

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-0006	2. SUPPLEMENT NUMBER M0001	3. EFFECTIVE DATE 06/30/2017	4. COMPLETION DATE
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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 US NRC - HQ Mailing Address: ACQUISITION MANAGEMENT DIVISION MAIL STOP TWFN-8E06M WASHINGTON DC 20555-0001
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7. TAXPAYER IDENTIFICATION NO. (TIN)	9. PRINCIPAL INVESTIGATOR/ORGANIZATION'S PROJECT OR PROGRAM MGR. (Name & Phone) [REDACTED]
8. COMMERCIAL & GOVERNMENT ENTITY (CAGE) NO.	[REDACTED]

10. RESEARCH, PROJECT OR PROGRAM TITLE
 Program A & B: Enabling Strong Growth of the Nuclear Engineering Undergraduate Scholarship Program at Rensselaer Polytechnic Institute

11. PURPOSE
 See Schedule

12. PERIOD OF PERFORMANCE (Approximately)
 09/30/2015 through 06/29/2019

13A.	AWARD HISTORY	13B.	FUNDING HISTORY
PREVIOUS	\$200,000.00	PREVIOUS	\$200,000.00
THIS ACTION	\$200,000.00	THIS ACTION	\$200,000.00
CASH SHARE	\$0.00	TOTAL	\$400,000.00
NON-CASH SHARE	\$0.00		
RECIPIENT SHARE	\$70,909.00		
TOTAL	\$400,000.00		

14. ACCOUNTING AND APPROPRIATION DATA
 See Schedule

PURCHASE REQUEST NO.	JOB ORDER NO.	AMOUNT	STATUS
RES-17-0150			

15. POINTS OF CONTACT

	NAME	MAIL STOP	TELEPHONE	E-MAIL ADDRESS
TECHNICAL OFFICER	NANCY V. HEBRON-ISREAL	TWFN/10B56	301-415-6996	Nancy.Hebron-Isreal@nrc.gov
NEGOTIATOR				
ADMINISTRATOR	M'LITA R. CARR		301-415-6869	MLita.Carr@nrc.gov
PAYMENTS				

16. THIS AWARD IS MADE UNDER THE AUTHORITY OF:
 Pursuant to Section 31b and 141b of the Atomic Energy Act of 1954, as amended.

17. APPLICABLE STATEMENT(S), IF CHECKED: <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
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UNITED STATES OF AMERICA	COOPERATIVE AGREEMENT RECIPIENT
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CONTRACTING/GRANT OFFICER M'LITA R. CARR	[REDACTED]	06/30/2017	[REDACTED]
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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 DUNS Number: 002430742</p> <p>The purpose of this modification is to revise the grant in it's entirety:</p> <ol style="list-style-type: none"> 1. Add an additional program to the existing grant: Program B: entitled "Enabling Strong Growth of the Nuclear Engineering Undergraduate Scholarship Program at Rensselaer Polytechnic Institute"; 2. Update the Terms and Conditions; 3. Extend the grant's period of performance as a result of Program B. <p>As a result of this modification:</p> <ol style="list-style-type: none"> 1. Block 9, PRINCIPAL INVESTIGATOR/ORGANIZATION'S PROJECT OR PROGRAM MGR, delete in its entirety and replace with the following: "Program A: [REDACTED] [REDACTED] [REDACTED] [REDACTED] 2. Attachments A, B, & C, delete in its entirety and replace with the following, see attached beginning on page 4. <p>Please see attached for detailed information.</p> <p>LIST OF CHANGES: CHANGES FOR ACCOUNTING CODE: 2015-X0200-IUPMRU-84-84D002-51-K-164-T8458-4110 Percent changed from 100 to 50</p> <p>Continued ...</p>					

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>NEW ACCOUNTING CODE ADDED:</p> <p>Account code: 2017-X0200-IUPMRU-60-60D099-60B991-1148-52-S-164-4 110-52-S-164-1148 BBFY 2017 EBFY Fund X0200 Funds Source IUPMRU YBA Office 60 Division 60D099 Branch 60B991 Cost Ctr (Job Code) 1148 Major prog/business 52 Product Line S Product 164 BOC 4110 REIM Agreement Num REIM Agmt Line Num FAIMIS Template Name 52-S-164-1148 Quantity: 0 Amount: \$200,000.00 Percent: 50 Subject To Funding: N Payment Address:</p> <p>Payment: ASAP GRANT FUNDS REIMBURSEMENT SYS US TREASURY</p> <p>Period of Performance: 09/30/2015 to 06/29/2019 Payment will be made through the Automated Standard Application for Payment (ASAP.gov) unless the recipient has failed to comply with the program objectives, award conditions, Federal reporting requirements or other conditions specified in 2 CFR 200.</p>				

Attachment A - Schedule

A.1 PURPOSE OF GRANT

The purpose of this Grant modification is to incorporate "Program B" into the Grant. This modification changes the purpose of the Grant to provide support to two distinct programs with Rensselaer Polytechnic Institute, as described in Attachment B entitled "Program Description."

