

# Grant and Cooperative Agreement

CHOOSE ONE:

- ☐ COOPERATIVE AGREEMENT
- ☒ GRANT

CHOOSE ONE:

☒ EDUCATION☐ FACILITIES☐ RESEARCH☐ SDCR☐ TRAINING

1. GRANT/COOPERATIVE AGREEMENT NUMBER NRC-HQ-84-14-G-0039		2. SUPPLEMENT NUMBER M0003		3. EFFECTIVE DATE 06/30/2017		4. COMPLETION DATE	
5. ISSUED TO NAME/ADDRESS OF RECIPIENT (No., Street, City/County, State, Zip) PURDUE UNIVERSITY 155 SOUTH GRANT STREET LAFAYETTE IN 479072114				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) SEE SCHEDULE			
8. COMMERCIAL & GOVERNMENT ENTITY (CAGE) NO.							
10. RESEARCH, PROJECT OR PROGRAM TITLE SEE SCHEDULE							
11. PURPOSE SEE SCHEDULE							
12. PERIOD OF PERFORMANCE (Approximately) 08/01/2014 through 06/29/2021							
13A.		AWARD HISTORY		13B.		FUNDING HISTORY	
PREVIOUS		\$391,620.00		PREVIOUS		\$391,620.00	
THIS ACTION		\$399,762.00		THIS ACTION		\$51,252.00	
CASH SHARE		\$0.00		TOTAL		\$442,872.00	
NON-CASH SHARE		\$0.00					
RECIPIENT SHARE		\$0.00					
TOTAL		\$791,382.00					
14. ACCOUNTING AND APPROPRIATION DATA See Schedule							
PURCHASE REQUEST NO.		JOB ORDER NO.		AMOUNT		STATUS	
RES-17-0155							
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			
UNITED STATES OF AMERICA				COOPERATIVE AGREEMENT RECIPIENT			
CONTRACTING/GRANT OFFICER ERIKA EAM		DATE 06/29/2017		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>The purpose of this modification is to revise the grant in it's entirety:</p> <p>1. Add an additional program to the existing grant: Program B: entitled "Nuclear Science and Engineering Fellowship Program at Purdue University";</p> <p>2. Update the Terms and Conditions;</p> <p>3. Extend the grant's period of performance as a result of the addition of Program B.</p> <p>As a result of this modification:</p> <p>1. Block 9, PRINCIPAL INVESTIGATOR/ORGANIZATION'S PROJECT OR PROGRAM MGR, delete in its entirety and replace with the following:</p> <p>████████████████████████████████████████</p> <p>████████████████████████████████████████</p> <p>████████████████████████████████████████</p> <p>████████████████████████████████████████</p> <p>2. Block 10, RESEARCH, PROJECT, OR PROGRAM TITLE, delete in its entirety and replace with the following:</p> <p>"Programs A: NUCLEAR ENGINEERING AND HEALTH PHYSICS FELLOWSHIP AT PURDUE UNIVERSITY</p> <p>Program B: NUCLEAR SCIENCE AND ENGINEERING FELLOWSHIP PROGRAM AT PURDUE UNIVERSITY";</p> <p>3. Attachments A, B, &amp; C, delete in its entirety and replace with the following, see attached beginning on page 4.</p> <p>Please see attached for detailed information.</p> <p>LIST OF CHANGES:</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>Period Of Performance End Date changed from 2018-07-31 00:00:00 to 2021-06-29 00:00:00</p> <p>Total Amount for this Modification: \$399,762.00</p> <p>New Total Amount for this Version: \$791,382.00</p> <p>New Total Amount for this Award: \$791,382.00</p> <p>CHANGES FOR LINE ITEM NUMBER: 1</p> <p>Payment:</p> <p>ASAP GRANT FUNDS REIMBURSEMENT SYS</p> <p>US TREASURY</p> <p>Period of Performance: 08/01/2014 to 06/29/2021</p> <p>Payment will be made through the Automated Standard Application for Payment (ASAP.gov) unless the recipient has failed to comply with the program objectives, award conditions, Federal reporting requirements or other conditions specified in 2 CFR 200.</p>				

**Attachment A - Schedule****A.1 PURPOSE OF GRANT**

The purpose of this Grant is to provide support to two distinct programs with Purdue University, as described in Attachment B entitled "Program Description."

