



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

September 30, 2014

Mr. Tomasz Kozlowski
University of Illinois
1901 S. First Street, Suite A,
Champaign, Illinois 61820

VIA Electronic Mail
txk@illinois.edu

SUBJECT: COOPERATIVE AGREEMENT NO: NRC-HQ-60-14-G-0007

Dear Mr. Tomasz Kozlowski:

Pursuant to the authority contained in the Federal Grant and Cooperative Grantee Act of 1977 and the Atomic Energy Act of 1954, the Nuclear Regulatory Commission (NRC) hereby awards to the University of Illinois (hereinafter referred to as the "Grantee" or "Recipient"), the sum of \$285,035.00 to provide support to the "Validation of the PARCS/PATHS/SCALE for PWR Depletion Using the BEAVRS Benchmark" as described in attachment B entitled "Program Description."

This award is effective as of the date of this letter and shall apply to expenditures made by the Grantee furtherance of program objectives during the period beginning with the effective date of September 30, 2014 and ending September 29, 2017.

This award is made to the Recipient on condition that the funds will be administered in accordance with the terms and conditions as set forth in Attachment A (the Schedule); Attachment B (the Program Description); and Attachment C (the Standard Provisions); all of which have been agreed to by your organization.

Please ensure individuals selected as beneficiaries of support under this grant meet the legal requirements consistent with recent Supreme Court Decisions including *Fisher*, *Gratz*, and *Grutter*.

Please sign the enclosed grant to acknowledge your receipt of the award, and return as a pdf file to Ms. Sunshine Wilson by email at Sunshine.Wilson@nrc.gov.

Sincerely yours,
Erika Eam
Erika Eam
Grants Officer
Resources and Grants Team
Acquisition Management Division

Attachments:
Attachment A – Schedule
Attachment B – Program Description
Attachment C – Standard Terms and Conditions


Grant and Cooperative Agreement

CHOOSE ONE:

- ☒ COOPERATIVE AGREEMENT
- ☐ GRANT

CHOOSE ONE:

- ☐ EDUCATION ☐ FACILITIES ☒ RESEARCH ☐ SDCR ☐ TRAINING

1. GRANT/COOPERATIVE AGREEMENT NUMBER NRC-HQ-60-14-G-0007		2. SUPPLEMENT NUMBER		3. EFFECTIVE DATE 09/30/2014		4. COMPLETION DATE	
5. ISSUED TO NAME/ADDRESS OF RECIPIENT (No., Street, City/County, State, Zip) UNIVERSITY OF ILLINOIS 506 S WRIGHT ST, 364 HENRY ADMIN BL URBANA IL 618013620				6. ISSUED BY U.S. NRC - HQ Mailing Address: Acquisition Management Division Mail Stop: 3WFN-05-C64MP Washington DC 20555-0001			
7. TAXPAYER IDENTIFICATION NO. (TIN)				9. PRINCIPAL INVESTIGATOR/ORGANIZATION'S PROJECT OR PROGRAM MGR. (Name & Phone) Thomasz Kozlowski, 217-333-4096 Email: txk@illinois.edu			
8. COMMERCIAL & GOVERNMENT ENTITY (CAGE) NO.							
10. RESEARCH, PROJECT OR PROGRAM TITLE Validation of the PARCS/PATHS/SCALE for PWR Depletion Using the BEAVRS Benchmark							
11. PURPOSE See Schedule							
12. PERIOD OF PERFORMANCE (Approximately) 09/30/2014 through 09/29/2017							
13A.		AWARD HISTORY		13B.		FUNDING HISTORY	
PREVIOUS		\$0.00		PREVIOUS		\$0.00	
THIS ACTION		\$285,035.00		THIS ACTION		\$187,437.00	
CASH SHARE		\$0.00		TOTAL		\$187,437.00	
NON-CASH SHARE		\$0.00					
RECIPIENT SHARE		\$0.00					
TOTAL		\$285,035.00					
14. ACCOUNTING AND APPROPRIATION DATA 2014-X0200-FEEBASED-60-60D003-11-6-213-1045-4110							
PURCHASE REQUEST NO.		JOB ORDER NO.		AMOUNT		STATUS	
RES-14-0539							
15. POINTS OF CONTACT							
	NAME	MAIL STOP	TELEPHONE	E-MAIL ADDRESS			
TECHNICAL OFFICER	SARAH B. SHAFFER	CSB/ C6 D2	301-251-7942	SARAH.SHAFFER@NRC.GOV			
NEGOTIATOR							
ADMINISTRATOR	M'LITA R. CARR		301-287-0909	MLita.Carr@nrc.gov			
PAYMENTS							
16. THIS AWARD IS MADE UNDER THE AUTHORITY OF: Pursuant to Section 31b and 141b of the Atomic Energy Act of 1954, as amended							
17. APPLICABLE STATEMENT(S), IF CHECKED:				18. APPLICABLE ENCLOSURE(S), IF CHECKED:			
<input type="checkbox"/> NO CHANGE IS MADE TO EXISTING PROVISIONS				<input type="checkbox"/> PROVISIONS <input type="checkbox"/> SPECIAL CONDITIONS			
<input type="checkbox"/> FDP TERMS AND CONDITIONS AND THE AGENCY-SPECIFIC REQUIREMENTS APPLY TO THIS GRANT				<input type="checkbox"/> REQUIRED PUBLICATIONS AND REPORTS			
UNITED STATES OF AMERICA				COOPERATIVE AGREEMENT RECIPIENT			
CONTRACTING/GRANT OFFICER ERIKA EAM 		DATE 09/23/2014		AUTHORIZED REPRESENTATIVE		DATE	