1. **Program A:** Enabling Strong Growth of the Nuclear Engineering Undergraduate Scholarship Program at Rensselaer Polytechnic Institute.
2. **Program B:** Enabling Strong Growth of the Nuclear Engineering Undergraduate Scholarship Program at Rensselaer Polytechnic Institute.

A.2 PERIOD OF GRANT

The effective date of this Grant is:

Program A: Enabling Strong Growth of the Nuclear Engineering Undergraduate Scholarship Program at Rensselaer Polytechnic Institute – The effective date of this grant is September 30, 2015. The estimated completion date of this Grant is September 29, 2017. Funds obligated hereunder are available for program expenditures for the estimated period: September 30, 2015 – September 29, 2017.

Program B: Enabling Strong Growth of the Nuclear Engineering Undergraduate Scholarship Program at Rensselaer Polytechnic Institute – The effective date of this grant is June 30, 2017. The estimated completion date of this Grant is June 29, 2019. Funds obligated hereunder are available for program expenditures for the estimated period: June 30, 2017 – June 29, 2019.

A.3 AMOUNT OF AWARD AND PAYMENT PROCEDURES

1. **Program A:** The total estimated amount of this program is [REDACTED] for the two year period; inclusive of [REDACTED]. NRC hereby obligates the amount of \$200,000.00 for program 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 program is [REDACTED] for the two year period; inclusive of [REDACTED]. NRC hereby obligates the amount of \$200,000.00 for program 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 Recipient in accordance with procedures set forth in the Automated Standard Application for Payments (ASAP) Procedures set forth below.

A.4 Budget

Revisions to the grant award budget shall be made in accordance with the Revision of grant Budget in accordance with [2 CFR § 200.308](#).

Program A

- | | |
|--------------------------------|---|
| 1. Total Estimated NRC Amount: | \$200,000.00 |
| 2. Total Obligated Amount: | \$200,000.00 |
| 3. Cost-Sharing Amount: | [REDACTED] |
| 4. Activity Title: | Enabling Strong Growth of the Nuclear Engineering Undergraduate Scholarship Program at Rensselaer Polytechnic Institute |

4. NRC Project Officer: Nancy Hebron-Isreal
5. DUNS No.: 002430742

	<u>Year 1</u>	<u>Year 2</u>	<u>Total</u>
Personnel	\$5,717.00	\$5,831.00	\$11,548.00
Fringe Benefits (████████)	████████	████████	████████
Travel	\$12,000.00	\$12,000.00	\$24,000.00
Supplies	\$3,991.00	\$3,992.00	\$7,983.00
Other (Tuition)	\$74,000.00	\$74,000.00	\$148,160.00
Indirect Costs (██████)	████████	████████	████████
Total	\$99,834.00	\$100,166.00	\$200,000.00

Program B

1. Total Estimated NRC Amount: \$200,000.00
 2. Total Obligated Amount: \$200,000.00
 3. Cost-Sharing Amount: ██████████
 4. Activity Title: Enabling Strong Growth of the Nuclear Engineering Undergraduate Scholarship Program at Rensselaer Polytechnic Institute
 5. NRC Project Officer: Nancy Hebron-Isreal
 6. DUNS No.: 002430742

	<u>Year 1</u>	<u>Year 2</u>	<u>Total</u>
Personnel	\$8,703.00	\$8,877.00	\$17,580.00
Fringe Benefits (████████)	████████	████████	████████
Travel	\$11,500.00	\$11,500.00	\$23,000.00
Supplies	\$3,000.00	\$3,320.00	\$6,320.00
Other (Tuition)	\$71,000.00	\$71,000.00	\$142,000.00
Indirect Costs (██████)	████████	████████	████████
Total	\$99,697.00	\$100,303.00	\$200,000.00

