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

1. GRANT/AGREEMENT NO.	2. MODIFICATION NO.	3. PERIOD OF PERFORMANCE	4. AUTHORITY
NRC-HQ-11-G-38-0042		FROM: 8/22/2011 TO: 8/31/2012	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 DUNS: 790934285 NAICS: 611310	University of Maryland 3112 Lee Building College Park, MD 20742

8. PROJECT TITLE:
Course Modules in Non-Destructive Evaluation of Reactor Systems

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)	University of Maryland Department of Materials Science and Engineering Attn: Professor Aris Christou Email: Christou@eng.umd.edu 301-405-5208

12. NRC PROGRAM OFFICE (NAME and ADDRESS)	13. ACCOUNTING and APPROPRIATION DATA	14. METHOD OF PAYMENT
NRC Attn: Tanya Parwani-Jaimes Office of Human Resources MS: GW5A06 (301) 492-2308 11545 Rockville Pike Rockville, Maryland 20852 Email:	APPN. NO: 31X0200 B&R NO: 2011-84-51-K-134 JOB CODE: T8453 BOC NO: 4110 OFFICE ID NO: RFPA: HR-11-274 FAIMIS: GR0063	[ ] 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	$109,500.00	NRC	$109,500.00
PREVIOUS OBLIGATION		RECIPIENT	
TOTAL	$109,500.00	TOTAL	$109,500.00

This action provides funds for Fiscal Year in the amount of See Page Two

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

U.S. Nuclear Regulatory Commission
Div. of Contracts
Attn: Shashi Malhotra Email: Shashi.Malhotra@NRC.GOV
Mail Stop: TWB-01-B10M
Rockville MD 20852

18.	19. NRC CONTRACTING OFFICER
Signature Not Required	Sheila Bumpass (Signature) 8/22/2011 (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.

SUNSI REVIEW COMPLETE

TEMPLATE - ADM001

ADM002

ATTACHMENT A - SCHEDULE

A.1 PURPOSE OF GRANT

The purpose of this Grant is to provide support to the "University of Maryland – Course Modules in Non-Destructive Evaluation of Reactor Systems Program" as described in Attachment B entitled "Program Description."

A.2 PERIOD OF GRANT

1. The effective date of this Grant is August 22, 2011. The estimated completion date of this Grant is August 31, 2012.

2. Funds obligated hereunder are available for program expenditures for the estimated period: August 22, 2011 – August 31, 2012.

A. GENERAL

1. Total Estimated NRC Amount:	$109,500.00
2. Total Obligated Amount:	$109,500.00
3. Cost-Sharing Amount:	$0.00
4. Activity Title:	Course Modules in Non-Destructive Evaluation of Reactor Systems Program
5. NRC Project Officer:	Tanya Parwani-Jaimes
6. DUNS No.:	790934285

B. SPECIFIC

RFPA No.:	HR-11-274
FAIMIS:	GR0063
Job Code:	T8453
BOC:	4110
B&R Number:	2011-84-51-K-134
Appropriation #:	31X0200
Amount Obligated:	$109,500.00

A.3 BUDGET

Revisions to the budget shall be made in accordance with Revision of Grant Budget in accordance with

	Year 1
Personnel	$ 51,969.00
Fringe Benefits	$ 15,591.00
Supplies	$ 5,440.00
Indirect Charges	$ 36,500.00
Yearly Total	**$109,500.00**

A.4 AMOUNT OF AWARD AND PAYMENT PROCEDURES

1. The total estimated amount of this Award is $109,500.00 for the one year period.

2. NRC hereby obligates the amount of $109,500.00 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

I. Course Modules:

Instruction material will be developed aimed at understanding the non destructive analysis necessary for assessing multiple-layer safety systems for deep repository for highlevel nuclear waste, as well as pressure vessels within reactor systems. The teaching tool will be the copper canister, which consists of the iron cast insert for withstanding mechanical loads and the copper shell for preventing the contact of the radioactive waste with the environment. This then becomes an ideal tool for understanding NDT test parameters. To guarantee the integrity of the canister, it must be examined by non-destructive testing methods. We will also teach reliability statistics. Such methodologies are necessary since the assessment of the total reliability of the deposit system, the size of the defect that is detected with 90% probability and 95% confidence, has to be determined. This defect size is also called a90/95.