1. **Program A:** Nuclear Engineering and Health Physics Fellowship at Purdue University
2. **Program B:** Nuclear Science and Engineering Fellowship Program at Purdue University

**A.2 PERIOD OF GRANT**

The effective date of this Grant is:

**Program A:** Nuclear Engineering and Health Physics Fellowship at Purdue University – The effective date of this grant is August 1, 2014. The estimated completion date of this Grant is July 31, 2018. Funds obligated hereunder are available for program expenditures for the estimated period: August 1, 2014 – July 31, 2018.

**Program B:** Nuclear Science and Engineering Fellowship Program at Purdue University – The effective date of this grant is June 30, 2017. The estimated completion date of this Grant is June 29, 2021. Funds obligated hereunder are available for program expenditures for the estimated period: June 30, 2017 – June 29, 2021.

**A.3 AMOUNT OF AWARD AND PAYMENT PROCEDURES**

1. **Program A:** The total estimated amount of this program is \$391,620.00 for the four year period. NRC hereby obligates the amount of \$391,620.00 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 \$399,762.00 for the four year period. NRC hereby obligates the amount of \$51,252.00 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 AVAILABILITY OF FUNDS**

Funding for this award is available through the date specified in Section A.2.

Additional funding for subsequent periods is optional and contingent upon and subject to the availability of funds as well as satisfactory performance of the most recent performance period.

**A.5 BUDGET**

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

**Program A**

1. Total Estimated NRC Amount: \$391,620.00  
 2. Total Obligated Amount: \$391,620.00  
 3. Cost-Sharing Amount: \$0.00  
 4. Activity Title: Nuclear Engineering and Health Physics Fellowship at Purdue University  
 5. NRC Project Officer: Nancy Hebron-Isreal  
 6. DUNS No.: 072051394

	Year 1	Year 2	Year 3	Year 4
<b>Total</b>	<b>\$95,810.00</b>	<b>\$100,000.00</b>	<b>\$95,810.00</b>	<b>\$100,000.00</b>

**Program B**

1. Total Estimated NRC Amount: \$399,762.00  
 2. Total Obligated Amount: \$399,762.00  
 3. Cost-Sharing Amount: \$0.00  
 4. Activity Title: Nuclear Engineering and Health Physics Fellowship at Purdue University  
 5. NRC Project Officer: Nancy Hebron-Isreal  
 6. DUNS No.: 072051394

**ATTACHMENT B - PROJECT DESCRIPTION**

**Program A:** Nuclear Engineering and Health Physics Fellowship at  
Purdue University

**Principal Investigator:** [REDACTED]

**PROGRAM DESCRIPTION**

The previous funding not only provided strong support for the Nuclear Engineering (NE) and Health Physics (HP) graduate programs in our two schools, but also provided opportunities for the faculty members and the graduate students from both schools to work together to synergistically enhance our programs. We had a very positive experience with the previous funding and accumulated extensive experiences to manage this grant. The funding size and the procedures for this proposal will be similar to last funding period; however, minor changes will be made for the procedures to maximize the benefit of the funding to the students, to the schools, and to the Nuclear Industry.

**Number, Size, and Description of Fellowships:** The proposed program will fund four 2-year Ph.D. fellowships and two 2-year M.S. fellowships. Each Ph.D. fellowship will offer a yearly stipend of [REDACTED] and [REDACTED], which at Purdue will be \$9,686.50 for in-state students and \$29,029.00 for out-of-state students. Grant funds will cover [REDACTED] of the tuition charges, and the rest will be covered by a Graduate Tuition Scholarship provided by Purdue's Graduate School. The Ph.D. fellowship will also provide [REDACTED] per year to cover special fees charged to engineering students. Finally, in the second year, each Ph.D. Fellow will have an allowance of [REDACTED] to attend professional conferences where he or she will present research and build a professional network. Masters students will have a stipend of [REDACTED] per year [REDACTED] and all of the other benefits offered to the Ph.D. fellows (tuition, fees, and travel to conferences after the first year).