I. SECTION B - BUDGET CATEGORIES

6. Object Class Categories	GRANT PROGRAM, FUNCTION OR ACTIVITY				Total (5)
	(1)	(2)	(3)	(4)	
	Yr 1-NRC-HQ-60-17-FOA-0001	Yr 2-NRC-HQ-60-17-FOA-0001			
a. Personnel	\$ 8,703.00	\$ 8,877.00	\$	\$	\$ 17,580.00
b. Fringe Benefits					
c. Travel	11,500.00	11,500.00			23,000.00
d. Equipment					
e. Supplies	3,000.00	3,320.00			6,320.00
f. Contractual					
g. Construction					
h. Other	71,000.00	71,000.00			142,000.00
i. Total Direct Charges (sum of 6a-6h)	97,571.00	98,132.00			\$ 195,703.00
j. Indirect Charges					\$
k. TOTALS (sum of 6i and 6j)	\$ 99,697.00	\$ 100,303.00	\$	\$	\$ 200,000.00
7. Program Income	\$ 0.00	\$	\$	\$	\$

Attachment B – Program Description

Program A: Enabling Strong Growth of the Nuclear Engineering Undergraduate Scholarship Program at Rensselaer Polytechnic Institute

Description of the Proposed Program: The central theme of this project is to bring talented (especially diversity) students into the nuclear engineering fields to become future powerhouse of multidisciplinary nuclear careers. Following this theme, the project promotes two important goals. Firstly, it is committed to creating and supporting a community diverse in many ways: diversity students and students with various and different backgrounds. Secondly, it places emphasis on improving the engineering thinking of students through innovative nuclear-related research.

The proposed program will support three major efforts: administration (recruitment, marketing, co-advising, and evaluation activities); undergraduate research program; and research and education presentations and publications. During the academic year, we plan to attract talented students from all disciplines of Rensselaer Polytechnic Institute (RPI) to perform undergraduate research at Nuclear Engineering (NE) program. For summer research, on the other hand, we shall also try to attract students from other parts of the New York state and US to come over.

We will take major effort to recruit, market, and educate the students. Detailed recruitment and marketing strategies will be elaborated in Section II. Each year, 10 honored scholars will receive undergraduate research support from this project and carry out their first research topics with a NE faculty at RPI.

Recruitment Activities and Specific Marketing Strategies: To attract the talented students to participate the program, the following recruitment activities and specific marketing strategies will be taken.

- Development of a **web page** devoted to information on this scholarship opportunity. This page will include requirements and details on program application and award, as well as links to the information about education philosophy, history, and training facilities in the Nuclear Engineering program at RPI. Eligible students will be considered for the scholarship only through applications, and the website will encourage applicants to include information in their application and essay reflecting their interest in contributing to the nuclear sector. This process will be coordinated and synchronized with the Office of Undergraduate Education and the Women in Engineering program at the School of Engineering at RPI.
- A **color brochure**, suitable for printing, containing scholarship and undergraduate application information will be produced. This brochure will be distributed electronically or in hard copy to targeted institutions during recruitment events.
- The proposed program will be advertised through both webpage and the brochure in advance at local (New York State) universities and several *Post Secondary Minority Institutions* in order to recruit minority students. Among colleges to be targeted are Howard University in Washington, D. C., Hampton University in Virginia, and Morgan State University in Maryland, all relatively close to RPI, which would allow the students to come and visit the campus and the Nuclear Engineering program at RPI prior to starting the position.
- Built upon the existing collaborations between the PIs and various diversity programs and groups, the proposed program will be distributed to *Society of Women Engineers, Diversity and Women in Engineering Program, Engineering Ambassador Program, African-American Student Association, Veteran student groups*, etc.
- In order to further promote nuclear engineering study to underrepresented minorities and female students, these scholarship program recruitment efforts will complement and integrate with the Department's current

initiative to institutionalize its recruiting efforts with *Historically Black Colleges and Universities* (HBCUs) and *Hispanic Serving Institutions* (HSIs).

- The advertisement of this undergraduate scholarship opportunity will be brought to national and student meetings of the American Nuclear Society, Health Physics Society, and other relevant professional meetings through our students' and faculty members' attendance.
- Since the benefits from the proposed program to the research at Nuclear Engineering Program are obvious, all the faculty and staff in the Nuclear Engineering Program are encouraged to spread the scholarship opportunity and information through advising and teaching settings. Our faculty will also distribute the advertisement through involvement with the Admissions Office on recruiting visits, or through undergraduate school "fairs" or consolidated recruiting events.

