



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

July 1, 2016

Wei Ji, Ph.D.
Rensselaer Polytechnic Institute
110 Eighth Street
Troy, NY 12180-3522

VIA Electronic Mail
jiw2@rpi.edu

SUBJECT: Grant No.: NRC-HQ-84-15-G-0018: Modification No. M0001 (Program B)

Dear Dr. Ji:

Pursuant to the authority contained in the Federal Grant and Cooperative Agreement Act of 1977, as amended, and the Atomic Energy Act of 1954, as amended, the Nuclear Regulatory Commission (NRC) hereby modifies the above referenced award to Rensselaer Polytechnic Institute (hereinafter referred to as the "Grantee" or "Recipient"), the additional sum of \$400,000.00 to provide continued support for the "Nuclear Engineering Fellowship program at Rensselaer" entitled "Program Description – Program B."

This modification is effective July 1, 2016 and shall apply to expenditures made by the Recipient furtherance of program objectives during the period beginning with the effective date of July 1, 2016 and ending June 30, 2020.

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 Terms & Conditions); all of which have been agreed to by your organization. In addition your grant application proposes \$264,034.00 in cost share. Please ensure your cost share conforms to the provisions in 2 CFR 200, and is reported on the semi-annual Federal Financial Report.

Please ensure individuals selected as beneficiaries of support under this grant meet the legal requirements consistent with 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 M'Lita Carr by email at MLita.Carr@nrc.gov.

Sincerely yours,

Erika Eam

Erika Eam
Grants Officer
Research & Grants Team
Acquisition Management Division

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

TEMPLATE - ADM001

SUNSI REVIEW COMPLETE

ADM002

Grant and Cooperative Agreement

CHOOSE ONE:

- ☐ COOPERATIVE AGREEMENT
- ☒ GRANT

CHOOSE ONE: ☒ EDUCATION ☐ FACILITIES ☐ RESEARCH ☐ SDCR ☐ TRAINING

1. GRANT/COOPERATIVE AGREEMENT NUMBER NRC-HQ-84-15-G-0018		2. SUPPLEMENT NUMBER M0001		3. EFFECTIVE DATE 07/01/2016		4. COMPLETION DATE	
5. ISSUED TO NAME/ADDRESS OF RECIPIENT (No., Street, City/County, State, Zip) RENSSELAER POLYTECHNIC INSTITUTE 110 8TH ST TROY NY 121803522				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) Program A: Dr. Li (Emily) Liu; liue@rpi.edu Program B: Dr. Wei Ji; jiw2@rpi.edu			
8. COMMERCIAL & GOVERNMENT ENTITY (CAGE) NO.							
10. RESEARCH, PROJECT OR PROGRAM TITLE See Schedule							
11. PURPOSE See Schedule							
12. PERIOD OF PERFORMANCE (Approximately) 09/30/2015 through 06/30/2020							
13A.		AWARD HISTORY		13B.		FUNDING HISTORY	
PREVIOUS		\$400,000.00		PREVIOUS		\$400,000.00	
THIS ACTION		\$400,000.00		THIS ACTION		\$400,000.00	
CASH SHARE		\$0.00		TOTAL		\$800,000.00	
NON-CASH SHARE		\$0.00					
RECIPIENT SHARE		\$457,063.00					
TOTAL		\$800,000.00					
14. ACCOUNTING AND APPROPRIATION DATA 2016-X0200-IUPMRU-84-84D002-52-S-164-T8458-4110							
PURCHASE REQUEST NO.		JOB ORDER NO.		AMOUNT		STATUS	
OCHCO-16-0178							
15. POINTS OF CONTACT							
		NAME		MAIL STOP		TELEPHONE	
TECHNICAL OFFICER		NANCY V. HEBRON-ISREAL		3WFN/3AF12		301-287-0718	
NEGOTIATOR							
ADMINISTRATOR		M'LITA R. CARR				(301) 415-6869	
PAYMENTS						MLITA.CARR@nrc.gov	
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: <input type="checkbox"/> NO CHANGE IS MADE TO EXISTING PROVISIONS <input type="checkbox"/> FDP TERMS AND CONDITIONS AND THE AGENCY-SPECIFIC REQUIREMENTS APPLY TO THIS GRANT				18. APPLICABLE ENCLOSURE(S), IF CHECKED: <input type="checkbox"/> PROVISIONS <input type="checkbox"/> SPECIAL CONDITIONS <input type="checkbox"/> REQUIRED PUBLICATIONS AND REPORTS			
UNITED STATES OF AMERICA				COOPERATIVE AGREEMENT RECIPIENT			
CONTRACTING/GRANT OFFICER M'LITA R. CARR		DATE 06/30/2016		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: 77.008</p> <p>NRC-HQ-84-15-G-0018</p> <p>The purpose of this modification is to revise the grant in its entirety:</p> <ol style="list-style-type: none"> 1. Add an additional program to the existing grant: Program B: entitled "Nuclear Engineering Fellowship program at Rensselaer"; 2. Update the Terms and Conditions; 3. Extend the grant's period of performance for Program B. 4. Provide funding for Program B <p>As a result of this modification:</p> <ol style="list-style-type: none"> 1. Block 9, delete in its entirety and replace with the following: "Program A: Dr. Dr. Li Liu; liue@rpi.edu Program B: Dr. Wei Ji; jiw2@rpi.edu" 2. Block 10. RESEARCH, PROJECT OR PROGRAM TITLE, delete in its entirety and replace with the following: "1. Program A: Fueling Thriving Growth of Nuclear Engineering Graduate Program at Rensselaer Polytechnic Institute. 2. Program B: Nuclear Engineering Fellowship program at Rensselaer." 3. Attachments A,B and C, delete in its entirety and replace with the following, see attached beginning on page 3. <p>LIST OF CHANGES:</p> <p>Period Of Performance End Date changed from 2019-09-29 00:00:00 to 2020-06-30 00:00:00</p> <p>New Total Obligated Amount for this Award: \$800,000.00</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: 09/30/2015 to 06/30/2020</p>				

ATTACHMENT A - SCHEDULE

A.1 PURPOSE OF GRANT

The purpose of this Grant is to provide support to two distinct programs with Rensselaer Polytechnic Institute as described in Attachment B entitled "Program Description."

1. Program A: Fueling Thriving Growth of Nuclear Engineering Graduate Program at Rensselaer Polytechnic Institute.
2. Program B: Nuclear Engineering Fellowship Program at Rensselaer.

A.2 PERIOD OF GRANT

The effective date of the grant programs is:

Program A: Fueling Thriving Growth of Nuclear Engineering Graduate Program at Rensselaer Polytechnic Institute. The effective date of this program is September 30, 2015. The estimated completion date of this program is September 29, 2019. Funds obligated hereunder are available for program expenditures for the estimated period: September 30, 2015 through September 29, 2019.

