U.S. NUCLEAR REGULATORY COMMISSION
NOTICE OF GRANT/ASSISTANCE AWARD

1. GRANT/AGREEMENT NO.	2. MODIFICATION NO.	3. PERIOD OF PERFORMANCE	4. AUTHORITY
NRC-38-10-933		FROM: 5/1/2010 TO: 4/30/2013	Pursuant to Section 31b and 141b of the Atomic Energy Act of 1954, as amended

5. TYPE OF AWARD	6. ORGANIZATION TYPE	7. RECIPIENT NAME, ADDRESS, and EMAIL ADDRESS
[X] GRANT [ ] COOPERATIVE AGREEMENT	Public State-Controlled Institution of Higher ED	Louisiana State University Department of Physics and Astronomy Louisiana State University Baton Rouge, LA 70803

8. PROJECT TITLE:
Nuclear Engineering Faculty Development Project

9. PROJECT WILL BE CONDUCTED	10. TECHNICAL REPORTS ARE REQUIRED	11. PRINCIPAL INVESTIGATOR(S) NAME, ADDRESS and EMAIL ADDRESS
PER GOVERNMENT'S/RECIPIENT'S PROPOSAL(S) DATED See Program Description AND APPENDIX A-PROJECT GRANT PROVISIONS	[X] PROGRESS AND FINAL [ ] FINAL ONLY [ ] OTHER (Conference Proceedings)	Louisiana State University Attn: Dr. Michael L. Cherry Chairman, Dept of Physics and Astronomy Email: cherry@lsu.edu 225-578-2262

12. NRC PROGRAM OFFICE (NAME and ADDRESS)	13. ACCOUNTING and APPROPRIATION DATA	14. METHOD OF PAYMENT
NRC Attn: John Gutteridge Office of Human Resources MS: GW5A6 (301) 492-2313 11545 Rockville Pike Rockville, Maryland 20852	APPN. NO: 31X0200 B&R NO: 0-8415-5C1115 JOB CODE: T8460 BOC NO: 4110 OFFICE ID NO: RFPA: HR-10-933	[ ] ADVANCE BY TREASURY CHECK [ ] REIMBURSEMENT BY TREASURY CHECK [ ] LETTER OF CREDIT [X] OTHER (SPECIFY) Electronic ASAP.gov (See Remarks in Item #20 "Payment Information")

15. NRC OBLIGATION FUNDS		16. TOTAL FUNDING AGREEMENT		
THIS ACTION	$450,000.00	NRC	$450,000.00	This action provides funds for Fiscal Year in the amount of See Page Two
PREVIOUS OBLIGATION		RECIPIENT	$150,000.00	
TOTAL	$450,000.00	TOTAL	$600,000.00	

17. NRC ISSUING OFFICE (NAME, ADDRESS and EMAIL ADDRESS)

U.S. Nuclear Regulatory Commission
Div. of Contracts
Attn: Sheila Bumpass
Mail Stop: TWB-01-B10M
Rockville MD 20852

18.	19. NRC CONTRACTING OFFICER
Signature Not Required	Sheila Bumpass 5/1/2010 (Signature) (Date) NAME (TYPED) Sheila Bumpass TITLE Contracting Officer TELEPHONE NO. 301-492-3484

20. PAYMENT INFORMATION

Payment will be made through the Automated Standard Application for Payment (ASAP.gov) unless the recipient has failed to comply with the program objectives, award conditions, Federal reporting requirements or other conditions specified in 2 CFR 215 (OMB Circular A110).

21. Attached is a copy of the "NRC General Provisions for Grants and Cooperative Agreements Awarded to Non-Government Recipients.
Acceptance of these terms and conditions is acknowledged when Federal funds are used on this project.

22. ORDER OF PRECEDENCE
In the event of a conflict between the recipient's proposal and this award, the terms of the Award shall prevail.

23. By this award, the Recipient certifies that payment of any audit-related debt will not reduce the level of performance of any Federal Program.