Selection Process: This scholarship selection is diversity-, merit-, and proposal- based. It follows a point scale with total 100. The recipients will be selected from scholarship application pools. The PIs of this project will serve as an administrative coordinator of the scholarship program. Ten honored scholars will be awarded for an initial period of one year. The selection process is renewed every year. An honored scholar who wishes to renew the scholarship must re-apply for the next awarded year and compete among the new application pool.

➤ [Redacted]

■ [Redacted]

■ [Redacted]

Supporting Students and Technical Program: After 10 honored scholars were granted, the PIs as well as faculty and administration personnel in NE program and MANE department will ensure the scholars being placed in an appropriate lab and perform research as efficiently and productively as possible. General management structure and the supporting activities are listed below.

✓✓ **Management Structure:** It is also very important to ensure research to be carried out at its appropriate level. The PIs will form panels to review proposals from the students to apply for the scholarships and the effectiveness of the project. Moreover, the PIs will collaborate with each faculty member who receives the scholarship recipient(s) in his/her lab to co-advise the student(s) at various levels. These co-advising activities will focus on some key factors affecting the effectiveness of the research. (a) Is the student the proper person to carry out the research? (b) Is the current semester or summer the right time to perform the research? (c) Is the research topic innovative? (d) Does the research lead to results presentable? If not, can we change to a different topic? (e) Is the student's interest in nuclear fields promoted during the research? (f) Are we able to retain the student in nuclear career after graduation? Additionally, the PI will design the entrance and exit surveys and make the evaluation report for each student for further improvement of the scholarship program.

✓ **Administration of the program:** The administration of the program is divided into four parts: (1) recruiting (section II), (2) selection (section III), (3) managing and supporting the honored scholars (see below), and (4) evaluation (section IV). Since recruiting, selection, and evaluation plans are elaborated in other sections, below we shall focus on the managing and supporting activities we propose for the honored scholars.

❖ *Undergraduate research program:* Two groups of undergraduate students will be supported through the proposed program. For the on-campus students who are selected to be recipients, they will be provided with a stipend [REDACTED] in a calendar year. They will be expected to enroll full-time in diverse coursework and participate in exploratory research projects with one or more faculty members. They need to participate in research activities throughout the academic year and during the summer months. The research activities include both nuclear related projects at RPI and nuclear training in national laboratories. For the honored scholars from other universities, they will be provided with a stipend of \$7,000 for the three-month summer research. And the on-campus students and PIs will try to accommodate their housing during stay. They will live at RPI to perform their research with targeted faculty advisors on-campus.

❖ *Research and education presentations and publications:* Through the proposed project, the honored scholars will be provided the top-rated opportunities in research and trainings at the beginning of their academic careers. They will also be provided in participating internal and external programs such as attending and presenting at annual American Nuclear Society conferences, student conferences, poster competitions, etc. The PI will also go with the students to observe the effectiveness of the program, as well as present the detailed educational strategies in the program. Moreover, though formal journal publications are not required by the project, we strongly encourage students to submit their research results for conference proceedings and journal publications. The presentations at those conferences and publications will enhance the research and educational experience of the students, further the research activities at RPI, and increase the skills that the students will ultimately bring to the nuclear careers.

Evaluation Plan: The evaluation of the program will focus on two main areas related to the purpose of the program: 1) increasing the diversity, quantity, and quality of the pool of students entering nuclear engineering disciplines, and 2) encouraging and preparing high-quality students for careers in the nuclear field. The evaluation report and surveys will be generated through the current ongoing collaboration of the PI, Ms. Barbara A. Ruel (Director of Diversity and Women in Engineering Programs, RPI), and Ms. Elizabeth Herkenham (K-13 Program Director, RPI). Existing measures and studies in diversity education and research in other engineering fields will be selectively adapted and improved.

- **Entrance and exit surveys:** Both entrance and exit surveys will be made available for the student recipients and the faculty advisors to fill out at beginning of the scholarship and the end of the scholarship to track the effectiveness of the research.
- **Evaluation report:** Since many of the metrics applicable to evaluating the scholarship program extend beyond the time of the scholarship award, all scholarship students will be identified and tracked throughout their undergraduate studies based on semesters, from which much of the student information can be gleaned. The PI will generate an evaluation report, primarily based on their academic performance (GPA), to track the recipients as they fulfill their academic obligation during the time of the scholarship award. The evaluation report on the scholarship students is related to student academic quality and achievements. The following aspects will be measured: the cumulative GPA, the performance in participating URP research projects in research labs on campus, the performance in poster competitions to present research projects, the performance in attending ANS conference and presenting papers, and the decision on whether or not pursuing nuclear careers after graduation. The above measures will be compared to the values across the program at large. The results may also include qualitative analysis by undergraduate research faculty advisors regarding research and project quality. The results will be shared internally on an annual basis, and will be shared externally periodically or upon request.