In addition to receiving financial support, each Fellow, whether in Nuclear Engineering or Health Physics, will be nurtured by a major professor and two or three other faculty members on his or her advisory committee. Each Fellow will be encouraged to take advantage of many opportunities for professional development offered to all engineering graduate students at Purdue and will be involved in a special mentoring program developed for students in the Nuclear Engineering and Health Physics Fellowship Program. The major professor and advisory committee will guide the Fellow's academic career, including thesis or dissertation research. The major professor and advisory committee will make a special effort to encourage the fellows to present research results at professional conferences and in journal articles.

Professional development opportunities offered to graduate students at Purdue include workshops and courses in communications, ethics and responsible conduct of research, proposal writing, and preparing for faculty positions. Within the College of Engineering, each graduate program has an active graduate student organization which offers several leadership opportunities. Through the American Nuclear Society Student Branch and the Health Physics Society Purdue Student Branch, students have an opportunity to participate in outreach activities to students in other disciplines and to the public. Fellows will be strongly encouraged to participate in the various professional development and outreach activities, since each of

these experiences will be of value to the Fellows as they grow into leadership positions in the nuclear industry.

A special mentoring program will be established for the Nuclear Engineering and Health Physics Fellows at Purdue. It will be designed to help the Fellows to integrate themselves into the nuclear industry while still in school, making it more likely that they will remain in the industry for the long term. Members of the Nuclear Engineering and Health Physics faculties at Purdue are active in the American Nuclear Society and the Health Physics Society. In addition, they have long-term relationships with many of the national laboratories, the Department of Energy, the Nuclear Regulatory Commission, vendors, and utilities. Faculty members who volunteer to serve as mentors for the Fellows will make special efforts to introduce the Fellows to their contacts within the professional societies, government agencies, national labs, and nuclear industry. They will help Fellows build their professional networks at national conferences and make it possible for Fellows to interact with speakers from the nuclear industry who visit campus. In addition, the mentors will identify opportunities for internships for the Fellows at national laboratories, government agencies, or industrial facilities.

**Recruitment Activities and Marketing Strategies:**

Applicants for the Nuclear Engineering and Health Physics Fellowship at Purdue will be recruited from Purdue and from other institutions as we did before. At Purdue, we will certainly recruit from the Nuclear Engineering and Health Physics undergraduate programs. However, since the nuclear industry also needs people with knowledge of other fields such as physics, chemistry, mechanical engineering, materials engineering, electrical engineering, etc., we will recruit Purdue students finishing their undergraduate degrees in those fields as well. In order to develop a large pool of strong applicants for the Fellowship program, we will make students aware of the Fellowship program, all of its advantages, and the commitment of 6 months of employment in the nuclear industry for each year of fellowship support received. It is important to note that the commitment to work in the nuclear industry can also be seen as an opportunity for employment in a high-paying job within an exciting industry. Some of the strategies for recruiting Purdue students include:

- Making presentations about nuclear energy and the nuclear industry in regularly scheduled seminar programs for disciplines other than Nuclear Engineering and Health Physics
- Holding a widely publicized special presentation on the Nuclear Engineering and Health Physics Fellowship Program for students from our two schools and any others that are interested at lunch time with free food
- Promoting the Fellowship Program through the student branches of various professional societies on campus, especially the Purdue student branches of the American Nuclear Society and Health Physics Society
- Making a special effort to advertise the Fellowship Program to organizations that serve underrepresented groups such as Women in Engineering, Minority Engineering Program, Society of Women Engineers (SWE), National Society of Black Engineers (NSBE), Society of Hispanic Professional Engineers (SHPE), and so on. These organizations are very active on the Purdue campus. For example, NSBE was formed at Purdue, and Purdue's graduate engineering program has been ranked top four in the nation by Hispanic Business Magazine over the past five years for its strong support of Hispanic students.

- Both Nuclear Engineering and Health Physics will maintain a database of undergraduate students who are likely to be eligible for the M.S. and Ph.D. Fellowships, and faculty members will contact those students directly to make them aware of the Fellowship.