The copper shell consists of two components. The copper lid is welded by electron beam welding to the copper overpack. Before the canister can be stored in the final depository, it is required that critical defects inside the weld, that might endanger the function of the canister, be detected. To make sure that all defect types will be detected, inspections with four different non-destructive methods will be taught as part of this NDT courses: ultrasonic, radiographic, visual and eddy current method. At least one of the NDT methods should be able to detect the occurring critical defect.

The evaluation of the testing process is split into three phases. During the first phase the NDT system is tested against laboratory induced reference defects, which have a similar structure as the real defects. The next stage includes the intentional creation of defects by systematically changing the welding parameters. The methodology for carrying out such experiments will be taught within the new courses.

I. Defect Detectability

We will cover detectability through an on-line test experiment, using our proposed web assisted virtual laboratory. For this part of the course we will test a series of actual copper EB welds using four different methods- visual (optical) testing, eddy current testing, ultrasonic testing and radiographic testing. Defect indications can then be divided into either surface or volumetric, positioned and size distributions determined. The students will select the size distributions by

using the different NDT techniques. The students will create 2D and 3 D defect images and using image slices will create 3D panoramic views. This panoramic image will be evaluated by the software developed specifically for this course at the University of Maryland. The sizing capability will be studied as well as the detectability.

II. Metallurgical considerations and procedures

Non-destructive testing (NDT) analysis is a very important tool to the nuclear reactor safety community. This type of testing allows one to accurately analyze and evaluate components in a reactor system passively, which allows for on-the-fly monitoring. This type of testing is necessary for assessing the multiple-layer safety systems that are abundant in deep repository high-level nuclear waste storage facilities, as well as the pressure vessels within reactor systems. The representative teaching tool used for students who will be a part of this course module will be a welded copper canister (representative of a canister which is used for nuclear waste storage). The integrity of this canister post welding will be determined using traditional destructive as well as NDT methods to build an experiment set to help students understand and learn how to use NDT analysis.

The representative copper shell consists of two components. The copper lid is welded by electron beam welding to the copper over-pack. Before the symbolic canister can be stored in the final depository, it is required that critical defects (which may occur inside the weld), that might endanger the function of the canister, be detected. Defects may occur as voids, in-homogeneity in the microstructure/chemistry of the weld, or residual stresses in the materials. Because defects often lead to premature failure of components, it is critical that the various defects be detected accurately and reliably. To do this, this course module will instruct students on the metallurgy of the representative system, evaluation procedures and techniques, and finally mitigation procedures for using the results obtained from NDT to prevent failures/defects in the future.

Whenever two metals (either similar or dissimilar) are joined together, the microstructure/chemistry of the weld can be quite different from either of the two base metals. The actual microstructure/chemistry is highly dependent upon the chemistry of the base metals, the microstructure of the base metals, the heat of welding, and the many other welding parameters used in the process. In turn, the mechanical properties of a welded material are highly dependent upon all these factors. So important consideration must be given to predicting and controlling a finished weld. The first part of this portion of the course module will provide an introductory explanation of the metallurgy involved with welding materials and how these metallurgical factors play a role in the mechanical behavior of a welded material. Metallurgical factors such as grain size, crystal structure, and phase chemistry all affect the mechanical properties of a material. This portion of the module will also contain a systematic study of a broad range of features and processes that can affect the outcome of a weld. To perform these studies, three different reference systems will be used: a single phase Cu-Cu weld, a two-phase α-β Ti weld, and a dissimilar metal weld. Using these three systems, the students will be able to see how different welding parameters result in different microstructural characterization. The characterization will be performed using both optical microscopy as well as scanning electron microscopy (SEM). In addition to microstructural changes observed, the module will also demonstrate how residual stresses may be present in a welded material and how these stresses affect the mechanical properties of the final product.

III Evaluation of welds

This portion of the module will focus on characterization of welds using both traditional destructive testing methods including sectioning of the weld and observations with SEM and optical microscopy, as well as non-destructive testing (NDT) methods such as ultrasonic imaging, radiography, eddy current analysis, and visual inspection. Preliminary studies using NDT methods will be carried out on pre-fabricated test specimens with known weld defects to help calibrate the equipment and familiarize the students with the process. By using controllable defects, the NDT methods can be highlighted for each of their strengths and weaknesses.