Grant and Cooperative Agreement

ITEM NO. (A)	ITEM OR SERVICE (Include Specifications and Special Instructions) (B)	QUANTITY (C)	UNIT (D)	ESTIMATED COST	
				UNIT PRICE (E)	AMOUNT (F)
	<p>CFDA Number: 77.009</p> <p>Technical Analyst: Nathanael Hudson</p> <p>MS: CSB/ C3 C3</p> <p>Telephone: 301-251-7534</p> <p>Email: Nathanael.Hudson@nrc.gov</p> <p>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).</p> <p>Payment:</p> <p style="padding-left: 40px;">ASAP GRANT FUNDS REIMBURSEMENT SYS</p> <p style="padding-left: 40px;">US TREASURY</p> <p>Period of Performance: 09/30/2014 to 09/29/2017</p> <p>NRC-HQ-60-14-FOA-0001</p>				

ATTACHMENT A - SCHEDULE

A.1 PURPOSE OF COOPERATIVE AGREEMENT

The purpose of this Cooperative Agreement is to provide support to the "Validation of the PARCS/PATHS/SCALE for PWR Depletion Using the BEAVRS Benchmark" as described in Attachment B entitled "Program Description."

A.2 PERIOD OF COOPERATIVE AGREEMENT

1. The effective date of this Cooperative Agreement is September 30, 2014. The estimated completion date of this Cooperative Agreement is September 29, 2017.
2. Funds obligated hereunder are available for program expenditures for the estimated period: September 30, 2014 – September 29, 2017.

A. GENERAL

1. Total Estimated NRC Amount: \$285,035.00
2. Total Obligated Amount: \$187,437.00
3. Cost-Sharing Amount: \$0.00
4. Activity Title: Validation of the PARCS/PATHS/SCALE for PWR Depletion Using the BEAVRS Benchmark
5. NRC Project Officer: Sarah Shaffer
6. Technical Analyst: Nathanael Hudson
7. DUNS No.: 041544081

A.3 BUDGET

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

	Year 1	Year 2	Year 3
Total Salaries & Wages	\$ 36,310.00	\$ 37,709.00	\$ 38,840.00
Fringe Benefit	\$ 6,404.00	\$ 6,596.00	\$ 6,794.00
Travel	\$ 5,000.00	\$ 5,000.00	\$ 5,000.00
Other (Tuition)	\$ 16,301.00	\$ 16,790.00	\$ 17,293.00
Indirect Costs (58.60%)	\$ 28,136.00	\$ 28,892.00	\$ 29,671.00
Yearly Total	\$ 92,451.00	\$ 94,986.00	\$ 97,598.00