Program B: Nuclear Engineering Fellowship program at Rensselaer. The effective date of this program is July 1, 2016. The estimated completion date of this program is June 30, 2020. Funds obligated hereunder are available for program expenditures for the estimated period: July 1, 2016 through June 30, 2020.

A.3 BUDGET

Revisions to the budget shall be made in accordance with revisions of Grant Budget in accordance with 2 CFR § 200.308.

Program A:

A. GENERAL

1. Total Estimated NRC Amount: \$400,000.00
2. Total Obligated Amount: \$400,000.00
3. Cost-Sharing Amount: \$193,029.00
4. Activity Title: Fueling Thriving Growth of Nuclear Engineering Graduate Program at Rensselaer Polytechnic Institute
5. NRC Project Officer: Nancy Hebron-Israel
6. DUNS No.: 002430742
7. Principal Investigator: Dr. Li Liu

	Year 1	Year 2	Year 3	Year 4
Stipend	\$50,000	\$50,000	\$50,000	\$50,000
Other (Tuition)	\$46,000	\$46,000	\$46,000	\$46,000
Total Direct Cost	\$96,000	\$96,000	\$96,000	\$96,000
Indirect Cost	<u>\$4,000</u>	<u>\$4,000</u>	<u>\$4,000</u>	<u>\$4,000</u>
Total	\$100,000	\$100,000	\$100,000	\$100,000

Program B:

1. Total Estimated NRC Amount: \$400,000.00
2. Total Obligated Amount: \$400,000.00
3. Cost-Sharing Amount: \$264,034.00
4. Activity Title: NRC Nuclear Engineering Fellowship at
Rensselaer
5. NRC Project Officer: Nancy Hebron-Isreal
6. DUNS No.: 002430742
7. Principal Investigator: Dr. Wei Ji

	Year 1	Year 2	Year 3	Year 4
Personnel	\$42,667.00	\$40,373.00	\$37,988.00	\$35,508.00
Other (Tuition)	<u>\$57,333.00</u>	<u>\$59,627.00</u>	<u>\$62,012.00</u>	<u>\$64,492.00</u>
Total Direct Cost	\$100,000.00	\$100,000.00	\$100,000.00	\$100,000.00
Indirect Cost	\$0.00	\$0.00	\$0.00	\$0.00
Total	\$100,000.00	\$100,000.00	\$100,000.00	\$100,000.00

A.4 AMOUNT OF AWARD AND PAYMENT PROCEDURES

1. Program A: The total estimated amount of this Award is \$593,029.00, inclusive of \$193,029.00 in cost share. NRC hereby obligates the amount of \$400,000.00 expenditures during the period set forth above and in support of the Budget above. NRC is not obligated to reimburse the Grantee for the expenditure of amounts in excess of the total obligated amount.

2. Program B: The total estimated amount of this Award is \$664,034.00, inclusive of \$264,034.00 in cost share. NRC hereby obligates the amount of \$400,000.00 expenditures during the period set forth above and in support of the Budget above. 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 A: Fueling Thriving Growth of Nuclear Engineering Graduate Program
at Rensselaer Polytechnic Institute

Principal Investigator: Dr. Li Liu

PROGRAM DESCRIPTION

**Fueling Thriving Growth of Nuclear Engineering Graduate Program at Rensselaer
Polytechnic Institute**

Rensselaer Polytechnic Institute (RPI) is well positioned to enhance and expand its population of graduate students in Nuclear Engineering. The RPI Nuclear Fellowship Program will provide a strong platform to compete for the best students in the field, and to prepare them to be leaders in the next generation nuclear workforce. ***The RPI Nuclear Fellowship Program will promote two important goals that support the development of the nuclear workforce:*** 1) By supporting new graduate students, the fellowship will offer advanced training and experience for those

entering the nuclear field; and 2) the fellowship opportunities will promote the interest of students in graduate nuclear engineering study, leading to a greater number and diversity of those being trained in nuclear technology. In addition to enhance the research and education opportunities of our graduate students in performing NRC- and NE-related activities, the RPI fellowship program is strongly committed to promoting and recruiting traditionally under-represented groups of non-NE students from minority university or regional university that will greatly improves the impact of the NRC fellowship.

The Nuclear Engineering program consists of 7 tenure/tenure-track faculty, and 9 full- or part-time non-tenured faculty participating in teaching and/or research activities. The faculty support diverse research programs in nuclear reactor engineering, thermal hydraulics, nuclear physics, radiation technology, nuclear reactor materials, radiation effects on materials, fusion technology, and health/medical physics. RPI Nuclear Engineering faculty members have a strong record of external funding and publications. The faculty in the NE program of RPI will ensure that the Fellowship recipients will perform the highest quality research at areas critical for the development of current and future nuclear systems.

1. Proposed Fellowship Program

With the assistance of the US Nuclear Regulatory Commission, RPI proposes to offer a Fellowship program for graduate students interested in pursuing careers in the Nuclear Engineering field. Students who are awarded the RPI Nuclear Fellowship will receive a partial tuition waiver (tuition limited to \$23K) and a calendar year stipend of \$25K. Fellowships will be awarded for one year, and may be renewed for one additional year, provided the student makes sufficient academic progress. The Fellowship Program will award up to two fellowships per year, over a period of four years.

4.1 2. Recruiting Activities and Marketing Strategies

The RPI Nuclear Fellowship Program will become an incubator and highlight of the graduate student recruitment effort in Nuclear Engineering. The detailed recruiting activities associated with this program will include:

- **A color brochure**, suitable for printing, containing fellowship and graduate application information. This brochure will be distributed electronically or in hard copy to prospective applicants on campus and/or other institutions. They will also be distributed during recruitment events.
- **Development of a web page** devoted to information on the RPI Nuclear Fellowship Program—linked through the developed program web page. This page will include requirements and details on program application and award, as well as links to the graduate student admission procedures and information about research and facilities in the Nuclear Engineering program at RPI. Eligible students will be automatically considered for the fellowship, but the website will encourage applicants to include information in their application reflecting their interests in contributing to the nuclear sector.
- **Seeking recruiting opportunities with institutions** outside of the traditional undergraduate nuclear engineering education, such as institutions with undergraduate health physics programs like Bloomsburg University or Francis Marion University.
- **Partnering with neighboring regional four-year universities** to draw students into the nuclear engineering graduate program. RPI is situated centrally to several universities with science and engineering programs that could produce logical feeders into nuclear

engineering, such as Union College, the State University of New York at Albany, the State University of New York at Buffalo, Clarkson University, and Worcester Polytechnic Institute.