As mentioned earlier, the resulting welded material is highly dependent upon many microstructural and metallurgical processes. The accuracy of the NDT testing analysis is dependent upon a familiarity with the systems being tested. Once the students are familiar with how the various welding parameters will affect their finished product, they can have some basis for the type of defects that they may encounter. With a clear understanding of the metallurgical relationship between the base material and the welded material an experiment set can be built which would provide several various types of welded samples of the single-phase, two-phase, and multi-material welds. Each weld could then be analyzed using traditional and NDT methods.

The next portion of the evaluation section will be to determine a relationship between the destructive testing results and the NDT results. This relationship will then enable the students to determine the effect of welding parameters on the defects observed during NDT. For example, in the case of the Cu-Cu system, the grain size and size distribution of the welded area is much different than the base materials. For this specimen, the actual defects present as well as the microstructures are known from the destructive testing methods and these defects must be characterized and paired with the specific output given by an ultrasonic or radiograph tester. To properly calibrate the NDT systems, the evaluation process is split into three phases. In the first phase, the NDT systems are tested and calibrated against laboratory induced reference defects. In the second phase, the NDT systems are tested and calibrated against predictable weld defects from varied welding parameters and materials. In the final phase, the NDT systems are run on an unpredictable specimen and the results are compared to a destructive test to determine which NDT system is the most accurate for the type of testing involved. All of the methodology for carrying out these experiments will be taught as a part of this module.

Mitigation of Failure

The final component to the course module is to explore ways to use the knowledge and data obtained with NDT of various welds to build a portfolio on the best way to mitigate failure/defects in the welds of single-phase, two-phase, and multi-material welds. Various methods used to mitigate failure all involve controlling the final microstructure/chemistry of the well, as well as minimizing defects and residual stresses in the weld.
Methods used to mitigate weld failures can include pre-heating of the materials, selection of different/better filler metals, and selection of appropriate welding parameters. As part of the course module, the example of Ti-5111 (Ti-5Al-1Sn-1V-1Zr-0.8Mo) gas tungsten arc welds [1] will be used to demonstrate how to take NDT and destructive testing

results and use them to put into place an action plan which will mitigate a failure mechanism. This two-phase near-α alloy, when welded with a filler metal that has the same composition as the base metal (which one would assume would be an appropriate idea), would exhibit a significant increase in hardness and a significant decrease in ductility in the heat affected zone (HAZ). It was found that this increase in hardness was due to oxygen impurities present in the weld and a large prior-β grain size in the weld [1].

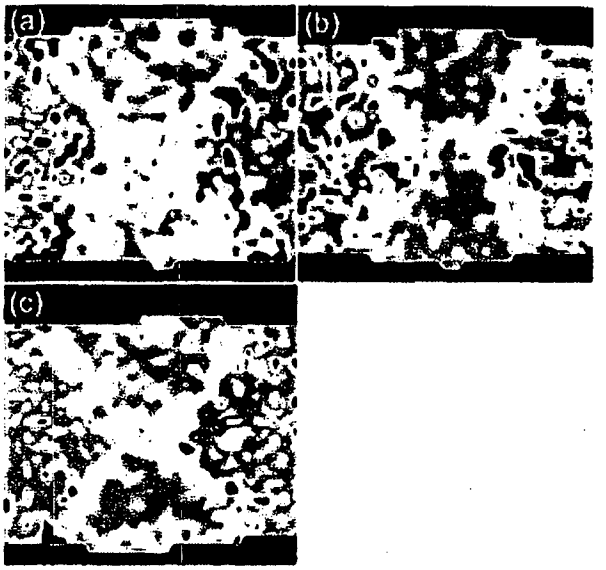

Figure 1: Microhardness maps of (a) Weld 0 (b) Weld 1 and (c) Weld 2 [1].