All travel must be in accordance with the University of Illinois 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 \$285,035.00 for the three year period.
2. NRC hereby obligates the amount of \$187,437.00 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 Grants 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

PROJECT DESCRIPTION

1. Project Objectives

The primary objective of the research proposed here is validation of the U.S. NRC code PARCS for PWR depletion. The high-quality data benchmark data is to be selected in consultation with the NRC staff. The selected benchmark should be based on a commercial PWR and the specifications should provide all material and geometrical information necessary for the core and fuel cycle depletion. The measured data should include critical boron concentrations and power distributions throughout core depletion which can be used for the validation of core simulators such as PARCS.

The principal advantage of the proposed project is to validate the entire calculation chain used for reactor depletion analysis, from the lattice code used for two-group nodal cross-section generation, to the PARCS core solution used for core criticality and depletion at operating plant conditions. As a result of the research proposed here, the calculation chain lattice-PARCS-TH solution will be validated for PWR depletion using high-quality measurements of an operating PWR.

2. Background and Motivation

Despite considerable interest and effort in taking advantage of increased computational capabilities to develop advanced heterogeneous transport methods that avoid the space-energy homogenization, the current generation of fast-running whole-core, coarse-mesh nodal methods will remain the most practical methods for reactor depletion in the near term. The current LWR core analysis methods using coarse mesh nodal methods employ a two-step procedure. In the first step, the assembly homogenized macroscopic cross-sections and kinetic parameters are calculated using a lattice code for the range of conditions (temperatures, burnup, control rod position, etc.) anticipated during the core life-time, including all steady-state and transient conditions. In the second step, the core calculation is performed using the few-group cross-sections in the core simulator which uses some type of coarse mesh nodal method. The lattice codes typically used for LWR cross-section generation include HELIOS, CASMO and SCALE (NEWT, POLARIS). The nodal codes typically used for LWR analysis include SIMULATE, NESTLE and the U.S. NRC core simulator PARCS, which is coupled to the thermal-hydraulics codes RELAP5, TRACE and PATHS to provide temperature fluid feedback. The coupling of PARCS to PATHS was developed specifically for depletion analysis, since the calculation time for the thermal-hydraulics solution can be excessive when two-fluid transient system codes such as RELAP5 and TRACE are used for the steady-state solution required in core depletion.

An example of the two-step procedure is illustrated in Figure 1. The "Cell" and "Fuel Assembly" calculations are performed by the multi-group heterogeneous transport lattice code (e.g. SCALE). The "Core" calculation is performed by the two-group nodal diffusion code (e.g.

PARCS), with the arrows specifying the direction of the data (cross-sections, other nodal parameters) flow, from high-order (fine space-energy discretization) lattice, to low-order (coarse space-energy discretization) core simulator.