Meanwhile, the materials associated with this program will be integrated into the graduate student recruitment strategies in the Department of Mechanical, Aerospace, and Nuclear Engineering (MANE), including:

- **Advertisement of graduate student opportunities** through national and student conferences of the American Nuclear Society, Health Physics Society, and other relevant professional meetings.
- **Faculty recruiting visits to other universities, or through graduate school "fairs" or consolidated recruiting events.** MANE faculty members are encouraged to include information on graduate study at RPI when traveling to other universities.
- **Promotion of nuclear engineering to Historically Black Colleges and Universities (HBCUs) and Hispanic Serving Institutions (HSIs).** The Department has a current initiative to institutionalize its recruiting efforts with HBCUs and HSIs, which these fellowship program recruitment efforts will complement. The past Fellowship Program has shown that we are successful in recruiting and maintaining African American students in the program. Half of the funded Fellows in previous programs were minority students (women or African Americans).

4.2 3. Technical Programs for Fellows

4.3 A. Selection Process and Management Structure

The selection of RPI Nuclear Fellows will follow a three-step process, largely integrated with the graduate admission decision process of the Department of MANE. The PIs of this project will serve as administrative coordinators of the fellowship program.

- **Administrative staff compiling applicant information** will identify students that meet the basic eligibility requirements of US citizenship and a minimum 3.3 GPA (on a 4.0 scale). These students are flagged to indicate to faculty that they are eligible for and should be considered for fellowship awards during admission review process.
- **Graduate applicant files are circulated to nuclear engineering faculty** for admission and support recommendations. For students eligible for fellowship awards, the faculty will be asked to include comments on their potentials for academic and professional excellence, contribution to a workforce capable of supporting the design, construction, operation, and regulation of nuclear facilities and the safe handling of nuclear materials, and contributions to gender and ethnic diversity in nuclear engineering and sciences.
- **Copies of the graduate admission files for all eligible applicants will be forwarded to the coordinators of the RPI Nuclear Fellowship Program** by the completion of the review cycle. The coordinators will collect the applicant's documents with positive recommendations from the faculty, and will convene a selection panel for the fellowship. The panel will consist of the Department Head of the MANE (Prof. Suvranu De), Associate Department Head for Graduate Studies (Prof. Theodore Borca), Nuclear Engineering Program Head (Prof. Yaron

Danon), and the coordinators of the RPI Nuclear Fellowship Program (Prof. Li (Emily) Liu and Prof. Jie Lian). The panel will select a Fellow from the eligible applicants and will also select an alternative to be awarded should the selected fellow declines to attend RPI or the conditions of the fellowship award.

The Department of MANE is supported by a diverse team consisting of various administrative staff and approximately 40 faculty capable of mentoring and educating our students to academic excellence. The MANE department serves approximately 1300 undergraduate students, over 100 enrolled in the Nuclear Engineering (NE) program, and around 140 graduate students, with 24 in the NE program. The Department also hosts numerous research associates, visiting scholars, and post-doctoral researchers participating in the department activities. To support such a large and diverse department, a team of administrative and technical staff consists of (approximately) 7 administrative assistants, 2 devoted to business and financial management, 3 student services specialists, and 10 technical staff supporting labs, facilities, and computing resources. The Department Head is aided by a management team consisting of faculty from across the three major disciplines in the department. Each program has a designated Program Head, leading the vision and strategic planning for the program, and a Program Curriculum Coordinator, responsible for the oversight of curriculum assessments and revision activities at both graduate and undergraduate levels. The leadership team also includes a Graduate Program Chair and an undergraduate Degree Clearance Officer, with responsibilities across the department programs. The leadership team is supplemented on as-needed basis by faculty assuming responsibility for particular projects or thrusts such as ABET accreditation, external review, or other special projects.

4.4 B. Mentoring and Advising

Mentoring and advising is critical to the success of our students. Various resources are available for mentoring the overall progress and assessing our student success across MANE and by NE in particular, the development of our fellowship recipients.

Thesis and Academic Advisor— each fellowship student will be assigned an advisor who will guide the thesis research and also advise on the academic program best suited for this student. The faculty advisor will also provide helps to the fellowship recipients in shaping their professional goals well aligned with the mission of the NRC fellow in developing next generation workforce in the critical area of nuclear engineering and science.

Thesis committee: This is an internal and external panel convened on a quarterly basis for graduate students in general. It consists of a minimum of four members from across the campus, and other universities or national labs, mostly but not exclusively from the ranks of RPI faculty. The function of the group is to provide observations and advice on the overall progress and development of the student. Thesis advisor, in particular, will be engaged in ongoing comprehensive research progress and evaluation exercises for each of the steps.

RPI NE Fellowship Advisory Panel: An advisory panel specifically set up for Fellowship program will be convened while RPI Nuclear Fellowship program getting funded. The panel includes three PIs, the department head, and several senior graduate students.

The Panel will provide independent assessment of the potential and outside suggestion of the fellowship recipients. Later, the Panel will make the selection of the Fellows, track the progress of the Fellows, and evaluate the achievements of the Fellows. The panel will provide candid comments and suggestions. The panel will also ensure their advice be carefully considered, and witness the changes and improvements made in response to their recommendations.

4.5 C. Schedule of Tuition Fees and other Pertinent Costs

The total support for one graduate student each year is \$ 50 K, which includes: (a) tuition for one academic year (9 months) of \$23 K (after RPI institute tuition waiver); and (b) fellowship stipend for one calendar year of \$25 K. ***Two graduate students will be supported each year (\$100 K)*** and the total fund requested from the Fellowship Program is \$400 K for a period of four years.

4.6 D. Strategic Plan & Innovation – Partnerships/Institutions/Distance Learning

RPI is a private institution, and is not part of a State or regional strategic plan. We proactively implement partnerships and innovations in education according to society needs.

For example, a new modular course development proposal for local and distance learning was funded by NRC and was developed at RPI and its partnership United States Military Academy. This course will deliver the hands-on nuclear engineering educations to remote classrooms in other universities from the RPI reactor facility and the Linear accelerator. Such an innovation in remote education provides a practical means to promote the nuclear education to other institutions, including Post-Secondary Minority Serving Institutions, to learn hands-on experience through distance learning, shared courses and facility sharing.

Also included in Section 2, recruiting activities, we promote nuclear engineering to Historically Black Colleges and Universities (HBCUs) and Hispanic Serving Institutions (HSIs) and partner with neighboring regional four-year universities. All these capabilities greatly improve our selection pool for graduate students who will be getting fellowships.

4.7 4. Evaluation Plan

The evaluation of the RPI Nuclear Fellowship Program will focus on two main areas related to the purpose of the program: ***1) preparing high-quality students for careers in the nuclear field; and 2) increasing the quantity, quality, and diversity of the pool of students entering nuclear engineering disciplines.***

Since many of the metrics applicable to evaluating the fellowship program extended beyond the timeframe of the fellowship award, all Fellows will be identified and tracked throughout their graduate studies. All graduate students at RPI undergo an annual review of academic progress, from which much of the student information can be gleaned. The PIs will generate an annual evaluation report prior to the selection of next year's Fellow for the consideration of the selection panel. This will include:

a. Student quality.