Titanium has always been understood to be a strong attracter of oxygen during welding and it is likely that oxygen is being picked up from impurities in the shield gas used during the GTAW process [1]. Oxygen may also diffuse towards the weld fusion zone (FZ) because of the thermal gradient created in the material when the weld is laid in. Increasing oxygen content is known to decrease the ductility of α and near-α titanium alloys. It is therefore an excellent example of how NDT may be used to test for oxygen rich welds that may prematurely fail during service. Additionally, the oxygen diffusion towards the FZ zone can have the additional effect of depleting the regions away from the FZ zone and leading to a softened base metal (BM). To mitigate this problem, the researchers gathered data on three different welded samples and microhardness maps were made of the fusion zones (Figure 1) of Weld 0 (matching filler metal), Weld 1 (modified 60 ppm yttrium filler metal), and Weld 2 (modified 268 ppm yttrium filler metal). In addition to yttrium's higher affinity for oxygen than titanium, yttrium has also been used in other alloy welds to improve the weld ductility. Vickers microhardness maps for Weld 0, Weld 1, and Weld 2 are shown in Figure 1 [1]. The microhardness maps show that the FZ is generally harder than the BM. The outer edge of the FZ and inner heat affected zone (HAZ) (warm colors) seem to be hardest, whereas relatively soft areas are evident in the outer-HAZ and BM (cool colors). This may be attributed to oxygen pick-up in the FZ, as the oxygen content increases moving from the BM, through the HAZ, to the FZ [1]. The hardness profile clearly becomes more uniform as the yttrium content increases (compare Figure 1a to Figure 1c), potentially because oxygen preferentially binds with yttrium rather than entering the titanium lattice [1].
From this exercise, it can be seen how NDT testing (by detection of oxygen) could be used to identify a potential problem with a weld, then mitigation procedures can be implemented without having to destructively sample in-service (and possibly well-executed) welds.

IV. *Probability of Detection*

We will teach techniques to reliably assess the integrity of components.To accomplish this, several factors must be taught. One important factor is the uncertainty in the determination of the relevant parameters for calculations. In recent years, this has led to increased efforts to include probabilistic analyses, and hence we will teach the necessary probability analysis techniques. Our techniques for teaching probability and probability of failure have been developed over the past twenty years, as part of reliability engineering program.

The probability of detection (POD) of NDT methods is an important supplement to the calculation of the probability of failure (POF) and the Physics of Failure (POF) in the form of additional uncertainties for parameters related to material quality (presence of flaws, flaw sizes, etc.). The POD and POF are affected by uncertainty variables such as material microstructure, geometry, choice of methods and techniques, as well as human factors such as personnel training and human capabilities.

For ultasonics or acoustic macroanalysis the proper choice of a suitable ultrasonic transducer is particularly important since the microstructure as well as phases present is comples in materials such as austenitic steel welds or superalloy welds.
In this course module we will present examples of ultrasonic inspection of a dissimilar metal weld with different test flaws: EDM notches and stress corrosion cracks. Considerable variations in the detection of the flaws usually are present depending on the different ultrasonic techniques and transducers used. In all cases human factors reliability will be factored in, especially when manual ultrasonic inspection is used. Based on the inspection results, the students will also learn the proper techniques for reporting the results to the various levels of management as well as to make recommendations for corrective actions.

Failure Mechanisms: The understanding of mechanical failure mechanisms of metals, and metal alloys are taught through hands on experiments and through problem solving. *Life Prediction- A Mechanistically Based Probability Approach:* Material aging is a principle cause for the aging of nuclear systems. We will teach methodologies capable of the following: (i) extrapolation beyond possible data, (ii) analysis of critical variable response, (iii) investigation into the reliability of components and (iv) life cycle management. Mechanistically based probability modeling provides the structure to meet this requirement. This course will emphasize the extension of this understanding at the materials level subsequent to NDE of defective sites to the analysis of reliability and safety at the system level.

V. *The Virtual Laboratory*
We will automate and accelerate the laboratory experience with a Surgient Virtual Lab Automation Platform. This is an easy-to-use, self-service virtual lab provisioning system, with the following advantages: (1) Provides a simple virtual lab application from a central on campus laboratory. We will offer virtual lab environments as a shared IT service to individual students & test teams. (2) Reduce costs – the laboratory infrastructure will be made available to an increased number of students at multiple locations. (3) Increase effectiveness - offer scheduled and on-demand experiments. *The Virtual Non-Destructive Testing Laboratory for Remote Delivery:* We will develop a NDT Virtual Lab which completely emulates a Ultrasonic tester and scanning electron microscopy.