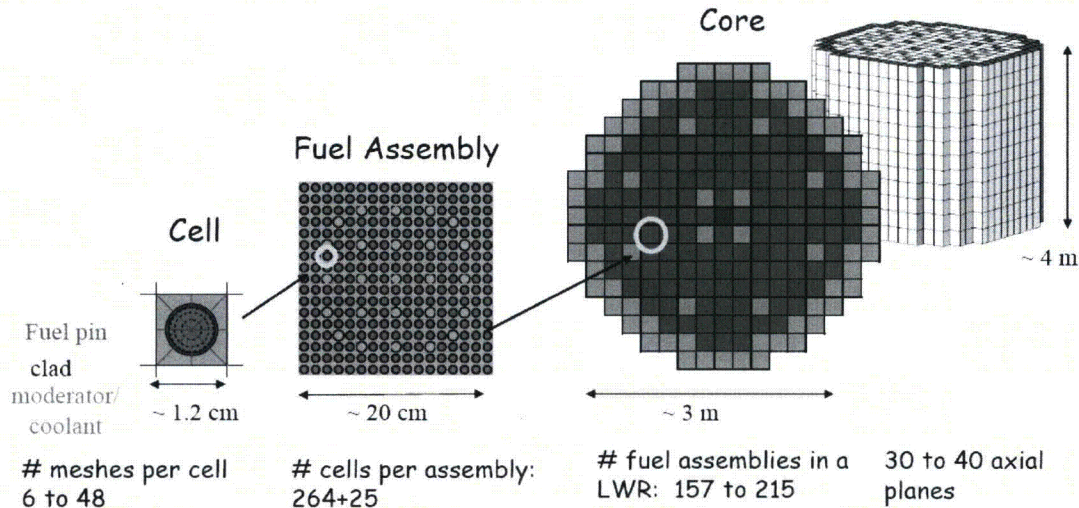


Figure 1. Spatial homogenization procedure for two-step LWR core analysis [Ragusa, 2006].

Since the coarse-mesh nodal solution provides only a fuel assembly-average solution, the fuel pin-power and temperature conditions are determined through pin-power reconstruction methods. The resulting pin averaged information is then utilized in fuel performance codes such as FALCON to evaluate fuel behavior and safety limits.

The two-step approach has been shown to have possible limitations, particularly for the design of MOX cores and small high-leakage cores. The deficiencies are related to [Downar, 2000]:

1. Spatial discretization effect
2. Spatial homogenization effect
3. Group collapsing effect
4. Transport effect

Further analysis showed that these effects are mostly concentrated on the fuel-reflector interface, and very likely related to the diffusion coefficient and transport-correction for the cross-sections generated for the core-reflector region.

Therefore, as part of this proposal, the transport effect and transport correction will be analyzed for the fuel-reflector interface in order to generate a correct diffusion cross-section for the reflector region. It will focus on the generation of two-group diffusion coefficients and assess their accuracy by comparing reconstructed pin-powers to spatial pin-power distributions based on high-quality experimental data. The experimental data and the lattice code will be selected in consultation with the U.S. NRC. The objective is to establish recommended "best practices" for generating diffusion coefficients for PWR core depletion analysis.

3. Program Description

The work proposed here has two principal technical objectives:

1. PARCS validation for PWR depletion
2. Investigation of lattice code diffusion coefficient definition for the core-reflector region

The work will be performed over a three-year period and the schedule for key project tasks, subtasks and deliverables is described below. The deliverables correspond to each task listed and represent the anticipated project outcomes and will provide the key component for the evaluation of the project progress. The milestones represent successful culmination of specific subtasks within the overall goal of the systematic PARCS validation for PWR depletion. The work progress and results of the tasks will be documented through quarterly and annual reports, and published in journal papers and/or conference proceedings. The PI will only publish results of this research with the consent of the U.S. NRC.

All steps of the work will be performed in consultation with the NRC. In particular, the PARCS validation for PWR depletion will be performed using PWR data selected in consultation with the U.S. NRC. Investigation of the lattice code diffusion coefficient for the core-reflector region will be performed using experimental core data selected in consultation with the U.S. NRC.

The tasks and deliverables are:

Task I. PARCS validation for PWR depletion

Task I.A Cross-section generation for the selected PWR depletion benchmark

This task is to prepare lattice models of the selected PWR benchmark fuel assemblies and prepare two-group homogenized cross-sections for the PARCS code. The deliverables of this task are (i) a report on the lattice model of the PWR benchmark, and (ii) the two-group nodal cross-section library for the PARCS code. (D1)

Task I.B PARCS model of the selected PWR depletion benchmark

This task is to prepare a full-core PARCS model of the PWR depletion benchmark. The deliverable for this task is a report on PARCS model of the PWR depletion benchmark. (D2)

Task I.C PARCS validation for PWR depletion

This task is to perform calculations of the PWR depletion benchmark using PARCS with cross-sections prepared in Task I.A. The solution will be compared with the benchmark measured data and published high-fidelity deterministic and Monte Carlo solutions. The deliverable for this task is a report on PARCS validation for PWR depletion using the PWR depletion benchmark. (D3)

Task II. Investigation of diffusion coefficient for the reflector region

Task II.A Lattice and Monte Carlo models of the selected experiment

This task is to prepare the lattice and Monte Carlo Serpent models of the selected experiment. In case detailed measurements are not available, Monte Carlo solution will be used as a reference solution. The deliverables for this task are (i) report on the lattice and Monte Carlo model of the selected experiment, and (ii) lattice and Monte Carlo two-group nodal cross-section library with the available definitions of the diffusion coefficient. (D4)