Schedule of Tuition Fees and Other Pertinent Costs: No tuition fees are scheduled in the program. The project includes the following pertinent costs and the details are illustrated in Budget Narrative. (1) Ten undergraduate honored scholars will be funded every year. (2) Three week academic and summer time of the PI: one academic week will be cost shared by RPI, and two summer weeks are included in the program. Major efforts will devoted by the PI to the marketing, recruitment, co-advising, and evaluation activities. (3) The domestic travel budget is requested to cover the students' and investigators' travel to present research and education activities at national society (or student) conferences. (4) It is important to perform radiation related experiments in nuclear engineering field. Therefore, the LINAC (linear accelerator) usage fee is budgeted. (5) The lab supply fee for purchasing materials needed for research.

Strategic Plan & Innovation – Partnerships with other Programs and Institutions: 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. The proposed program is an integrated element of the following programs.

- ✚ The Undergraduate Research Program (URP) at RPI. The application process of the proposed program will be merged with URP program for RPI students. The institute will provide related information through URP program to the proposed program.
- ✚ The Diversity, Women's Affairs and Outreach (DWAO) Committee at Mechanical, Aerospace, and Nuclear Engineering Department (MANE). As the chair of the DWAO committee, the PI will help diversity students in the Department and connected communities to receive proper information. Other programs and groups, such as Society of Women Engineers, Engineering Ambassador Program, African-American Student Association, Veteran student groups. The pathways to those programs are existed through past collaborations between the PIs and them.
- ✚ The Department's current initiative to institutionalize its recruiting efforts with Historically Black Colleges and Universities (HBCUs) and Hispanic Serving Institutions (HSIs).

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 scholarship 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. Solid number (~30 each year) of undergraduate 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 undergraduate students education in class and research training in laboratory. Such commitments play vital role in performing the proposed Scholarship Program and guarantee the quality and sustainability of the program.
- The attached Support Letter (with the leverage/matching funds explained below) from the Office of the Vice President for Research clearly shows a strong endorsement for the RPI Scholarship Program.

This is not an exclusive list of the actions and resources in place to directly or indirectly support the Scholarship program at RPI. It does not, for example, speak of the ten 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 Scholarship Program. We respectfully request, therefore, full funding of this grant proposal.

Leverage/Matching Funds: The major leverage/matching support by RPI to the proposed program is listed below.

- [REDACTED]
- [REDACTED]

Program B: Enabling Strong Growth of the Nuclear Engineering Undergraduate Scholarship Program at Rensselaer Polytechnic Institute