VI. Course Module on Non Destructive Evaluation Applied to Corrosion

Stress corrosion is an important phenomenon which can affect the nuclear power industry in various forms; including high-level waste storage and reactor vessel internal components [2]. The loads can be static in nature leading to stress corrosion cracking or irradiation-assisted stress corrosion cracking (IASCC). The loads may also be dynamic in nature, leading to corrosion fatigue. A variation of static stress corrosion cracking is known as sustained-load cracking [2-4], where the presence of a corrosive environment can cause the diffusion of hydrogen towards crack tips, leading to crack propagation. Another important variation of static stress corrosion cracking is related to the combination of low temperature creep [3] enhanced by the environment.

The main aspects of this module include identification of various types of stress corrosion including stress corrosion cracking, corrosion fatigue, utilizing non destructive ultrasonic evaluation techniques. The aim of this module is to systematically describe various forms of stress corrosion cracking and corrosion fatigue signature so that correlation with NDE signatures may be attained.

In addition, the factors to be discussed will include: the effect of chemical composition of the alloys, the alloy microstructure, processing conditions (such as cold-work, welding, etc.), temperature, irradiation effects, and the effect of different types of environments. These same factors will be discussed under dynamic loading conditions, i.e. fatigue, including fatigue crack initiation and propagation. Being able to identify the effect of chemistry and microstructure of the alloys on susceptibility to stress corrosion is of great importance in selection of the alloys and processing conditions for optimal microstructures.

In summary, in this module, the prospective students will learn the classification of various types of failure due to stress corrosion, as well as the effects of such parameters as alloy chemistry, alloy microstructure, processing conditions, temperature, and irradiation on stress corrosion will be discussed. Further, they will learn how to identify various types of corrosion through non destructive evaluation and select materials to mitigate this type of failure in various nuclear reactor applications.

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 this URL to the Office of Management and Budget Cost Circulars is included for reference to:
A-21 (now 2 CFR 220)
A-87 (now 2 CFR 225)
A-122 (now 2 CFR 230
A-102:

http://www.whitehouse.gov/omb/circulars_index-ffm

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.

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 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

§ 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 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 VI 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 VI, 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's 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 should 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, 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, § 215.40-48
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 must be in accordance with the Grantee's Travel Regulations or the US Government Travel Policy and Regulations at: www.gsa.gov/federaltravelregulation and the per diem rates set forth at: www.gsa.gov/perdiem, absent Grantee's travel regulation. Travel costs for the grant must be consistent with provisions as established in Appendix A to 2 CFR 220 (J.53). All other travel, domestic or international, must not increase the total estimated award amount.

Domestic Travel:
Domestic travel is an appropriate charge to this award and prior authorization for specific trips are not required, if the trip is identified in the Grantee's approved program description and approved budget. Domestic trips not stated in the approved budget require the written prior approval of the Grants Officer, and must not increase the total estimated award amount.

All common carrier travel reimbursable hereunder shall be via the least expensive class rates consistent with achieving the objective of the travel and in accordance with the Grantee's policies and practices. Travel by first-class travel is not authorized unless prior approval is obtained from the Grants Officer.

International Travel:
International travel requires PRIOR written approval by the Project Officer and the Grants Officer, even if the international travel is stated in the approved program description and the approved budget.

The Grantee shall comply with the provisions of the Fly American Act (49 USC 40118) as implemented through 41 CFR 301-10.131 through 301-10.143.

Property and Equipment Management Standards
Property and equipment standards of this award shall follow provisions as established in 2 CFR 215.30-37.

Procurement Standards
Procurement standards of this award shall follow provisions as established in 2 CFR 215.40-48

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 and retain title 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 for this award shall follow OCOI requirements set forth in Section 170A of the Atomic Energy Act of 1954, as amended, and provisions set forth at 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 an intra-agency Appeal Board to review a grantee appeal of an agency action, if required, which will consist of the program office director, the Deputy Director of Office of Administration, and the Office of General Counsel.

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 215.60-62,

Monitoring and Reporting § 215.50-53

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 or deducted from the total project cost allowable cost as directed by the Grants Officer or the terms and conditions of award.
- Budget Revision – 2 CFR 215.25
    - The Grantee is required to report deviations from the approved budget and program descriptions in accordance with 2 CFR 215.25,and request prior written approval from the Program Officer and the Grants Officer.
    - The Grantee is not authorized to rebudget between direct costs and indirect costs without written approval of the Grants Officer.
    - The Grantee is authorized to transfer funds among direct cost categories up to a cumulative 10 percent of the total approved budget. The Grantee is not allowed

to transfer funds if the transfer would cause any Federal appropriation to be used for purposes other than those consistent with the original intent of the appropriation.