Task II.B PARCS model of the selected experiment

This task is to prepare a full-core PARCS model of the selected experiment. The deliverable for this task is a report on PARCS model of the experiment. (D5)

Task II.C Validation of the lattice diffusion coefficient

This task is to perform calculation of the experiment using PARCS, with cross-sections generated in Task II.A, using different definitions of the diffusion coefficient. Criticality will be compared with the measured data and pin-powers will be compared with the Monte Carlo Serpent solution. The deliverable for this task is a report on the lattice code validation of the diffusion coefficient with the selected experiment, and recommendations for diffusion coefficient for PWR core depletion analysis. (D6)

Table I. Proposed project schedule.

Task	Year 1				Year 2				Year 3			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
I.A				D1								
I.B							D2					
I.C												D3
II.A				D4								
II.B							D5					
II.C												D6

4. References

- [Downar, 2000] T. J. Downar, C. H. Lee, G. Jiang, "An Assessment of Advanced Nodal Methods for MOX Fuel Analysis in Light Water Reactors," PHYSOR 2000, Pittsburgh, Pennsylvania, May 7–12, 2000.
- [Fridman, 2011] E. Fridman and J. Leppanen, "On the Use of Serpent Monte Carlo Code for Few-group Cross Section Generation," Ann. Nucl. Energy, 2011.
- [Horelik, 2013] N. Horelik, B. Herman, B. Forget, K. Smith, "Benchmark for Evaluation and Validation of Reactor Simulations (BEAVRS)," Proc. Int. Conf. Mathematics and Computational Methods Applied to Nuc. Sci. & Eng., Sun Valley, Idaho, 2013.
- [Herman, 2013] B. R. Herman, B. Forget, K. Smith, "Improved Diffusion Coefficients Generated from Monte Carlo Codes," Proc. Int. Conf. Mathematics and Computational Methods Applied to Nuc. Sci. & Eng., Sun Valley, Idaho, 2013.
- [ICSBEP, 2008] LEU-COMP-THERM-011, International Handbook of Evaluated Criticality Safety Benchmark Experiments (2008).

- [Kelly, 2014] D. J. Kelly et al. "Analysis of Select BEAVRS PWR Benchmark Cycle 1 Results Using MC21 and OpenMC," submitted for publication, PHYSOR-2014, Kyoto, Japan, 2014.
- [Kozlowski, 2006] T. Kozlowski and T. Downar, "Pressurised Water Reactor MOX/VO₂ Core Transient Benchmark, Final Report," NEA Nuclear Science Committee, Working Party on Scientific Issues of Reactor Systems, NEA/NSC/DOC(2006)20, 2006.
- [Kozlowski, 2011] T. Kozlowski, Y. Xu, T. J. Downar, D.J. Lee, "Cell Homogenization Method for Pin-by-Pin Neutron Transport Calculations," Nuclear Science and Engineering, Vol. 169, pp. 1-18, 2011.
- [Leppanen, 2005] J. Leppanen, "A New Assembly-Level Monte Carlo Neutron Transport Code for Reactor Physics Calculations," Proc. Mathematics and Computation, Supercomputing, Reactor Physics and Nuclear and Biological Applications, Avignon, France, 2005.
- [Na, 2000] B. C. Na, "Benchmark on the VENUS-2 MOX Core Measurements," NEA/NSC/DOC(2000)7, OECD/NEA, 2000.
- [Pounders, 2006] J. Pounders, "Stochastically Generated Multigroup Diffusion Coefficients," Master's thesis, Georgia Institute of Technology, 2006.
- [Ragusa, 2006] J. Ragusa, Texas A&M, DOE-NPRCAFC meeting, August 11, 2006.
- [Rhodes, 2009] J. Rhodes, Z. Xu, D. Lee, K. Smith, "Benchmarking of CASMO-5 ENDF/B-VII Nuclear Data Against Critical Experiments," Advances in Nuclear Fuel Management IV (ANFM), Hilton Head Island, South Carolina, April 12-15, 2009.
- [Ryu, 2014] M. Ryu, et al. "Solution of the BEAVRS Benchmark Using the nTRACER Direct Whole Core Transport Code," submitted for publication, PHYSOR-2014, Kyoto, Japan, 2014.
- [Smith, 1986] K. Smith, "Assembly homogenization techniques for light water reactor analysis," Progress in Nuclear Energy, 17, 303, 1986.
- [Stamm'ler, 1983] R. Stamm'ler and M. Abbate, "Methods of Steady-State Reactor Physics in Nuclear Design," Academic Press, London, U.K., 1983.
- [Wemple, 2009] C.A. Wemple, "Benchmarking the HELIOS-2 ENDF/B-VII Library: B&W-1484 and DIMPLE S-06 Criticals," Advances in Nuclear Fuel Management IV (ANFM), Hilton Head Island, South Carolina, April 12-15, 2009.