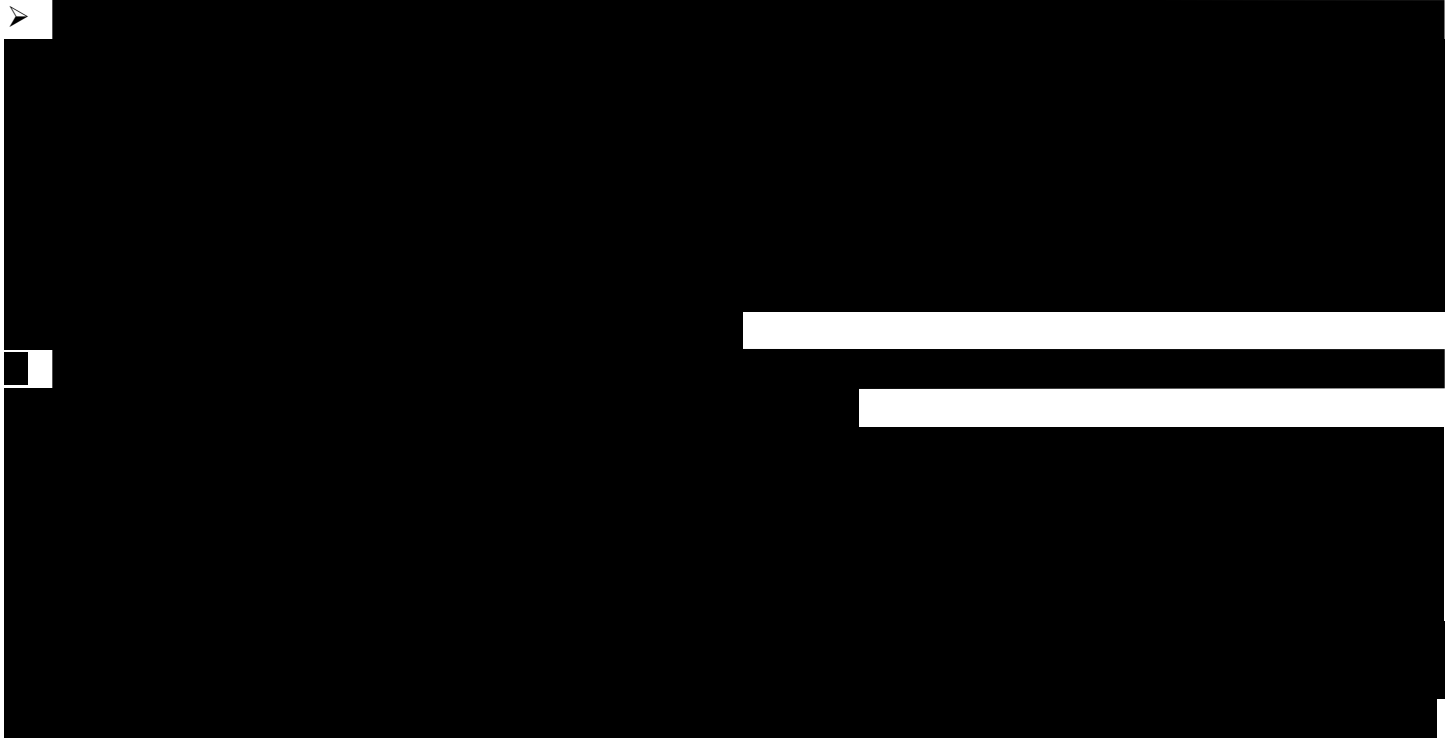
I. Description of the Proposed Program: The central theme of this project is to bring talented (especially diversity) students into the nuclear engineering fields to become future powerhouse of multidisciplinary nuclear careers. Following this theme, the project promotes two important goals. Firstly, it places emphasis on improving the interest and engineering thinking of students through innovative nuclear-related education and research. Secondly, it is committed to creating and supporting a community diverse in many ways: diversity students and students from various and different backgrounds.

The proposed program will support three major efforts: administration (recruitment, marketing, co-advising, and evaluation activities); undergraduate education program; and symposium and presentations. During the academic year, we plan to attract talented students from all disciplines of Rensselaer Polytechnic Institute (RPI) to take undergraduate education at Nuclear Engineering (NE) program. For summer time, on the other hand, we shall also try to attract students from other parts of the New York state and US to come over. We will take major effort to recruit, market, and educate the students. Detailed recruitment and marketing strategies will be elaborated in Section II. Each year, 10 honored scholars will receive prestigious “NRC Nuclear Excellence Scholarship” from this project to pursue their nuclear education at RPI.

II. Recruitment Activities and Specific Marketing Strategies: To attract the talented students to participate the program, the following recruitment activities and specific marketing strategies will be taken.

- The proposed program will be advertised through both **webpage** and **the brochure** in advance at local (New York State) universities and several *Post Secondary Minority Institutions* in order to recruit minority students. Among colleges to be targeted are Howard University in Washington, D. C., Hampton University in Virginia, and Morgan State University in Maryland, all relatively close to RPI, which would allow the students to come and visit the campus and the NE program at RPI prior to starting the position. (1) We will develop and maintain a **web page** devoted to information on this scholarship opportunity. This page will include requirements and details on program application and award, as well as links to the information about education philosophy, history, and training facilities in the NE program at RPI. Eligible students will need to apply, and the website will encourage applicants to submit essay reflecting their interest in contributing to the nuclear sector. This process will be coordinated with the Office of Undergraduate Education of RPI. (2) A **color brochure**, suitable for printing, containing both this scholarship and undergraduate application information will be produced. This brochure will be distributed electronically or in hard copy to targeted institutions during recruitment events.
- Built upon the existing collaborations between the PIs and various diversity programs and groups, the proposed program will be distributed to *Women in Nuclear, Society of Women Engineers, Diversity and Women in Engineering Program, Engineering Ambassador Program, African-American Student Association, Veteran student groups*, etc. Additionally, we will seek the establishment of consortia or partnerships with other institutions, such as Historically Black Colleges and Universities (HBCUs), Hispanic Serving Institutions (HSIs), through distance learning, shared courses, facility sharing, etc.
- The advertisement of this undergraduate scholarship opportunity will be brought to national and student meetings of the American Nuclear Society, Health Physics Society, and other relevant professional meetings through our students’ and faculty members’ attendance.
- Since the benefits from the proposed program to the NE Program are obvious, all faculty and staff in the NE Program are encouraged to spread the scholarship opportunity and information through advising and teaching setting. Our faculty will also distribute the advertisement through involvement with the Admissions Office on recruiting visits, or through undergraduate school “fairs” or consolidated recruiting events.
- As part of the marketing and education program, we propose to **initiate an Undergraduate Nuclear Symposium** to attract national-wide undergraduate students who have interest to learn about nuclear. *Special interests are for students in Post-Secondary Minority Serving Institutions.*
- **Awards receptions**, proved by an event on September 22, 2016, become a perfect moment to recruit and maintain top students in the NE program.