- Allowable Costs – 2 CFR 215.27

b. **Federal Financial Reports**

The Grantee shall submit a "Federal Financial Report" (SF-425) on a quarterly basis for the periods ending March 31, June 30, September 30, and December 31, or any portion thereof, unless otherwise specified in a special award condition. Reports are due no later than 30 days following the end of each reporting period. A final SF-425 is due within 90 days after expiration of the award. The report should be submitted electronically to: Grants_FFR@NRC.GOV. ***(NOTE: There is an underscore between Grants and FFR).***

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 should 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 may 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 on a semi-annual basis unless otherwise authorized by the Grants Officer. Performance reports should be sent to the Program Officer at the email address indicated in Block 12 of the Notice of Award, and to Grants Officer at: Grants_PPR.Resource@NRC.GOV. ***(NOTE: There is an underscore between Grants and PPR).***

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, or any portion thereof. The submission for the six month period ending September 30th is due by October 31st or any portion thereof.

d. 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:

Curriculum Development Awards

1. Overall number of new courses developed in NRC designated STEM areas;
2. Number of students enrolled in new STEM courses;
3. Number of these enrolled students retained in STEM major.

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 Leadership of Reducing Text Messaging While Driving
Pursuant to EO 13513, Grantees should encourage employees, sub-awardees, and contractors to adopt and enforce policies that ban text messaging while driving company-owned, rented vehicles or privately owned vehicles when on official Government business or when performing any work for or on behalf of the Federal Government.

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."

Trafficking In Victims Protection Act Of 2000 (as amended by the Trafficking Victims Protection Reauthorization Act of 2003)

Section 106(g) of the Trafficking In Victims Protection Act Of 2000 (as amended as amended, directs on a government-wide basis that:

"any grant, contract, or cooperative agreement provided or entered into by a Federal department or agency under which funds are to be provided to a private entity, in whole or in part, shall include a condition that authorizes the department or agency to terminate the grant, contract, or cooperative agreement, without penalty, if the grantee or any subgrantee, or the contractor or any subcontractor (i) engages in severe forms of trafficking in persons or has procured a commercial sex act during the period of time that the grant, contract, or cooperative agreement is in effect, or (ii) uses forced labor in the performance of the grant, contract, or cooperative agreement." (22 U.S.C. § 7104(g)).

Executive Compensation Reporting

2 CFR 170.220 directs agencies to include the following text to each grant award to a non-federal entity if the total funding is $25,000 or more in Federal funding.

Reporting Subawards and Executive Compensation.

a. *Reporting of first-tier subawards.*

1. *Applicability.* Unless you are exempt as provided in paragraph d. of this award term, you must report each action that obligates $25,000 or more in Federal funds that does not include Recovery funds (as defined in section 1512(a)(2) of the American Recovery and Reinvestment Act of 2009, Pub. L. 111–5) for a subaward to an entity (see definitions in paragraph e. of this award term).

2. *Where and when to report.*

i. You must report each obligating action described in paragraph a.1. of this award term to *http://www.fsrs.gov.*

ii. For subaward information, report no later than the end of the month following the month in which the obligation was made. (For example, if the obligation was made on November 7, 2010, the obligation must be reported by no later than December 31, 2010.)

3. *What to report.* You must report the information about each obligating action that the submission instructions posted at *http://www.fsrs.gov specify.*

b. *Reporting Total Compensation of Recipient Executives.*

1. *Applicability and what to report.* You must report total compensation for each of your five most highly compensated executives for the preceding completed fiscal year, if—

i. the total Federal funding authorized to date under this award is $25,000 or more;

ii. in the preceding fiscal year, you received—

(A) 80 percent or more of your annual gross revenues from Federal procurement contracts (and subcontracts) and Federal financial assistance subject to the Transparency Act, as defined at 2 CFR 170.320 (and subawards); and

(B) $25,000,000 or more in annual gross revenues from Federal procurement contracts (and subcontracts) and Federal financial assistance subject to the Transparency Act, as defined at 2 CFR 170.320 (and subawards); and

iii. The public does not have access to information about the compensation of the executives through periodic reports filed under section 13(a) or 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. 78m(a), 78o(d)) or section 6104 of the Internal Revenue Code of 1986. (To determine if the public has access to the compensation information, see the U.S. Security and Exchange Commission total compensation filings at *http://www.sec.gov/answers/execomp.htm.*)