- Time to completion of major doctoral program milestones (Department Qualifying Exam, Research Candidacy Exam, and Thesis Defense)
- Success rate at doctoral program milestones
- Number of publications submitted or accepted
- Number of conference abstracts or presentations

These measures will be compared to the values across the program at large. The evaluation report may also include qualitative analysis by faculty advisors regarding research quality and/or applicability to the design, construction, operation, and regulation of nuclear facilities and the safe handling of nuclear materials.

b. Student recruitment and enrollment:

- Total number of applicants to the nuclear engineering graduate program
- Fraction of applicants that meet the minimum GPA requirement for fellowship eligibility
- Fraction of applicants that are US citizens or permanent resident
- Fraction of applicants that are women and minorities

The evaluation report will be shared internally and externally periodically. Regular reports will be submitted to NRC on the required period basis.

4.8 5. Institutional Support and Sustainability

Throughout this document, specific references have been made to tangible and intangible mechanisms for supporting the NE Program at RPI and the fellowship recipients. Here, we briefly summarize these forms of the institutional support:

- Recognizing the critical importance of NE, the department is continuing *to identify and hire new NE faculty* in the next few years, which will grow and revitalize our NE Program. A new tenure-track faculty will be hired starting at incoming fall 2015. More and more graduate students are attracted and enrolled in the NE Program in the past five years.
- The Dean of School of Engineering *convened an NE External Advisory Panel* to help defining a vision and roadmap for a strong and compelling NE Program.
- The singular focus over the past three years has been the revitalization of NE. In so doing, there has been *significant commitment of MANE resources including a strategic nuclear engineering committee* to grow and revitalize NE.
- The Department Head has solicited *meetings with State and industry officials* as part of strategic planning for revitalization and refocusing of major facilities, such as the Gaertner LINAC facility and "Zero-power" Reactor Critical Facility at RPI, provided for students to use as part of their educational and research training. As a result of this effort, we secured about

\$12 M that will be invested in the Gaertner LINAC facility over the next 5 years. The experience with these facilities provides a critical foundation in nuclear technology to the next generation of nuclear professionals.

- ***The NE faculty have fully committed to supporting the graduate students education in class and research training in laboratory.*** Such commitments play vital role in performing the proposed Fellowship Program and guarantee the quality and sustainability of the program.
- The attached ***Support Letter*** from the Office of the Vice President for Research clearly shows a strong endorsement for the RPI Nuclear Fellowship Program.

This is not an exclusive list of the actions and resources in place to directly or indirectly support the Fellowship program at RPI. It does not, for example, speak of the two Targeted Recipients individually. However, it does accurately portray to broad institutional commitment at all levels from Program to President to helping Nuclear Engineering at RPI. We feel very strongly, therefore, that our vision and strategy directly align with the goals of the NRC Fellowship Program. We respectfully request, therefore, full funding of this grant proposal.

4.9 6. Leverage/Matching Funds

The university cost-share will be distributed over the four years of the project in the form of tuition subsidy. At RPI, the expense for one graduate student (the combination of stipend and tuition) will exceed the \$50 K limit for each supported person. The Office of Research will subsidize the tuition for each graduate student and each year. The part of the tuition that is waived or covered by the university (not from the proposed project) is around \$25 K per academic year per student. Moreover, the Indirect Cost (IDC) for stipend is only charged at 8%, which is heavily reduced from the institute 32% IDC. The 24% IDC is waived by the Office of Research.

Program B: NRC Nuclear Engineering Fellowship at Rensselaer

Principal Investigator: Dr. Wei Ji

PROGRAM DESCRIPTION

NUCLEAR ENGINEERING FELLOWSHIP PROGRAM AT RENSSELAER

The Nuclear Engineering Fellowship Program at Rensselaer will promote two important goals that support the development of next generation nuclear workforce: (1) By supporting new graduate students, the fellowship will encourage advanced training and experience for those entering the nuclear field. (2) The fellowship opportunities will increase the interest in graduate study, leading to a greater number and diversity of those being trained in nuclear energy and technology.

1. PROPOSED FELLOWSHIP PROGRAM

With the assistance of the US Nuclear Regulatory Commission, Rensselaer Polytechnic Institute (RPI) proposes to develop and offer a Fellowship program for graduate students interested in pursuing careers in the Nuclear Engineering field. Students who are awarded

the Fellowship will receive a full tuition waiver and a full year competitive graduate student stipend support. Fellowships will be awarded for one year, and may be renewed for additional years, provided the student makes sufficient academic process. The Fellowship Program will award up to **two fellowships per year, over a period of four years.**

2. PROGRAM ELEMENTS

2.1 RECRUITING/MARKETING ACTIVITIES

The Nuclear Engineering Fellowship Program will become a highlight of the graduate student recruitment effort in the Nuclear Engineering Program. The activities associated with this program will include:

- **A web page** devoted to information on the Nuclear Engineering Fellowship Program. This page will include requirements and details on program application and award, as well as links to the graduate student admission procedures and information about research and facilities in the Nuclear Engineering Program at RPI. Eligible students will be considered for the fellowship, but the website will encourage applicants to include information in their application reflecting their interest in contributing to the nuclear sector.
- **A color brochure**, suitable for printing, containing fellowship and graduate application information. This brochure will be distributed electronically or in hard copy to prospective applicants on campus and/or other institutions. They will also be distributed during recruitment events.
- **Recruiting opportunities with institutions** outside of the traditional undergraduate nuclear engineering education, such as institutions with undergraduate health physics programs like Bloomsburg University or Francis Marion University.
- **Partnerships with neighboring regional four-year universities** to draw students into the nuclear engineering graduate program. RPI is situated centrally to several universities with science and engineering programs that could produce logical feeders into nuclear engineering, such as Union College, the State University of New York at Albany, the State University of New York at Buffalo, Clarkson University, and Worcester Polytechnic Institute.

Meanwhile, the materials associated with this program will be integrated into the graduate student recruitment strategies in the Department of Mechanical, Aerospace, and Nuclear Engineering, including:

- **Advertisement of graduate student opportunities** through national and student conferences of the American Nuclear Society, Health Physics Society, and other relevant professional meetings.
- **Recruiting visits to other universities, or through graduate school "fairs" or consolidated recruiting events.** The Department faculty members are encouraged to include information on graduate study at Rensselaer when traveling to other universities. We will provide one-page slide of Fellowship Program information to those faculty members as part of their presentations.

- **Promotion of nuclear engineering to Historically Black Colleges and Universities (HBCUs) and Hispanic Serving Institutions (HSIs).** The Department has a current initiative to institutionalize its recruiting efforts with HBCUs and HSIs, which these fellowship program recruitment efforts will complement.

2.2 SELECTION PROCESS

The selection of Rensselaer Nuclear Fellows will follow a three-step process, largely integrated with the graduate admission decision process of the Department of Mechanical, Aerospace, and Nuclear Engineering. The PIs of this project will serve as administrative coordinators of the fellowship program.

