delay fulfilling their service obligation until after they complete a subsequent terminal degree program. Any such requests must be made to the NRC before a student enrolls in a subsequent degree program. If a student enrolls in a subsequent degree program before or without NRC approval, and the NRC does

not subsequently approve the request, the NRC will not be held liable for any expenses incurred to dis-enroll, or for failure to otherwise meet the terms of this service obligation. Recipients only incur a service obligation for funded periods of study.

8. If the student receives no employment offers or does not accept any of the offers received, the student is not relieved of the service obligation, unless, pursuant to this service agreement, the student applies for and receives a waiver from the NRC. Implicit in the waiver request is data or explanation by the student that efforts to secure employment in a nuclear-related field were undertaken. This can be in the form of job searches, referrals, etc. Absent a waiver from the NRC, rejection of one or more job offers could trigger the service agreement obligation.
9. If a recipient voluntarily leaves the employment during a period of obligated post-academic service, the recipient may immediately become liable to the U.S. Government for repayment of the entire amount of the assistance provided under the scholarship or fellowship, for which the service obligation has not been fulfilled.
10. The recipient employed by NRC understands that his or her last pay check and any lump sum payment for annual leave and other payment due on separation will be applied toward any unfulfilled service obligation without further notice. If the recipient's last pay check and any lump sum payment do not satisfy the debt, the recipient may pay the balance of the debt in full or set up a repayment plan.
11. By accepting this scholarship/fellowship, I agree to provide the NRC with current contact information (address, telephone, email), and employment information, subject to the provisions of the Privacy Act, for as long as I remain under obligated service. This information will be used solely for the purposes of verifying appropriate nuclear related employment in compliance with the service obligation requirements of this service agreement. In accordance with the Privacy Act, providing this information is voluntary; however, failure to do so may result in removal from the scholarship/fellowship program and/or repayment of all scholarship/grant money received. Contact information should be reported to: eduscholar@nrc.gov.
12. By signing this agreement, the recipient certifies that he or she has read this agreement and agrees to all of the obligations it entails.

Scholarship or Fellowship Recipient

Date

University Program Coordinator

Date

NRC Office of Human Resources

Date