TEMPLATE - ADM001 SUNSI REVIEW COMPLETE MAY 28 2010 ADM002

ATTACHMENT A - SCHEDULE

A.1 PURPOSE OF GRANT

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

A.2 PERIOD OF GRANT

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

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

A. GENERAL

1. Total Estimated NRC Amount:	$450,000
2. Total Obligated Amount:	$450,000
3. Cost-Sharing Amount:	$150,000
4. Activity Title:	Nuclear Engineering Faculty Development Project
5. NRC Project Officer:	John Gutteridge
6. DUNS No.:	075050765

B. SPECIFIC

RFPA No.:	HR-10-933
FFS:	N/A
Job Code:	T8460
BOC:	4110
B&R Number:	0-8415-5C1115
Appropriation #:	31X0200
Amount Obligated:	$450,000

A.3 BUDGET

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

	Year 1	Year 2	Year 3
Direct Participant Cost	$101,351.00	$101,351.00	$101,351.00
Indirect Cost	$48,649.00	$48,649.00	$48,649.00
NRC Yearly Total	**$150,000.00**	**$150,000.00**	**$150,000.00**

All travel must be in accordance with the Louisiana 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 $450,000 for the three year period.

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

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

Attachment B – Program Description

PROGRAM DESCRIPTION

B.1 Background and Introduction

This proposal for Faculty Development support builds on two recent grants from NRC for 1) Curriculum Development and 2) Undergraduate Scholarships for Nuclear Engineering and Health Physics. LSU is in the process of establishing a Nuclear Power Workforce Development Program (NPWD) together with Entergy and The Shaw Group via financial contribution, joint research projects, student internships, and participation in the program's Advisory Committee. In order to provide the critical mass of faculty needed for the long term health and viability of the program, this proposal requests support to recruit and hire two new junior faculty in Health Physics. They will teach fundamental and advanced courses required for our Nuclear Engineering and Health Physics students, perform research, mentor and advise students, and be integral contributors to the new NPWD program.

Nuclear Science and Engineering education at LSU dates back to 1958. For more than 40 years, LSU offered graduate degrees in Nuclear Engineering (NE), Health Physics (HP), and Medical Physics (MEDP), with nearly 200 graduates in NE and HP alone during this period. In 1999, low enrollment led to the NE component being suspended and the HP program refocused to medical radiation safety as part of the Medical Physics Program in Physics & Astronomy. Since the effective phase-out of LSU's Nuclear Science and Engineering program, a regional void has developed with respect to nuclear education in the Gulf Coast area. The closest related program is at Texas A&M. All others are based well to the north and east. The recent increase in public support of nuclear energy and the anticipated resurgence of nuclear power have motivated LSU, Entergy, and The Shaw Group to provide resources towards developing renewed academic programs in both Nuclear Engineering and Health Physics with emphasis on nuclear power generation. The goal is to establish an interdisciplinary educational program that will supply graduates immediately marketable and valuable to industry while satisfying Louisiana's and the nation's need for highly trained nuclear professionals.

Our current MEDP program, with roots in our former Nuclear Science and Engineering curriculum, still covers many of the fundamental courses relevant to both HP and NE. Additional courses from our former NE and HP curricula are still listed in the LSU catalog but currently not taught due to lack of faculty. These fundamental courses can support the renewed NE and HP programs with appropriate updates in content and little need for new administrative approvals. The Faculty Development program proposed here is part of the overall NPWD program, a joint Physics & Astronomy (P&A)/Mechanical Engineering (ME) effort that will leverage current courses taught in the MEDP program with Nuclear Science courses in the catalog that will be revitalized and newly offered. The first courses will be taught in Spring 2010, with the goal eventually to graduate 30 students per year trained to take jobs in the nuclear industry.

Sustaining both the HP and NE components in the long term requires several steps. The

first step is to support the HP component through this proposal by providing resources for two new Health Physics faculty positions. This will provide the basic manpower necessary to offer and sustain an undergraduate concentration in Health Physics, an MS degree with thesis in HP, and in the long run a related PhD degree. Faculty hires will also be initiated in Nuclear Engineering via newly created positions in the Mechanical Engineering Dept. The first of these positions will be filled in 2010. A separate proposal to the NRC during the next funding cycle will then request support for two additional NE hires to ensure longevity of the program in ME.