Recruiting applicants for the Fellowships from other institutions will build on many existing recruiting programs at the College and University levels. Four existing campus-based programs that will be utilized to recruit students are described below.

- The Big 10 Expo is an annual program held in the early fall that attracts hundreds of potential graduate students to Purdue's campus. Highly ranked universities from around the nation send recruiters to the Expo. As the reputation of the Expo has grown, increasingly stronger students are attending. Top graduate school prospects are eligible for travel scholarships to attend the Expo, increasing the number of potential graduate students in attendance qualified for a Purdue Nuclear Engineering and Health Physics Fellowship. In addition to attending the Expo to talk with students, faculty members from Nuclear Engineering and Health Physics will provide information on the Fellowship to be sent to Expo participants in advance of the event.
- A second campus recruitment program that focuses on external candidates is the HBI (Historically Black Institution) Visitation. Held in November, this program brings top graduate school prospects from minority serving institutions to campus for a 2-day visit. Purdue is now an associate member of AMIE (Advancing Minorities' Interest in Engineering), a consortium of Historically Black Colleges and Universities (HBCUs) with ABET-accredited engineering programs and corporations and government agencies that employ their graduates. We will be working with AMIE members to make their students aware of Purdue's Nuclear Engineering and Health Physics Fellowship Program and encourage students to visit the Purdue campus.
- Two other programs that will be used to recruit external candidates for the Fellowship Program are SURF (Summer Undergraduate Research Fellowship) and SROP (Summer Research Opportunity Program). SURF is a program managed by the College of Engineering involving 150-200 top undergraduate students from across the nation in a 10-week research program each summer. Students work in a laboratory with a faculty member, and Nuclear Engineering faculty members are active in the SURF program. SROP is a university wide program similar to SURF but focused on all STEM (science, technology, engineering, and math) disciplines rather than just engineering. Both Nuclear Engineering and Health Physics faculty are eligible to participate in SROP.

**Selection Process:**

A Purdue Nuclear Engineering and Health Physics Fellow Selection Panel was established with two faculty members from Nuclear Engineering and two from Health Physics, including the Principal Investigators on this proposal. Evaluation of the applicants will be based on selection criteria that are weighted strongly on academic merit, but other criteria will also be considered, including financial need and potential to contribute to diversity among the graduate student population. The weighting of the different selection criteria will be determined by the selection panel prior to beginning the annual evaluation of new fellowship applications. The fellowship application form and guidelines for its completion will be available on the web at least three months prior to the deadline for applications. Mentor applications will also be created so that Nuclear Engineering and Health Physics faculty can be considered for a mentoring role with a



Fellow. The role and expectations of both the fellow and faculty mentor will be specified on the application forms. The Fellow's mentor will not necessarily be the same person as his or her Major Professor who acts as an academic advisor guiding the thesis or dissertation research.

**Eligibility Criteria:**

- i. Applicants for a Fellowship must have applied to, or specified their intention to apply to, the Nuclear Engineering or Health Physics graduate program at Purdue.
- ii. Applicants must be US citizens.
- iii. Applicants must have an undergraduate degree grade point average (GPA) of 3.3 or greater out of 4.0, or the equivalent.
- iv. Applicants must be willing to commit to working 6 months in the nuclear industry in exchange for each year or partial year of support
- v. Applicants must intend to complete a graduate degree program (masters or doctorate)

**Holistic Selection Criteria:**

- vi. Undergraduate grade point average (GPA)
- vii. Graduate Record Examination (GRE) scores
- viii. Quality of undergraduate university attended
- ix. Relevance and quality of the undergraduate degree program pursued to the candidate's intended graduate program of study
- x. Undergraduate academic awards and honors
- xi. Other awards and honors
- xii. Undergraduate research experience (e.g. SURF)
- xiii. Community involvement and citizenship
- xiv. Demonstrated leadership qualities or experience
- xv. References
- xvi. Statement of interest in graduate study program
- xvii. Statement on intended career goals
- xviii. Statement on diversity
- xix. Willingness to work with a mentor and fulfill other specified expectations of a Fellow. (e.g. completing summer internships and attending conferences).