Attachment C – Standard Terms and Conditions

The Nuclear Regulatory Commission's Standard Terms and Conditions for U.S. Nongovernmental Grantees

Preface

This award is based on the application submitted to, and as approved by, the Nuclear Regulatory Commission (NRC) under the authorization 42 USC 2051(b) pursuant to section 31b and 141b of the Atomic Energy Act of 1954, as amended, and is subject to the terms and conditions incorporated either directly or by reference in the following:

- Grant program legislation and program regulation cited in this Notice of Grant Award.
- Restrictions on the expenditure of Federal funds in appropriation acts, to the extent those restrictions are pertinent to the award.
- Code of Federal Regulations/Regulatory Requirements - 2 CFR 215 Uniform Administrative Requirements For Grants And Agreements With Institutions Of Higher Education, Hospitals, And Other Non-Profit Organizations (OMB Circulars), as applicable.

To assist with finding additional guidance for selected items of cost as required in 2 CFR 220, 2 CFR 225, and 2 CFR 230 this URL to the Office of Management and Budget Cost Circulars is included for reference: 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

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.

Grantees must comply with monitoring procedures and audit requirements in accordance with OMB Circular A-133.

2. Award Package

Substantial Involvement

This award is issued as a Cooperative Agreement, a financial assistance mechanism in which substantial NRC programmatic involvement is anticipated in the performance of the activity. Under the cooperative agreement, the NRC purpose is to support and stimulate the recipients' activities by involvement in and otherwise working jointly with the award recipients in a partnership role; it is not to assume direction, prime responsibility, or a dominant role in the activities. Consistent with this concept, the dominant role and prime responsibility resides with the awardees for the project as a whole, although specific tasks and activities may be shared among the awardees and the NRC as defined below.

1. Recipient Responsibility.

a. The Recipient will bear primary responsibility for the conduct of the research and will exercise judgment towards attaining the stated research objectives within the limits of the Cooperative Agreement's terms and conditions.

b. The principal investigator(s) specified in the Cooperative Agreement will be continuously responsible for the conduct of the research project and will be closely involved with the research effort. The principal investigator, operating within the policies of the Recipient, is in the best position to determine the means by which the research may be conducted most effectively.

c. The principal investigator has primary authorities and responsibilities to define objectives and approaches, and to plan, conduct, analyze, and publish results, interpretations, and conclusions of their research and other activities. The Principal Investigator should be prepared to work collaboratively with the NRC to achieve the goals of this cooperative agreement and agree to accept the participatory and cooperative nature of the group process. The Principal Investigator is required to submit annual progress reports to NRC, as appropriate, and to provide site performance information as stipulated by NRC

2. NRC Responsibilities

a. The NRC Project Officer (PO) will have substantial involvement above and beyond the normal program stewardship of the award. The NRC PO partners with the recipient's research team representing the government's interest in the substantive work of the research team. The primary role of the NRC PO is to facilitate the work of the recipient. The NRC PO will have overall responsibility for monitoring the conduct and progress of Recipient Sites, including conducting site visits. The PO will provide substantial input, in collaboration with the recipients, both in the planning and implementation of the program and in evaluation activities, and will make recommendations regarding program continuance. Likewise, Federal Project Officers will participate in the publication of results and packaging and dissemination of products and materials in order to make the findings available to the field, where appropriate. The Nuclear Regulatory Commission staff will receive authorship/co-authorship credit on all publications to which they have made substantial contribution

b. Additionally, The NRC Project Officer (PO) will have substantial involvement above and beyond the normal program stewardship of the award.