- **Administrative staff compiling applicant information** will identify students that meet the basic eligibility requirements of US Citizenship and a minimum 3.3 GPA (on a 4.0 scale). These students are flagged to indicate to faculty that they should consider their recommendations for fellowship awards during their admission reviews.
- **Graduate applicant files are circulated to nuclear engineering faculty** for admission and support recommendations. For students eligible for fellowship awards, the faculty will be asked to review each applicant's interest statement, reference letters, and background fits to Nuclear Engineering. Then the faculty will provide comments related to potential for academic and professional excellence, future contribution to a workforce capable of supporting the design, construction, operation, and regulation of nuclear facilities and the safe handling of nuclear materials, and contributions to gender and ethnic diversity in nuclear engineering and sciences. These comments will be fully aligned with the primary objective of the Fellowship program defined by the NRC.
- **Copies of graduate admission files for all eligible applicants will be forwarded to the coordinator of the Nuclear Engineering Fellowship Program** by the completion of the review cycle. The coordinators will collect the materials of the students receiving positive responses from the faculty, and will convene a selection panel for the fellowship. The panel will consist of the Associate Department Head for Graduate Studies of the Department of Mechanical, Aerospace, and Nuclear Engineering (Prof. Theo Borca-Tasciuc), Nuclear Engineering Program Head (Prof. Yaron Danon, also serving as the coordinator), and the coordinators of the Nuclear Engineering Fellowship Program (Prof. Wei Ji and Prof. Yaron Danon). The panel will select a Fellow from the eligible applicants and will also select an alternate to be awarded should the selected Fellow decline to attend Rensselaer or decline the conditions of the fellowship award.

2.3 MANAGEMENT AND ADMINISTRATIVE STRUCTURE

The Department of Mechanical, Aerospace, and Nuclear Engineering are supported by a diverse and capable team from administrative staff and faculty. The department serves approximately 1100 undergraduate students, with 122 enrolled in the Nuclear Engineering (NE) Program, and 150 graduate students, with 36 in the NE programs. In the past fiscal year 2015, research expenditures total around \$13M from 35 tenure/tenure-track faculty. The expenditures for the 7 tenure- or tenure-track Nuclear Engineering faculty members

were \$3.5M. At any one time, there are several research associates, visiting scholars, and post-doctoral researchers participating in the department activities.

To support such a large and diverse department, a number of administrative and technical staff members are employed, covering a variety of positions. The staff consists of (approximately) 7 administrative assistants, 2 devoted to business and financial management, 3 student services specialists, and 10 technical staff supporting labs, facilities, and computing resources.

The Department Head is aided by a management team consisting of faculty from across the three major disciplines in the department. Each program has a designated Program Head, who leads the vision and strategic planning for the program, and a Program Curriculum Coordinator, responsible for the oversight of curriculum assessments and revision activities at both graduate and undergraduate levels. The leadership team also includes a Graduate Program Chair and an undergraduate Degree Clearance Officer, with responsibilities across the department programs. The leadership is supplemented on as-needed basis by faculty assuming responsibility for particular projects or thrusts such as ABET accreditation, external review, or other special projects. The proposed Nuclear Engineering Fellowship Program will be fully supported by staffs at both Department and Program levels for execution with high efficiency and quality during recruitment, selection, evaluation, and performance reporting processes.

2.4 EVALUATION PLAN

The evaluation of the Nuclear Engineering Fellowship Program will focus on two main areas related to the purpose of the program: **1) preparing high-quality students for careers in the nuclear field, and 2) increasing the quantity, quality, and diversity of the pool of students entering nuclear engineering disciplines.**

Since many of the metrics applicable to evaluating the fellowship program extend beyond the time of the fellowship award, all Fellows will be identified and tracked throughout their graduate studies. All graduate students at Rensselaer undergo an annual review of academic progress, from which much of the student information can be gleaned. The Pls will generate an annual evaluation report prior to the selection of next year's Fellow for the selection panel consideration.

The first part of the evaluation report will consist of measures related to student quality. The report will quantify:

- Time to completion of major doctoral program milestones (Department Qualifying Exam, Research Candidacy Exam, and Thesis Defense)
- Success rate at doctoral program milestones
- Number of journal publications submitted or accepted
- Number of peer-reviewed conference papers or presentations
- Professional awards received at different levels of recognitions

These measures will be compared to the values across the program at large. The evaluation report may also include qualitative analysis by faculty advisors regarding research quality and/or applicability to the design, construction, operation, and regulation of nuclear facilities and the safe handling of nuclear materials.

The second part of the evaluation report will reflect measures of the student recruitment and enrollment. Measures will include:

- Total number of applicants to the nuclear engineering graduate program
- Fraction of applicants that meet the minimum GPA requirement for fellowship eligibility
- Fraction of applicants that are US Citizens or permanent residents
- Fraction of applicants that are women and minorities

The evaluation report will be shared internally and externally periodically. Regular performance reports will be submitted to NRC on the required period basis.

2.5 MENTORING AND ADVISING

Mentoring and advising is critical to the success of graduate student. There are such sources of assessment that are used across the whole Department and by NE in particular. The individual students' thesis committees and a Fellowship Advisory Panel will play a role in monitoring and supporting the fellowship recipients.

Thesis Committee: This is an internal and external panel convened for graduate students in general. It consists of at least four members primarily representing Rensselaer NE faculty, but also including at least one representative from across the campus or from other universities or national labs. The function of the group is to provide observations and advice on the overall progress and development of the student. The thesis advisor, in particular, will be engaged in ongoing comprehensive research progress and evaluation exercises for each of the students.

RPI NE Fellowship Advisory Panel: An advisory panel established for this Fellowship program will be convened while the Nuclear Engineering Fellowship program is funded. It will provide independent assessment of the potential of the fellowship recipients, and offer advice and guidance as necessary. The panel includes the two PIs (one of them is also the program head), and several senior graduate students. The panel will provide candid comments and suggestions in confidential feedback to the thesis advisor.

2.6 SCHEDULE OF TUITION FEES AND OTHER PERTINENT COSTS

The total support for one graduate student each year is \$50K, which covers: (a) tuition for one academic year (9 months) (after RPI institute tuition cost sharing); and (b) a competitive graduate student stipend for one calendar year (\$30K on average). **Two**

graduate students will be supported each year (\$100K) and the total fund requested from the Fellowship Program will be \$400K for a period of four years.

2.7 STRATEGIC PLAN

Rensselaer is a private institution, and is not part of a State or regional strategic plan, so this element is not applicable.

2.8 SERVICE AGREEMENT

All the Fellowship students will be required to accept and sign the service agreement terms as defined in NRC Funding Opportunity Announcement before receiving the Fellowship funding. RPI is committed to provide the NRC with a list of supported students and their academic status.