B.2 Faculty Development Program for Two Assistant Professors in Health Physics

This proposal requests support for the recruitment and retention of two new tenure-track faculty who will teach courses, mentor and guide students, and establish active research programs in Health Physics. Tenure will reside in Physics & Astronomy, which has the support structure and existing research and teaching expertise in key areas of Health Physics. The new faculty will complement existing HP expertise in the Department in both research and teaching and strengthen our capability in areas related to nuclear energy. They will be expected to develop vigorous research programs and teach one course per semester. Our ultimate goal is not only to sustain our HP program for the long term, but also to become nationally accredited by ABET.

Under the current NRC-funded Curriculum Development program, we are establishing an undergraduate and MS program in nuclear power-related HP. Table 1 lists the existing courses in Health Physics, including those that are currently under development, and illustrates the relation between the existing HP-MEDP and the NE curriculum. (The full list of new NE courses is being developed by the Mechanical Engineering faculty and is not included here. The courses labeled as NE in Table 1 are those taught by P&A that are required for the new NE curriculum.) Courses designated MEDP are currently taught by P&A, and are part of the HP-MEDP curriculum. Courses designated NS are being re-developed.

B.2.1 Research Environment and Targeted Areas of Specialization

The Physics Department is a designated Center of Excellence at LSU. Major research programs include Astronomy/Astrophysics/Space Science, Condensed Matter/Materials Science, Health & Medical Physics, High Energy/Nuclear Physics, and Optics/Atomic Physics/Quantum Physics. The total number of faculty exceeds 50, with one being a member of the National Academy of Sciences. The Health & Medical Physics Program, which is being expanded to include nuclear power-related Health Physics, is nationally accredited in Medical Physics with an emphasis on medical imaging and cancer therapy. Current research interests in this group have high affinity and overlap with core Health Physics research areas: Auger dosimetry, detector development, radiation biology, and aerosol transport. Research in Nuclear Physics (measurements of the decay heat from fission fragments relevant to advanced reactor fuel cycle designs) and Astrophysics (gamma ray imaging/radiation detector development) is also closely related.

In order to establish a viable full-featured program, we plan to hire two additional faculty in the areas of internal dosimetry, radiation detector development, and/or nuclear physics related to reactor and/or advanced fuel cycle design. Internal dosimetry is a core Health Physics subject: Nuclear facilities produce airborne radioactivity, and dosimetry of inhaled and ingested radioactivity permits assessment of the facility's safety, which is related to the design and construction of the entire plant. A faculty member in this area would also have a synergistic relation with our Medical Physics faculty who are studying Auger dosimetry and radiation transport on a microscopic scale. Detector development and basic nuclear physics are applicable to reactor design and operation (e.g., measurement of actinide concentrations in a fuel reprocessing facility) and also, owing partly to the global expansion of nuclear energy, to

nuclear non-proliferation, nuclear safeguards, and security technology. Faculty hires in these areas would complement existing expertise and capabilities in the Department while providing the needed manpower to teach related Health Physics courses and direct research theses.

B.2.2 Infrastructure to Support Research and Teaching

The LSU Nuclear Science Center maintains substantial infrastructure for supporting NE and HP instruction including wet laboratories rated for nuclear- and radiochemistry, radiation biology, and aerosol dispersion; a subcritical assembly equipped with 126 metallic uranium natural enrichment fuel rods and a number of 252Cf sources; specialized neutron detectorst'He, BF3, fission chambers, and activation foils); and counting labs with solid state alpha particle detectors, alpha-beta-gamma proportional counters, HpGe and Nal(TI) detectors, auto-gamma and liquid scintillation counters, TLD readers, and associated nuclear electronic modules and computerized spectrometers. Irradiation capabilities include a Shepherd self-contained 5000 Ci 60Co irradiator, a 2000 Ci pool-type 60Co irradiator where heavy section materials and animals can be irradiated, an Eberline 137CS calibrator with a variety of source strengths, and 252Cf and PuBe neutron sources.