**Management Structure:**

The Nuclear Engineering and Health Physics Fellowship program at Purdue will be managed within the existing university administrative framework, following the rules governing funded programs and taking advantage of the many established administrative tools and support organizations. At the school level, the Co-PIs will manage the Fellowship program in close collaboration with the graduate committees for the Nuclear Engineering and Health Physics programs. Management of the Fellowship program will entail the following:

- Developing and implementing or overseeing implementation of an aggressive marketing and recruiting program as described earlier in this proposal.
- Preparing and disseminating application materials
- Developing expectations of a Fellow's mentor.
- Developing a process for identifying mentors and matching Fellows with the appropriate mentors
- Establishing and leading a Selection Panel; ensuring that all applicants considered meet the selection criteria and that the selection process is conducted in accordance with university policies

- Coordinating with the graduate committees in Nuclear Engineering and Health Physics to ensure that students selected as Fellows meet the criteria for admission to the relevant graduate program and are properly processed
- Working with the graduate administrator in each school to collect and analyze data required for evaluation of the effectiveness of the Fellowship program
- Coordinating contacts with national laboratories, nuclear utilities, government agencies, radiation detection device manufacturers, or other entities that are likely to offer summer internships to the Fellows; ensuring that Fellows and their mentors are aware of the internships and facilitating placement of the Fellows,
- Serving as liaisons with the director of the Fellowship program at the NRC, prepare semi-annual progress reports on the Fellowship program, and prepare the final report at the end of the project.

The Co-PIs are particularly well positioned to manage the NRC Fellowship program at Purdue.

[REDACTED] They are familiar with and have access to the tools and services at the University, College, and School levels that will allow them to manage the Fellowship program effectively, as they did before.

**Evaluation Plan:**

The College of Engineering at Purdue has a Graduate Program Database in which progress of all graduate students is tracked from the time they enter a program until they graduate. The first job the student takes after graduation is also noted. This database will be used to track Nuclear Engineering students, and the same information will be kept for Health Physics students. In addition, program managers will keep track of the following data for the Fellowship program over the next four years:

- total number of applicants who meet the requirements in the years that a fellowship is offered
- number and percentage of women in the applicant pool
- number and percentage of members from federally recognized minorities in the applicant pool
- number and percentage of Fellows who complete their M.S. degree
- number and percentage of Fellows who complete their Ph.D. degree
- number of M.S. Fellows who immediately enter a Ph.D. program and percentage whose Ph.D. program is related to the nuclear industry
- first employer of Fellows after graduation
- number and percentage of M.S. and Ph.D. Fellows who accept employment in the nuclear field.

**Tuition, Fees and Other Pertinent Costs:**

In-state tuition and fees: \$9,686.50 per year. Out-of-state tuition and fees: \$29,029.00 per year. Additional fee: \$1,405 per year for students enrolled in the College of Engineering.

**Will Fellowships Be Integrated with a State or Regional Partnership:** No

**Arrangements with Non-Federal Entities:** None

**Statement of Service Agreement:**

Purdue will require individual Fellowship students to accept the service agreement terms in the Funding Opportunity Announcement. Students must agree "to serve six months in nuclear-related employment for each full or partial year of academic support."

**Program B:** **Nuclear Science and Engineering Fellowship Program at Purdue University**

**Principal Investigator:** [REDACTED]

The previous funding provided strong support for the Nuclear Engineering (NE) and Health Physics (HP) graduate programs while providing opportunities for faculty and graduate students from both schools to work together to synergistically enhance our programs. We had a very positive experience with the previous funding and accumulated extensive experiences to manage this grant. While the requested funding is similar to the previous funding period, we propose minor changes to facilitate grant management and maximize the benefit to the students, Schools, and the Nuclear Industry. Additionally, the recent hiring of [REDACTED] motivates us to extend the scope of support to specifically include students in MSE pursuing nuclear fuels and materials research critical to designing next generation reactors while expanding nuclear related collaborations across Purdue.