Programmatic: NRC program staff will serve on project steering committees as voting members.

Scientific: NRC program staff will monitor the Recipient's research protocols, approve sub recipients, provide technical monitoring of research work, and review and comment on publications from the project.

c. Role of the NRC Grants Officer:

The NRC Grants Officer (GO) is responsible for all business management aspects of negotiation, award, financial and administrative aspects of the cooperative agreement. The GO utilizes information from site visits, reviews of expenditure and audit reports and other appropriate means to assure that the project is operated in compliance with all applicable Federal laws, regulations, guidelines and the terms and conditions of award. Questions concerning the applicability of regulations and policies to this cooperative agreement and all requests for required prior approvals such as requests for permission to expend funds for certain items should be directed to the GO. Required approvals must be provided in writing and the GO is the only person who may grant such required approvals. Written approvals granted by

other officials are not binding on the government. All changes in the terms of the cooperative agreement award must be issued in writing by the GO.

§ 215.41 Grantee responsibilities.

The Grantee is obligated to conduct 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.

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 and obtained from the NRC Grants Officer in advance of the change or obligation of funds. All requests for NRC prior approval, including requests for extensions to the period of performance, should be made, in writing (which includes submission by e-mail), to the designated Grants Specialist and Program Office 30 days before the proposed change. The request should be signed by 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 will 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 \$100,000.00 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 listed as Exclusion on SAM (<http://sam.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.

The Grantee 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 will 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 regulations. 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 will 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.

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.

Patent Notification Procedures - If the NRC or its 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, EO 12889 requires NRC to notify the owner. 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 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, such as data, databases or software are

determined by 2 CFR 215.36. 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

Grantee shall follow established provisions in 2 CFR 215.53.

Conflict Of Interest Standards

Conflict of Interest Standards for this award will 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 will follow provisions as established in 2 CFR 215.60-62.

Monitoring and Reporting § 215.50-53

Grantee Financial Management systems must comply with the 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, will 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

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 the following:

1. Grants_FFR.Resource@NRC.gov (NOTE: There is an underscore between Grants and FFR);
2. RESGrants.Resource@NRC.gov;
3. Technical Analyst; and
4. Grants Officer.

Period of Availability of Funds 2 CFR § 215.28

If 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.

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.

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.

Automated Standard Application For Payments (ASAP) Procedures

Unless otherwise stated, grantee payments are made using the Department of Treasury's Automated Standard Application for Payment (ASAP) system <http://www.fms.treas.gov/asap/index.html>, through preauthorized electronic funds transfers. To receive payments, 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 is required to make ASAP withdrawals: (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).

II. Audit Requirements

Audits

Organization-wide or program-specific audits are 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." Grantees are subject to the provisions of OMB Circular A-133 if they expend \$500,000.00 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 are 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 \$500,000.00 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 Progress (Technical) Reports

The Grantee shall submit performance (technical) reports electronically to the NRC Project Officer and Grants Officer on a quarterly 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. The report should be submitted electronically to the following:

1. Grants_PPR.Resource@NRC.gov (NOTE: There is an underscore between Grants and PPR);
2. RESGrants.Resource@NRC.gov;
3. Technical Analyst; and
4. Grants Officer.

Unless otherwise specified in the award provisions, performance progress (technical) reports shall contain brief information as prescribed in the applicable uniform administrative requirements 2 CFR §215.51 which are incorporated in the award.

Unsatisfactory Performance

Failure to perform the work in accordance with the terms of the award and maintain at least a satisfactory performance rating, may result in designation of the Grantee as high risk and the assignment of special award conditions. Further action may be required as specified in the standard term and condition entitled "Termination."