III. Selection Process: This scholarship selection is merit- and proposal- based. It follows a point scale with total 100. The recipients will be selected from scholarship application pools. The PIs of this project will serve as administrative coordinators of the scholarship program. Ten honored scholars will be awarded for an initial period of one year. The selection process is renewed every year. An honored scholar who wishes to renew the scholarship must re-apply for the next awarded year and compete among the new application pool.



IV. Supporting Students and Technical Program: After 10 honored scholars were granted, the PIs as well as faculty and administration personnel in NE program and MANE department will ensure the scholars being placed in appropriate classes to get NE related education asappropriately and productively as possible. General management structure and the supporting activities are listed below.

✓ **Management Structure:** It is also very important to ensure the scholarships to be carried out at its appropriate level. The PIs will form panels to review proposals from the students to apply for the scholarships and the effectiveness of the continuing education after getting scholarships. Moreover, the PIs will collaborate with each faculty member who is in contact with the scholarship recipient(s) in his/her classes as well as labs to co-advise the student(s) at various levels. These co-advising activities will focus on some key factors affecting the effectiveness of the education. (a) Is the class the proper class for the scholar at his/her current knowledge level? (b) Is the current semester or summer the right time to take the class? (c) Is the class interesting and/or innovative for the scholar? (d) Does the education lead to results presentable? If not, can we change to a different topic? (e) Is the scholar's interest in nuclear fields promoted during the education? (f) Are we able to retain the student in nuclear career after graduation? Additionally, the PI will design the entrance and exit surveys and make the evaluation report for each student for further improvement of the scholarship program.

✓ **Administration of the program:** The administration of the program is divided into four parts: (1) recruiting (section II), (2) selection (section III), (3) managing and supporting the honored scholars (see below), and (4)

evaluation (section V). Since recruiting, selection, and evaluation plans are elaborated in other sections, below we shall focus on the managing and supporting activities we propose for the honored scholars.

❖ *Undergraduate education program:* Honored scholars from both RPI and other universities will be supported through the proposed program. Every scholar will be provided with a scholarship of [REDACTED] a calendar year. They will be expected to utilize this scholarship to enroll in coursework related with NE program. Participating in exploratory research projects with one or more faculty members are recommended and helped but not required. The suggested research activities include both nuclear related projects at RPI and nuclear training in national laboratories.

❖ *Symposium, presentations, and potential publications:* An Undergraduate Nuclear Symposium is proposed to take place in summer of 2018. We will provide travel support to both honored students and researchers (as teachers) national wide to join the symposium. The honored scholars and the excellent students from other universities and other programs, through this symposium, will be provided the top-rated discussions in research and career options at the beginning of their academic careers. Later, through the proposed project, the scholars will also be provided in participating internal and external programs such as attending and presenting at annual American Nuclear Society conferences, student conferences, poster competitions, etc. The PI will go with the students to observe the effectiveness of the program, as well as present the detailed educational strategies in the program. Moreover, though formal journal publications are not required by the project, we strongly encourage students to submit their education and research results for conference proceedings and journal publications.

V. Evaluation Plan: The evaluation of the program will focus on two main areas related to the purpose of the program: 1) encouraging and preparing high-quality students for careers in the nuclear field, and 2) increasing the diversity, quantity, and quality of the pool of students entering NE disciplines. The evaluation report and surveys will be generated through the current ongoing collaboration of the PI, Ms. Barbara A. Ruel (Director of Diversity and Women in Engineering Programs, RPI), and Ms. Elizabeth Herkenham (K-13 Program Director, RPI). Existing measures and studies in diversity education and research in other engineering fields will be selectively adapted and improved.