2. *Where and when to report.* You must report executive total compensation described in paragraph b.1. of this award term:

i. As part of your registration profile at *http://www.ccr.gov.*

ii. By the end of the month following the month in which this award is made, and annually thereafter.

c. *Reporting of Total Compensation of Subrecipient Executives.*

1. *Applicability and what to report.* Unless you are exempt as provided in paragraph d. of this award term, for each first-tier subrecipient under this award, you shall report the names and total compensation of each of the subrecipient's five most highly compensated executives for the subrecipient's preceding completed fiscal year, if—

i. in the subrecipient's preceding fiscal year, the subrecipient received—

(A) 80 percent or more of its annual gross revenues from Federal procurement contracts (and subcontracts) and Federal financial assistance subject to the Transparency Act, as defined at 2 CFR 170.320 (and subawards); and

(B) $25,000,000 or more in annual gross revenues from Federal procurement contracts (and subcontracts), and Federal financial assistance subject to the Transparency Act (and subawards); and

ii. The public does not have access to information about the compensation of the executives through periodic reports filed under section 13(a) or 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. 78m(a), 78o(d)) or section 6104 of the Internal Revenue Code of 1986. (To determine if the public has access to the compensation information, see the U.S. Security and Exchange Commission total compensation filings at *http://www.sec.gov/answers/execomp.htm.*)

2. *Where and when to report.* You must report subrecipient executive total compensation described in paragraph c.1. of this award term:

i. To the recipient.

ii. By the end of the month following the month during which you make the subaward. For example, if a subaward is obligated on any date during the month of October of a given year (*i.e.,* between October 1 and 31), you must report any required compensation information of the subrecipient by November 30 of that year.

d. *Exemptions*

If, in the previous tax year, you had gross income, from all sources, under $300,000, you are exempt from the requirements to report:

i. Subawards,

and

ii. The total compensation of the five most highly compensated executives of any subrecipient.

e. *Definitions.* For purposes of this award term:

1. *Entity* means all of the following, as defined in 2 CFR part 25:

i. A Governmental organization, which is a State, local government, or Indian tribe;

ii. A foreign public entity;

iii. A domestic or foreign nonprofit organization;

iv. A domestic or foreign for-profit organization;

v. A Federal agency, but only as a subrecipient under an award or subaward to a non-Federal entity.

2. *Executive* means officers, managing partners, or any other employees in management positions.

3. *Subaward:*

i. This term means a legal instrument to provide support for the performance of any portion of the substantive project or program for which you received this award and that you as the recipient award to an eligible subrecipient.

ii. The term does not include your procurement of property and services needed to carry out the project or program (for further explanation, see Sec. __ .210 of the attachment to OMB Circular A–133, "Audits of States, Local Governments, and Non-Profit Organizations").

iii. A subaward may be provided through any legal agreement, including an agreement that you or a subrecipient considers a contract.

4. *Subrecipient* means an entity that:

i. Receives a subaward from you (the recipient) under this award; and

ii. Is accountable to you for the use of the Federal funds provided by the subaward.

5. *Total compensation* means the cash and noncash dollar value earned by the executive during the recipient's or subrecipient's preceding fiscal year and includes the following (for more information see 17 CFR 229.402(c)(2)):

i. *Salary and bonus.*

ii. *Awards of stock, stock options, and stock appreciation rights.* Use the dollar amount recognized for financial statement reporting purposes with respect to the fiscal year in accordance with the Statement of Financial Accounting Standards No. 123 (Revised 2004) (FAS 123R), Shared Based Payments.

iii. *Earnings for services under non-equity incentive plans.* This does not include group life, health, hospitalization or medical reimbursement plans that do not discriminate in favor of executives, and are available generally to all salaried employees.

iv. *Change in pension value.* This is the change in present value of defined benefit and actuarial pension plans.

v. *Above-market earnings on deferred compensation which is not tax-qualified.*

vi. Other compensation, if the aggregate value of all such other compensation (e.g. severance, termination payments, value of life insurance paid on behalf of the employee, perquisites or property) for the executive exceeds $10,000.