3. SUPPORTING ACTIVITIES TO THE FELLOWSHIP PROGRAM

3.1 INSTITUTIONAL SUPPORT AND SUSTAINABILITY

Throughout this document, specific references have been made to tangible and intangible mechanisms for supporting the NE Program at Rensselaer and the fellowship students. Here, we summarize these forms of institutional support:

- Recognizing the critical importance of NE, the department will ***hire two new NE faculty members*** to grow and revitalize the NE Program. Currently, ***one position is being filled to add an associate professor to the faculty***. The new hires will bring new research directions to the current portfolio and graduate applicants will have more choices when they apply.
- The Institute has recently committed (~2.5 million dollars) to invest for revitalization and refocusing of major facilities, such as the Gaertner LINAC Center and Nuclear Engineering Laboratory, provided for students to use as part of their educational and research training. The experience with these facilities provides a critical foundation in nuclear technology to the next generation of nuclear professionals.
- ***The NE faculty have fully committed to supporting the graduate students education in class and research training in laboratory.*** Such commitments play vital role in performing the proposed Fellowship Program and guarantee the quality and sustainability of the program.
- The attached ***Support Letter*** from the Vice Provost and the Vice President for Research clearly shows a strong endorsement for the Nuclear Engineering Fellowship Program.

This is not an exhaustive list of the actions and resources in place to directly or indirectly support the Fellowship program at Rensselaer. They do not address the recipients individually, but they portray the broad institutional commitment at all levels from the program to the president to supporting the Nuclear Engineering Program at Rensselaer. We feel very strongly, therefore, that our vision and strategy directly aligns with the goals of the NRC Fellowship Program. We respectfully request, therefore, full funding of this grant proposal.

3.2 INNOVATION – PARTNERSHIPS/INSTITUTIONS/DISTANCE LEARNING

Rensselaer maintains a strong relationship with the US NAVY and the Naval Reactors Program. The undergraduate NE program includes a component that serves the US Navy's reactor training facility in Kesselring, NY. Noncommissioned officers who are trainers at Kesselring have the opportunity to enroll at Rensselaer to pursue a B.S. degree in nuclear engineering.

Recently, a new modular course for distance learning has been developed with funding from the NRC at RPI in partnership with the United States Military Academy. This course can share hands-on nuclear engineering experience with remote classrooms in other universities from the RPI reactor facility and Linear accelerator. Such an innovation in remote education provides a practical means to promote the nuclear education to other institutions, including Post-Secondary Minority Serving Institutions, to learn hands-on experience through distance learning, shared courses and facility sharing.

All these capabilities greatly improve our selection pool for graduate students who will be offered fellowships.

3.3 LEVERAGE/MATCHING FUNDS

The university cost share will be distributed over the four years of the project in the form of tuition subsidy. At RPI, the expense for one graduate student (the combination of stipend and tuition) will exceed the \$50K limit for each supported person. The Office of Graduate Education and the Office of the Vice President for Research will subsidize the tuition for each graduate student and each year. The cost share part of the tuition from RPI is on average \$32K for each student per year. That would be a **total cost share of about \$260K** for the proposed program.

3.4 QUALITY OF FACULTY

The Nuclear Engineering Program consists of 7 tenure/tenure-track faculty (as of fall 2015), and 8 full- or part-time non-tenured faculty participating in teaching and/or research activities. The faculty support diverse research programs in nuclear reactor engineering, thermal hydraulics, nuclear data measurement, radiation technology, nuclear reactor materials, radiation effects on materials, and health/medical physics. We believe that faculty in the NE program of RPI will ensure the Fellowship students perform high quality research in thrust areas.

4. SUMMARY

Rensselaer Polytechnic Institute is well positioned to enhance and expand its population of graduate students in Nuclear Engineering. ***The RENSSELAER Nuclear Engineering Fellowship Program will provide a strong means to compete for the best students in the field, and to prepare them to be leaders in the next generation nuclear workforce.***

Attachment C - Standard Terms and Conditions

The Nuclear Regulatory Commission's

Standard Terms and Conditions for U.S. Nongovernmental Recipients

Preface

This award is based on the application submitted to, and as approved by, the Nuclear Regulatory Commission (NRC) under the authorization 42 U.S.C. § 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 grant or cooperative agreement. The following also apply:

- 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 Part 200 Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards.

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 (E.O.), Office of Management and Budget (OMB) Circulars, the NRC's 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 200

All provisions of 2 CFR Part 200 and all Standard Provisions attached to this grant/cooperative agreement are applicable to the Recipient and to sub-recipients which meet the definition of "Recipient" in 2 Part §200.86, unless a section specifically excludes a sub-recipient from coverage. The Recipient 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 D of 2 CFR Part 200 and include this term in lower-tier (sub-award) covered transactions.

Recipients must comply with monitoring procedures and audit requirements in accordance with 2 CFR Part 200, Subpart F—AUDIT REQUIREMENTS.

2. Award Package

The Recipient 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 Part 200. Within this framework, the Principal Investigator (PI) named on the award face page, 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, and is subject to a refund of unexpended grant funds to the NRC.

The non-Federal entity alone must be responsible, in accordance with good administrative practice and sound business judgment, for the settlement of all contractual and administrative issues arising out of procurements related to its grant award. These issues include, but are not limited to, source evaluation, protests, disputes, and claims. These standards do not relieve the non-Federal entity of any financial or fiduciary responsibilities or obligations arising under its grant, including sub-contracts and sub-awards, or any other contractual or financial obligation. The Federal awarding agency will not substitute its judgment for that of the non-Federal entity unless the matter is primarily a Federal concern. Violations of law will be referred to the local, State, or Federal authority having proper jurisdiction. See 2 CFR § 200.318(k), General Procurement Standards.

Subawards

Appendix II to Part 200 Contract Provisions for Non-Federal Entity Contracts Under Federal Awards

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 Recipient to NRC. See 2 CFR § 200.318.

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 Recipient agrees to comply with the non-discrimination requirements below:

- Title VI of the Civil Rights Act of 1964 (42 U.S.C. §§ 2000d et seq.), which prohibits discrimination on the grounds of race, color, or national origin in any program or activity receiving federal financial assistance.
- Title IX of the Education Amendments of 1972 (20 U.S.C. §§ 1681 et seq.), which prohibits discrimination on the basis of sex in any education program or activity receiving federal financial assistance.
- Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. § 794), which prohibits discrimination on the basis of disability in any program or activity receiving federal financial assistance.
- The Age Discrimination Act of 1975, as amended (42 U.S.C. §§ 6101 et seq.), which prohibits discrimination on the basis of age in any program receiving federal financial assistance.
- The Americans with Disabilities Act of 1990 (42 U.S.C. §§ 12101 et seq.), which prohibits recipients from discriminating on the basis of disability in employment (Title I); State and local government services (Title II); and places of public accommodation and commercial facilities (Title III).
- Parts II and III of E.O. 11246, as amended by E.O. 11375, 11478, 12086, 12107, 13279, 13665, and 13672, which prohibits federal contractors and federally assisted construction contractors and subcontractors, who do over \$10,000 in Government business in one year, from discriminating in employment decisions on the basis of race, color, religion, sex, or national origin and requires that government contractors take affirmative action to ensure that equal opportunity is provided in all aspects of their employment.