**Number, Size, and Description of Fellowships:** The proposed program will fund a combination of M.S. and Ph.D. fellowships totaling the equivalent of eleven student-years (for instance, it may fund five students for two years each and one student for one year, or it may fund eleven students for one year each). This will maximize flexibility for funding students based on quality rather than their current enrollment status. To facilitate this approach, we will award each student the same terms regardless of School (Health Sciences, Nuclear Engineering, or Materials Engineering) or current degree status (M.S. or Ph.D.). Each fellowship will offer a yearly stipend of [REDACTED], and full tuition, which at Purdue will be \$12,502 for in-state students and \$36,005 for out-of-state students. [REDACTED]

The fellowship will additionally provide [REDACTED] to Engineering students or for books and supplies for Health Science students. Finally, the Fellow will have [REDACTED] to attend professional conferences where he or she will present research and build a professional network.

In addition to receiving financial support, each Fellow, whether in Nuclear Engineering, Materials Engineering, or Health Physics, will be mentored by a major professor and two or three other faculty members on his or her advisory committee. Each Fellow will be encouraged to take advantage of the many opportunities for professional development offered to all engineering graduate students at Purdue and will participate in a special mentoring program developed for students in the Nuclear Science and Engineering Fellowship Program. The major professor and advisory committee will guide the Fellow's academic career, including thesis or dissertation research. The major professor and advisory committee will make a special effort to encourage the fellows to present research results at professional conferences and in journal articles.

Professional development opportunities offered to graduate students at Purdue include workshops and courses in communications, ethics and responsible conduct of research, proposal writing, and preparing for faculty positions. Within the College of Engineering, each graduate

program has an active graduate student organization that offers several leadership opportunities. Through the American Nuclear Society Student Branch and the Health Physics Society Purdue Student Branch, students can participate in outreach activities to students in other disciplines and to the public. Fellows will be strongly encouraged to participate in the various professional development and outreach activities since each of these experiences will help them as they grow into leadership positions in the nuclear industry.

A special mentoring program will be established for the Nuclear Engineering, Materials Engineering, and Health Physics Fellows at Purdue that will be designed to help the Fellow integrate into the nuclear industry, increasing the likelihood that they will pursue long-term careers in the industry. Members of the Nuclear Engineering, Health Physics, and Materials Engineering faculties at Purdue are active in the American Nuclear Society and the Health Physics Society. Moreover, they have long-term relationships with many of the national laboratories, the Department of Energy, the Nuclear Regulatory Commission, vendors, and utilities. Faculty members who volunteer to serve as mentors for the Fellows will make special efforts to introduce the Fellows to their contacts within the professional societies, government agencies, national laboratories, and nuclear industry. They will help Fellows build their professional networks at national conferences and make it possible for Fellows to interact with speakers from the nuclear industry who visit campus. In addition, the mentors will identify opportunities for internships for the Fellows at national laboratories, government agencies, or industrial facilities.

**Recruitment Activities and Marketing Strategies:** As we have done in previous grants, we will recruit applicants for the Nuclear Engineering and Health Physics Fellowship from Purdue and other institutions. At Purdue, we will certainly recruit from the Nuclear Engineering, Materials Engineering, and Health Physics undergraduate programs; however, since the nuclear industry also needs people with knowledge in other fields, such as physics, chemistry, mechanical engineering, and electrical engineering, we will also recruit Purdue students completing their undergraduate degrees in those fields.

To develop a large pool of strong applicants, we will make students aware of the Fellowship program, all of its advantages, and the commitment of six months of employment in the nuclear industry for each year of fellowship support received. It is important to note that one can also view the commitment to work in the nuclear industry as an opportunity for employment in a high-paying job within an exciting industry. Some of the strategies for recruiting Purdue students include:

- Making presentations about nuclear energy and the nuclear industry in regularly scheduled seminar programs for disciplines other than Nuclear Engineering and Health Physics.
- Holding a widely publicized special lunchtime presentation on the Nuclear Science and Engineering Fellowship Program for students from our three Schools and any other interested students.
- Promoting the Fellowship Program through the student branches of various professional societies on campus, especially the Purdue student branches of the American Nuclear Society and the Health Physics Society.
- Making a special effort to advertise the Fellowship Program to organizations that serve underrepresented groups, such as Women in Engineering, Minority Engineering Program, Society of Women Engineers (SWE), National Society of Black Engineers (NSBE), and the Society of Hispanic Professional Engineers (SHPE). These organizations are very

active at Purdue. For instance, Purdue's branch of SHPE has been ranked in the top four nationally by Hispanic Business Magazine for the past six years for its strong support of Hispanic students.