Failure to comply with the award provisions may result in a negative impact on future NRC funding. In addition, the Grants Officer may withhold payments; change the method of payment from advance to reimbursement; impose special award conditions; suspend or terminate the grant.

Other Federal Awards With Similar Programmatic Activities

The Grantee will immediately notify the Project Officer and the Grants Officer in writing if after award, other financial assistance is received to support or fund any portion of the program description stated in the NRC award. NRC will not pay for costs that are funded by other sources.

Prohibition Against Assignment By The Grantee

The Grantee will not transfer, pledge, mortgage, or otherwise assign the award, or any interest to the award, or any claim arising under the award, to any party, banks, trust companies, or other financing or financial institutions without the written approval of the Grants Officer.

Site Visits

The NRC, through authorized representatives, has the right to make site visits to review project accomplishments and management control systems and to provide technical assistance as 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.

IV. Miscellaneous Requirements

Criminal and Prohibited Activities

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.)

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.

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.

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 encouraged to purchase American-made equipment and products with funding provided under this award.

Increasing Seat Belt Use in the United States

EO 13043 requires Grantees to 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

EO 13513 requires Grantees to 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 barred from accepting funds from a Grantee to pay transportation, travel, or other expenses for any Federal employee unless specifically approved in the terms of the award. Use of award funds (Federal or non-Federal) or the Grantee's provision of in-kind goods or services, for the purposes of transportation, travel, or any other expenses for any Federal employee may raise appropriation augmentation issues. In addition, NRC policy prohibits the acceptance of gifts, including travel payments for Federal employees, from Grantees or applicants regardless of the source.

Minority Serving Institutions (MSIs) Initiative

Pursuant to EOs 13256, 13230, and 13270, NRC is strongly committed to broadening the participation of MSIs in its financial assistance program. NRC's goals include achieving full participation of MSIs in order to advance the development of human potential, strengthen the Nation's capacity to provide high-quality education, and increase opportunities for MSIs to participate in and benefit from Federal financial assistance programs. NRC encourages all applicants and Grantees to include meaningful participations of MSIs. Institutions eligible to be considered MSIs are listed on the Department of Education website:

<http://www.ed.gov/about/offices/list/ocr/edlite-minorityinst.html>

Research Misconduct

Scientific or research misconduct refers to the fabrication, falsification, or plagiarism in proposing, performing, or reviewing research, or in reporting research results. It does not include honest errors or differences of opinions. The Grantee organization has the primary responsibility to investigate allegations and provide reports to the Federal Government. Funds expended on an activity that is determined to be invalid or unreliable because of scientific misconduct may result in a disallowance of costs for which the institution may be liable for repayment to the awarding agency. The Office of Science and Technology Policy at the White House published in the Federal Register on December 6, 2000, a final policy that addressed research misconduct. The policy was developed by the National Science and Technology Council (65 FR 76260). The NRC requires that any allegation be submitted to the Grants Officer, who will also notify the OIG of such allegation. Generally, the Grantee organization shall investigate the allegation and submit its findings to the Grants Officer. The NRC may

accept the Grantee's findings or proceed with its own investigation. The Grants Officer shall inform the Grantee of the NRC's final determination.

Publications, Videos, and Acknowledgment of Sponsorship

Publication of the results or findings of a research project in appropriate professional journals and production of video or other media is encouraged as an important method of recording and reporting scientific information. It is also a constructive means to expand access to federally funded research. The Grantee is required to submit a copy to the NRC and when releasing information related to a funded project include a statement that the project or effort undertaken was or is sponsored by the NRC. The Grantee is also responsible for assuring that every publication of material (including Internet sites and videos) based on or developed under an award, except scientific articles or papers appearing in scientific, technical or professional journals, contains the following disclaimer:

"This [report/video] was prepared by [Grantee name] under award [number] from [name of operating unit], Nuclear Regulatory Commission. The statements, findings, conclusions, and recommendations are those of the author(s) and do not necessarily reflect the view of the [name of operating unit] or the US Nuclear Regulatory Commission."

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 \$25,000.00 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 \$25,000.00 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.sam.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 \$300,000.00, 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 \$10,000.00.