Faculty who require high-performance computation have access to -100 teraflops of computational capacity within LSU, and faculty with interest in low-energy X-ray interactions, dosimetry, and radiation biology have access to a 1.6 GeV synchrotron facility at the Center for Microstructures and Devices (CAMD). Currently, a number of Medical Physics faculty are performing research here using its 40 keV beamline for microdosimetry and radiation biology.

B.2.3 Research and Career Development at LSU

Salary, startup package, space, program reputation, infrastructure, research environment, and mentoring support are all important for the successful recruitment and retention of faculty. In addition, the new faculty's specialized research area must be in line with current and future trends in the field. The Physics Department puts an emphasis on each of these factors, recruits carefully, provides the needed support, and mentors its junior faculty in order that they will be successful. Over the last 15 years, §!! tenure-track assistant professors in the Department eventually received tenure and promotion.

The State of Louisiana has several programs providing opportunities to junior faculty to help them become nationally competitive in research. The Board of Regents offers annual seed funding opportunities for junior faculty that typically provide $150K-$200K over three years with a reduced indirect cost rate. LSU provides additional opportunities including grant writing workshops and several grant programs specifically targeting junior faculty.

The Physics & Astronomy Department has a structured junior faculty mentoring program.

When a new assistant professor arrives, a mentoring committee is established that regularly reviews (usually twice a year) the progress of the junior faculty member in terms of teaching, research, and service. Strengths, weaknesses, and opportunities are assessed and the new assistant professor is advised accordingly. A formal report is provided to the department chair (the PI of this proposal), and the chair meets formally at least once a semester with each assistant professor in addition to frequent informal meetings and discussions.

Beyond direct financial contribution, the program's industrial leveraging will also be an asset for the new faculty. A library of HP educational materials has been offered by Entergy, which will assist in developing effective and modern teaching programs. Internships and cooperative research/consulting opportunities will provide ideas and problems of practical interest that may

fuel the new hires' research, and give them industrial experience to transfer into the classroom. 83. Space and Startup Funds for New Faculty. Office space for the new hires will be provided by P&A, which has its own building on the LSU campus. Laboratory space will be provided in the LSU Nuclear Science Center building, which also belongs to P&A.

Startup funds will be provided from LSU's Office of Research and Economic Development (ORED), P&A, and Entergy. Entergy has already contributed $100K to this program, and a continuing contribution is being negotiated. ORED and P&A commit to provide the remainder of the startup costs, but since the amount of these additional funds is not known and will be negotiated at the time of hiring, this is not listed in the budget as a formal cost match.

B.3 Selection of New Faculty

A search committee will be formed as soon as funding of the proposal is confirmed, chaired by a senior faculty member from the Health & Medical Physics or Nuclear Physics group. Three more Physics faculty (including the PI, who also serves as department Chair), a representative of the NPWD External Advisory Committee, and an ME faculty member from the Nuclear Engineering program will also serve on the search committee.

The positions will be advertised in the relevant professional journals, newsletters, and on- line services (e.g., HPS online-bulletin, ANS and APS placement services). Advertisements will be sent to all HP Departments or Programs and NE Departments with active PhD Programs listed in the HPS and ANS Educational Sourcebooks, national laboratories employing doctoral-level Health Physicists and researchers (e.g. INL, ORNL, LANL), and nuclear industry R&D divisions. The search committee members will also use personal contacts to elicit referrals.

Selection criteria will include a doctoral degree in Health Physics, Nuclear Engineering with HP specialization, or other relevant area of Physics with appropriate experience, and a proven record or ability to teach the required courses, mentor students, and develop a viable research program. Prior postdoctoral, industry, or government experience will be required.

The search process will start as soon as the award is confirmed. The budget allows for hiring as early as January 2011, but if suitable candidates cannot be identified that early, we will wait until we have found appropriate high quality candidates (hopefully no later than Fall 2011).

B.4 Management Structure and Administration

The HP program will be part of the Health & Medical Physics Program in Physics & Astronomy, and the new faculty's tenure will reside there. Beyond the normal academic and departmental administrative structure, administration of the Program will be managed through the Health Physics Program Committee in cooperation with the NPWD External Advisory Committee and the P&A Medical Physics Committee.