- E.O. 13166, "Improving Access to Services for Persons with Limited English Proficiency," which clarifies that national origin discrimination under Title VI includes discrimination on the basis of limited English proficiency (LEP) and requires that the recipient take reasonable steps to ensure that LEP persons have meaningful access to programs and activities.
- Any other applicable non-discrimination law(s).

Generally, Title VII of the Civil Rights Act of 1964, 42 U.S.C. § 2000e et seq, provides that it shall be an unlawful employment practice for an employer to discharge any individual or otherwise to discriminate against an individual with respect to compensation, terms, conditions, or privileges of employment because of such individual's race, color, religion, sex, or national origin. However, Title VII, 42 U.S.C. § 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 Recipient 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, must be made, in writing (which includes submission by e-mail), to the designated Grants Officer at least 30 days before the proposed change. The request must 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 Recipient will comply, as applicable, with provisions of the Hatch Act (5 U.S.C. §§ 1501-1508 and 7324-7328) which limits the political activities of employees whose principal employment activities are funded in whole or in part with Federal funds.

The Recipient will comply with provisions of 31 U.S.C § 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 Recipient shall submit a completed "Certification Regarding Lobbying" form, regardless of dollar value.

If applicable, the Recipient receiving in excess of \$100,000.00 in Federal funding shall submit a completed Standard Form (SF-LLL), "Disclosure of Lobbying Activities" for any persons engaged in lobbying activities, as discussed at 31 U.S. Code § 1352 – Limitation on use of appropriated funds to influence certain Federal contracting and financial transactions. The form concerns 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. If the Recipient must submit the SF-LLL, including those received from sub-recipients, contractors, and subcontractors, to the Grants Officer.

Debarment And Suspension – (See 2 CFR Part 180; 2 CFR § 200.205; 2 CFR § 200.113; and 2 CFR Part 200, Appendix II.)

The Recipient 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 the recipient's 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); or
- (4) Have had one or more public transactions (Federal, State, or local) terminated for cause or default within the preceding three years.
- (5) The Recipient agrees that, unless authorized by the Grants Officer, it will not knowingly enter into any subaward or contracts under this grant/cooperative agreement with a person or entity that is not included on the System for Award Management (SAM) (<https://www.sam.gov>).

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

Debarment, Suspension, Ineligibility, and Voluntary Exclusion

The Recipient 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 2 CFR Part 180 and 2 CFR Part 200.

Drug-Free Workplace

The Recipient 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 U.S.C. §§ 8101-8106.

Implementation of E.O.13224 – Executive Order on Terrorist Financing

The Recipient 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 Recipient 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 Recipient must comply with E.O. 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:

Implementation of Executive Order 13224 Blocking Property and Prohibiting Transactions With Persons Who Commit, Threaten To Commit, or Support Terrorism amended by E.O. 13268, 13284, and 13372.

Procurement Standards - 2 CFR §§ 200.318-200.326

Sections 200.318 - 200.326 set forth standards for use by Recipients 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 Recipients, unless specifically required by Federal statute, executive order, or approved by OMB.

Travel and Transportation

Travel must be in accordance with the Recipient's Travel Regulations or the U.S. Government Travel Policy and Regulations at: <http://www.gsa.gov/portal/category/21222> and the per diem rates set forth at: <http://www.gsa.gov/portal/content/104877>, absent Recipient's travel regulations. Travel and transportation costs for the grant must be consistent with provisions as established in 2 CFR § 200.473-474.

All other travel, domestic or international, must not increase the total estimated award amount for the grant.

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 Recipient'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 for the grant.

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 Recipient's policies and practices. Travel by first-class travel is not authorized unless prior approval is obtained, in writing, 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 Recipient will comply with the provisions of the Fly America Act (49 U.S.C 40118), as implemented at 41 CFR §§ 301-10.131 through 301-10.143.

Property Standards

Property standards of this award shall follow provisions as established 2 CFR §§ 200.310-200.316.

Intangible Property

Intangible and intellectual property of this award shall generally follow provisions established in 2 CFR § 200.315.

Inventions Report - The Bayh-Dole Act (P.L. 96-517) affords Recipients 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 Recipient 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 Recipient 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 Recipients, 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, E.O. 12889 requires NRC to notify the owner. If the Recipient uses or has used patented technology under this award without license or permission from the owner, the Recipient must notify the Grants Officer. This notice does not imply 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 Subpart D of 2 CFR Part 200. The Recipient 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 Recipient 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 Recipient employees may be copyrighted, but only the part authored by the Recipient is protected because, under 17 U.S.C. § 105, works produced by Government employees are not copyrightable in the United States. On occasion, NRC may ask the Recipient 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 U.S.C. § 105.

Record Retention and Access

Recipient shall follow established provisions in 2 CFR §§ 200.333-337.

Conflict Of Interest

Conflict of Interest standards for this award will follow the Organizational Conflict of Interest (OCOI) requirements set forth in Section 170A of the Atomic Energy Act of 1954, as amended, and provisions set forth at 2 CFR § 200.112, Conflict of Interest.

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 Recipient'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 Acquisition Management Division, unless otherwise delegated, who shall appoint an intra-agency Appeal Board to review a recipient 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 Recipient 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.

Remedies for Noncompliance

Termination of this award will follow provisions as established and described above in "Dispute Review Process" in 2 CFR §§ 200.338-342.

Performance and Financial Monitoring and Reporting - 2 CFR §§ 200.327-329

Recipient Financial Management systems must comply with the provisions in 2 CFR § 200.302.

- Payment – 2 CFR § 200.305
- Cost Share or Matching – 2 CFR § 200.306

- Recipients are to be careful with providing excessive cost share or match since at the end of the grant, if the identified match has not been provided, then a portion of the federal share may be required to be returned to the Government.
- Program Income – 2 CFR § 200.307
 - Earned program income, if any, will be added to funds committed to the project by the NRC and Recipient and used to further eligible project or program objectives or be deducted from the total project cost for the grant, as directed by the Grants Officer or indicated in the terms and conditions of the award.
- Revision of Budget and Program Plans – 2 CFR § 200.308
 - The Recipient is required to report deviations from the approved budget and program descriptions in accordance with – 2 CFR § 200.308(b) and request prior written approval from the Project Officer and the Grants Officer.
 - The Recipient is not authorized to re-budget between direct costs and indirect costs without written prior approval of the Grants Officer.
 - The Recipient is authorized to transfer funds among direct cost categories up to a cumulative 10 percent of the total approved budget. The Recipient 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 §§ 200.403
- See section 2 CFR §§ 200.330-332 for Subrecipient Monitoring and Management.