- **Entrance and exit surveys:** Both entrance and exit surveys will be made available for the student recipients and the faculty advisors to fill out at beginning of the scholarship and the end of the scholarship to track the effectiveness of the research.
- **Evaluation report:** Since many of the metrics applicable to evaluating the scholarship program extend beyond the time of the scholarship award, all scholarship students will be identified and tracked throughout their undergraduate studies based on semesters, from which much of the student information can be gleaned. The PI will generate an evaluation report, primarily based on their academic performance (GPA), to track the recipients as they fulfill their academic obligation during the time of the scholarship award. The evaluation report on the scholarship students is related to student academic quality and achievements. The following aspects will be measured: the cumulative GPA, the performance in participating educational projects in labs on campus, the leadership and other important characteristics development, and the decision on whether or not pursuing nuclear careers after graduation.

The above measures will be compared to the values across the program at large. The results may also include qualitative analysis by undergraduate faculty advisors regarding education and project quality. The results will be shared internally on an annual basis, and will be shared externally periodically or upon request.

VI. Schedule of Tuition Fees and Other Pertinent Costs: The scholarship awarded to the scholars will be utilized to pay for their NE tuition. The project includes the following pertinent costs and the details are illustrated in Budget Narrative. (1) Scholarships to ten undergraduate scholars will be funded every year. (2) Three summer weeks of the PI are included in the program. Additionally, one academic week will be cost shared by RPI. The PI will utilize these weeks of support to devote major efforts to marketing, recruitment, co-advising, and evaluation activities. (3) The domestic travel budget is requested to cover external researchers and students' travel to the Undergraduate Nuclear Symposium, and the students' and investigators' travel to present education activities at national conferences. (4) It is important to perform radiation related experiments in NE field. Therefore, the LINAC (linear accelerator) usage fee is budgeted. (5) The lab supply fee for purchasing materials needed for education is also included.

VII. Strategic Plan & Innovation – Partnerships with other Programs and Institutions: 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. The proposed program is an integrated element of the following programs.

✚ The Diversity, Women's Affairs and Outreach (DWAO) Committee at Mechanical, Aerospace, and Nuclear Engineering Department (MANE). As the chair of the DWAO committee, the PI will help diversity students in the Department and connected communities to receive proper information. The pathways to many programs (e.g., Society of Women Engineers, Engineering Ambassador Program, African-American Student Association, Veteran student groups) exist through past collaborations between the PIs and them.

✚ The Department's current initiative to institutionalize its recruiting efforts with Historically Black Colleges and Universities (HBCUs) and Hispanic Serving Institutions (HSIs).

✚ The Undergraduate Research Program (URP) at RPI. The proposed program will collaborate with URP program for RPI students. The institute will provide related information through URP program to the proposed program if needed.

VIII. 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 scholarship 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 was hired starting at Fall 2016. Now we grow to **8 tenure/tenure track and 4 teaching faculty in NE program**. Most encouragingly, with all the efforts that we brought to the program, solid number (~**34 each year**) of undergraduate students are attracted and enrolled in the NE undergraduate 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 NE 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 from 2015. 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 undergraduate students education in class and in laboratory. Such commitments play vital role in performing the proposed Scholarship Program and guarantee the quality and sustainability of the program.

○ The attached Support Letter (with the leverage/matching funds explained below) from the Office of the Vice President for Research clearly shows a strong endorsement for the RPI Scholarship Program.

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

IX. Leverage/Matching Funds: The major leverage/matching support by RPI to the proposed program is listed below.



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.

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

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, at the time of application, 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, 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. 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.

Federal funds may not be used to travel to countries identified as "Foreign Policy Restricted Countries", as identified by the U.S. Department of State or the U.S. Agency for International Development.

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](#). [T](#)he 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, or their designees.
- 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 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.)

For grant awards that are modified to add additional Program Descriptions, the recipient is required to address the applicable grant performance metrics associated with all programs. Further, these metrics should be broken out by individual program (e.g. Program A and Program B). This can be done utilizing Block 10, Performance Narrative, of the SF-PPR form. If this block does not have sufficient space, additional pages will be accepted. Sf-PPR-B and SF-PPR-E should be used to address both programs as well.

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:

Scholarship Metrics:

1. How many 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 B.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 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.
4. How many students, supported by NRC funding, are continuing on to Graduate School in a field related to the nuclear industry?
 - a. Response is the number of students, for this reporting period and cumulative to the grant.
 - b.

As part of the PPR, include the following information for each student supported 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 contact 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.