The Health Physics Committee will administer the program, define future directions, respond to changing environments and challenges, satisfy reporting requirements to the NRC, measure the project's impact in research accomplishments and in attracting, preparing, and retaining students, evaluate and ratify the selection of students for scholarships and fellowships, and monitor the students' progress through the program. This committee will be chaired initially by the PI of this proposal and will have six additional members: liaisons to the Nuclear Engineering and Medical Physics Programs, three faculty from P&A (including two from the HP program), and a member of the NPWD External Advisory Committee (EAC).

The -EAC is currently being formed, with industry representatives (Entergy, Shaw) and

academic peers as invited members. This committee's role is to advise the NPWD program on curriculum, internships, and co-ops, new faculty research areas, new faculty recruitment, and accreditation. This committee will also recommend representatives to departmental committees for student and faculty recruiting (e.g., the faculty search committee), mentoring, and evaluation.

B.5 Program Evaluation

A formal program evaluation component will assess 1) the effectiveness of the NRC-sponsored project in attracting, preparing, and retaining successful faculty and 2) preparing students for careers in the nuclear industry. LSU is presently engaged in a major university-wide upgrading of its assessment programs; we will rely on existing evaluation mechanisms and incorporate our assessment into the university's and department's new and expanded formal assessment program. An ongoing evaluation and re-assessment program will be the joint responsibility of the Health Physics Committee and the P&A Department Assessment Committee. The overall effectiveness of the HP and NPWD programs will be evaluated based on the success in recruiting new faculty by at least Fall 2011; faculty productivity measured primarily by peer reviewed publications and grant activity; joint industry-faculty research/consulting activity; success of the new faculty in the tenure process; success in recruiting students into the program; internship/coop opportunities for students; graduation rate of students; and employment of students in the nuclear industry. Important feedback will be gained from actively keeping in touch with our graduates and inviting them to tell us after they have left LSU how well their training prepared them for their work.

At an individual level, the Physics Department uses student feedback at the conclusion of each course for monitoring and continually improving course quality and effectiveness, and in order to provide feedback to faculty members so that they can improve their classroom performance and methods. In addition, the Health & Medical Physics Program Director conducts personal interviews with randomly selected students from each course at the end of the term. For junior faculty, the department chair and/or a member of the mentoring committee attends a number of the assistant professor's classes, with his or her consent, and provides feedback and suggestions as part of the regular mentoring process. In addition, P&A has an established formal evaluation process for each faculty member at the end of each academic year. The faculty member provides an annual written record of assignments and accomplishments. The chair then provides a written evaluation for each faculty member based on the faculty member's teaching, research, and service which becomes part of the permanent record. The evaluation is finalized through an interview during which the performance, interests and future goals of the faculty member are discussed and during which suggestions are made from both parties.

B.6 Additional Support

Leveraging. and Institutional Commitment. The program benefits from leveraging from 1) direct cash contributions to the NPWD program by Entergy on a yearly basis, 2) cash and in-kind contribution by LSU, and 3) leveraging of existing courses from the MEDP curriculum and Nuclear Science and Engineering course structure.

Entergy has committed to providing an initial $250,000 to LSU, of which $100,000 is identified for the HP Program. Additional funds are currently being negotiated. The initial Entergy letter of commitment to the program is included in Section G. A news article about the contribution can be found at http://www.2theadvocate.com/news/73189127.html. Beyond direct monetary support, both Entergy and Shaw will provide educational materials, expert personnel to assist with teaching and to serve on the NPWD Advisory Committee, internship and

employment opportunities, and opportunities for joint research and consulting projects.

The Vice Chancellor for Research and Economic Development and P&A have committed significant university resources for the program. Matching funds of $50,000 per year are included officially in the budget for this proposal. Finally, we have recently received confirmation that $1 million will be made available to the program by ORED to refurbish and renovate the Nuclear Science Building and support startup expenses for the new faculty; these are not listed in the budget because the exact amount must be negotiated when the new faculty are hired.