FEDERAL FINANCIAL REPORTS

Federal Financial Reports (SF-425) are semi-annually, for the periods ending March 31 and September 30. Reports are due within 30 calendar days following the end of the reporting period and must be emailed to the Project Officer at the email addressed indicated in the Notice of Award, and to the Grants Officer at: Grants_FFR.Resource@nrc.gov. (NOTE: *There is an underscore between Grants and FFR in the email address.*) The SF-425 form and instructions are available at the following URL: http://www.whitehouse.gov/omb/grants_forms/.

PERFORMANCE PROGRESS REPORTS

The performance (technical) reports indicated below are subject to 2 CFR §200.328.

Scholarship and Fellowship Programs

Performance Progress reports must be submitted annually, for the period ending September 30, or any portion thereof, regardless of the award date. Reports are due within 30 days following the end of each reporting period and must be emailed to the Project Officer at the email addressed indicated in the Notice of Award, and to the Grants Officer at: Grants_PPR.Resource@nrc.gov. (NOTE: *There is an underscore between Grants and PPR in the email address.*)

Final Reports - The Recipient is required to submit final reports, both Financial (SF-425) and Performance (SF-PPR, SF-PPR-B, SF-PPR-E) within 90 days of the grant expiration. In addition to these reports, a final SF-428, Tangible property report, is also required, if applicable. The final PPR (for Scholarship, Fellowship, and Trade School and Community College Scholarship awards) must include the names of all students with up to date contact information (mailing address, telephone/cell phone, email address). The reports must be emailed to the Project Officer at the email addressed indicated in the Notice of Award, and to the Grants Officer at: Grants_FFR.Resource@nrc.gov and Grants_PPR.Resource@nrc.gov. (NOTE: There is an underscore between Grants and FFR and Grants and PPR in the email addresses.)

Period of Performance – 2 CFR § 200.309

The recipient may charge to the Federal award only allowable costs incurred during the period of performance and any costs incurred before the NRC or pass-through entity made the Federal award that was authorized by the NRC or pass through entity.

Unless otherwise authorized in 2 CFR Part 200 or by special award condition, any extension of the award period can only be authorized by the Grants Officer in writing. 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 Grant Officer may authorize a no cost extension of the period of performance. The recipient must submit a no cost extension request no less than 30 days prior to the award end date. Any request for a no cost extension after the grant has expired will not be approved. However, the NRC has no obligation to provide any additional prospective or incremental funding. Any modification of the award to increase funding and/or to extend the period of performance is at the sole discretion of the NRC.

Automated Standard Application For Payments (ASAP) Procedures

Unless otherwise stated, Recipient payments are made using the Department of Treasury's Automated Standard Application for Payment (ASAP) system, ASAP.gov, through preauthorized electronic funds transfers. To receive payments, Recipients 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. Recipients 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 of 1996, as amended, and as implemented by 2 CFR Part 200, Subpart F—AUDIT REQUIREMENTS. Recipients are subject to the provisions of this subpart if they expend \$750,000 or more in a year in Federal awards. See 2 CFR 200.501.

The Form SF-SAC and the Single Audit Reporting packages for fiscal periods ending on or after January 1, 2008 are submitted online, as follows:

1. Create the recipient's 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; and
5. Click "Submit."

Organizations expending less than \$750,000 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

The recipient is responsible for providing documentation to the NRC that tracks each student's progress in achievement of the academic program for which federal funds were provided. This includes: (1) ensuring the service agreement is signed by the student prior to providing support; (2) providing the NRC with student contact information upon student entry into the program, upon completion or withdrawal from the program, and upon request by the NRC; and (3) monitoring the student's fulfillment of the service agreement for the duration of the award. The NRC shall be notified immediately if a student is not fulfilling the academic program or the service agreement.

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 OMB requirements indicated above (for metric reporting), the recipient shall address the following questions and submit responses with the required progress reports:

Fellowship Metrics:

1. How many graduate students have been sponsored by NRC funding?
 - a. Response is the number of students, for this reporting period and cumulative to the grant.
2. How many students, supported by NRC funding, have received M.S. or equivalent degrees?
 - a. Response is the number of students, for this reporting period and cumulative to the grant.
3. How many students, supported by NRC funding, have received Ph.D. or equivalent degrees?
 - a. Response is the number of students, for this reporting period and cumulative to the grant.

4. How many students, supported by NRC funding, have accepted a job and are employed in the nuclear industry?
 - a. Response is the number of students, for this reporting period and cumulative to the grant.
5. How many items have students produced, for example, Professional Journal articles, publications, patents, or conference reports?
 - a. Response is the type and number of items, for this reporting period and cumulative to the grant.

As part of the PPR, include the following information for each student support under this award:

1. Student Name
2. Years of Support
3. Cumulative Support in Dollars
4. Estimated Graduation Date
5. Status
6. Up to date student contact information (mailing address, telephone/cell phone, email address) for students no longer participating in the program, i.e. transferred programs, graduated, withdrew, etc.
7. Up to date student contract information, for all students at time of grant expiration, i.e. Final PPR.

Examples of status could be:

"Employed in Nuclear Industry", if so, where;
"Looking for employment", if so, how long;
"Deferred due to continuing education", if so, what degree;
"Employed by Non-Nuclear", if so, where; and
"Dropped out of program"

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 Recipient as high risk and the assignment of special award conditions. Further action may be required as specified in the standard term and condition entitled "Remedies for Noncompliance."

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 Recipient 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 Recipient

The Recipient 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 Recipient or contractor under an award, the Recipient shall provide and shall require his/her contractors to provide reasonable access to all facilities and provide necessary assistance for the safety and convenience of the Government representative in the performance of his/her official duties.

IV. Additional Requirements

Criminal and Prohibited Activities

The Program Fraud Civil Remedies Act (31 U.S.C. §§ 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 U.S.C. § 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 U.S.C. § 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 U.S.C. § 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

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

Increasing Seat Belt Use in the United States

E.O. 13043, amended by E.O. 13652, requires Recipients 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

E.O. 13513 requires Recipients 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 Recipient 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 Recipient'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 Recipients or applicants regardless of the source.

Minority Serving Institutions (MSIs) Initiative

Pursuant to E.O.s 13230 and 13270, amended by E.O. 13316 and 13385, 13532, 13592, 13555, 13515, and 13621, 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 Recipients 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 Recipient 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 Recipient organization shall investigate the allegation and submit its findings to the Grants Officer. The NRC may accept the Recipient's findings or proceed with its own investigation. The Grants Officer shall inform the Recipient 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 Recipient 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 Recipient 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 [Recipient 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 recipient or any subrecipient, 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." (See 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.