The College of Engineering has made available a faculty position for an NE hire (W. Williams) who will teach the initial NE courses in Spring 2010. As a next step in this joint Physics-Engineering program, a proposal will be submitted next year for two additional NE faculty in Mechanical Engineering. Also in ME, a new undergraduate minor in Nuclear Engineering is in the process of being approved. Approval is expected early in Spring 2010.

Since many of the courses in the NE curriculum, currently being developed by ME, rely on core courses taught by HP faculty (See Table 1), P&A will offer Fundamentals of Nuclear Radiation Science and Nuclear Facility Safety in Fall 2010 using a combination of internal LSU funds and grant support from the NRC Curriculum Development program.

The curriculum of the new HP degree relies substantially on existing MEDP courses, as outlined in section B.2 and Table 1. These courses grew out of our old Nuclear Science and Engineering suite of courses. Those adapted for the new HP curriculum represent fundamental radiation and nuclear science topics plus nuclear facility safety topics that have undergone changes to reflect the state of the art. Courses to be taught by the newly recruited faculty are in the LSU General Catalog, and do not need special approval to be revived. Therefore the new faculty will not need to spend time on administrative work for the approval of these courses, and can begin teaching these courses immediately.

To summarize, the joint Physics-Mechanical Engineering NPWD program is moving forward, ready to accept and train new students, broadly supported by LSU and its industry partners, and ready to begin recruiting the new faculty it needs for long term success and sustainability.

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 CRF 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:

Faculty Development Awards

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

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

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

Subgrants
Appendix A to Part 215—Contract Provisions

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

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

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

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

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

Modifications/Prior Approval

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

Lobbying Restrictions

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

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

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

§ 215.13 Debarment And Suspension.

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

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

(2) Have been convicted within the preceding three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or

destruction of records, making false statements, tax evasion, receiving stolen property, making false claims, or obstruction of justice; commission of any other offense indicating a lack of business integrity or business honesty that seriously and directly affects your present responsibility;

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

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

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

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

'Debarment, Suspension, Ineligibility, and Voluntary Exclusion

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

Drug-Free Workplace

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

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

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

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

Procurement Standards. § 215.40

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

Travel

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

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

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

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

Equipment procedures shall follow provision established in 2 CFR 215.34.

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

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

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

Patent Notification Procedures- Pursuant to EO 12889, NRC is required to notify the owner of any valid patent covering technology whenever the NRC or its financial assistance Grantees, without making a patent search, knows (or has demonstrable reasonable grounds to know) that technology covered by a valid United States patent has been or will be used without a license from the owner. To ensure proper notification, if the Grantee uses or has used patented technology under this award without license or permission from the owner, the Grantee must notify the Grants Officer. This notice does not necessarily mean that the Government authorizes and consents to any copyright or patent infringement occurring under the financial assistance.

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

otherwise use the work or authorize others to receive, reproduce, publish or otherwise use the data for Government purposes.

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

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

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

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

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

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

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

c. The Grants Officer will promptly acknowledge receipt of the request for review and shall forward it to the Director, Office of Administration, who shall appoint a review committee consisting of a minimum of three persons.

d. Pending resolution of the request for review, the NRC may withhold or defer payments under the award during the review proceedings.

e. The review committee will request the Grants Officer who issued the notice of termination or adverse action to provide copies of all relevant background materials and documents. The committee may, at its discretion, invite representatives of the Grantee and the NRC program office to discuss pertinent issues and to submit such additional information as it deems appropriate. The chairman of the review committee will insure that all review activities or proceedings are adequately documented.

f. Based on its review, the committee will prepare its recommendation to the Director, Office of Administration, who will advise the parties concerned of his/her decision.

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

Monitoring and Reporting § 215.51

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

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

b. **Federal Financial Reports**

Effective October 1, 2008, NRC transitioned from the SF–269, SF–269A, SF–272, and SF–272A to the Federal Financial Report (SF-425) as required by OMB:
http://www.whitehouse.gov/omb/fedreg/2008/081308_ffr.pdf
http://www.whitehouse.gov/omb/grants/standard_forms/ffr.pdf
http://www.whitehouse.gov/omb/grants/standard_forms/ffr_instructions.pdf

The Grantee shall submit a "Federal Financial Report" (SF-425) on a 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 herby 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 form 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."