- Nuclear Engineering, Materials Engineering, and Health Physics will maintain a database of undergraduate students who are likely to be eligible for the M.S. and Ph.D. Fellowships, and faculty members will contact those students directly to make them aware of the Fellowship.

Recruiting applicants for the Fellowships from other institutions will build on many existing recruiting programs at the College and University levels. Four existing campus-based programs that will be utilized to recruit students are described below.

- The Big 10 Expo, an annual program held in the early fall, attracts hundreds of potential graduate students to Purdue's campus. Highly ranked universities from around the nation send recruiters to the Expo. As the reputation of the Expo has grown, increasingly stronger students attend. Top graduate school prospects are eligible for travel scholarships to attend the Expo, increasing the number of potential graduate students in attendance qualified for a Purdue Nuclear Engineering and Health Physics Fellowship. In addition to attending the Expo to talk with students, faculty members from Nuclear Engineering, Materials Engineering, and Health Physics will provide information on the Fellowship to be sent to Expo participants in advance of the event.
- A second campus recruitment program that focuses on external candidates is the HBI (Historically Black Institution) Visitation. Held in November, this program brings top graduate school prospects from minority serving institutions to campus for a 2-day visit. Purdue is now an associate member of AMIE (Advancing Minorities' Interest in Engineering), a consortium of Historically Black Colleges and Universities (HBCUs) with ABET-accredited engineering programs, corporations, and government agencies that employ their graduates. We will work with AMIE members to make their students aware of Purdue's Nuclear Engineering and Health Physics Fellowship Program and encourage students to visit the Purdue campus.
- Two other programs that will be used to recruit external candidates for the Fellowship Program at Purdue are SURF (Summer Undergraduate Research Fellowship) and SROP (Summer Research Opportunity Program). SURF is a program managed by the College of Engineering involving 150-200 top undergraduate students from across the nation in a 10-week research program each summer. Students work in a laboratory with a faculty member, and Nuclear Engineering faculty members are active in SURF. SROP is a university wide program similar to SURF but focused on all STEM (science, technology, engineering, and math) disciplines rather than just engineering. Nuclear Engineering, Materials Engineering, and Health Physics faculty are eligible to participate in SROP.

**Selection Process:** A Purdue Nuclear Science and Engineering Fellow Selection Panel was established with two faculty members from Engineering (one from Nuclear Engineering and one from Materials Engineering) and two from Health Physics, including the Principal Investigators on this proposal. Evaluation of the applicants will be based on selection criteria that are weighted strongly on academic merit, but other criteria will also be considered, including financial need and potential to contribute to diversity among the graduate student population. The weighting of the different selection criteria will be determined by the selection panel prior to beginning the annual evaluation of new fellowship applications. The fellowship application form and guidelines for its completion will be available on the web at least three months prior to the deadline for applications.

Mentor applications will also be created so that Nuclear Engineering, Materials Engineering, and Health Physics faculty can be considered for a mentoring role with a Fellow. The role and expectations of both the Fellow and the faculty mentor will be specified on the application forms. The Fellow's mentor will not necessarily be the same person as his or her Major Professor, who acts as an academic advisor guiding the thesis or dissertation research.

Eligibility Criteria:

- i. Applicants for a Fellowship must have applied to, or specified their intention to apply to the Nuclear Engineering, Materials Engineering, or Health Physics graduate program at Purdue.
- ii. Applicants must be United States citizens.
- iii. Applicants must have had an undergraduate degree grade point average (GPA) of 3.0 or greater out of 4.0, or the equivalent. Students must retain both a cumulative and semester GPA of 3.3 or greater out of 4.0 for each semester they are on fellowship.
- iv. Applicants must be willing to commit to working six months in the nuclear industry in exchange for each year or partial year of support.
- v. Applicants must intend to complete a graduate degree program (M.S. or Ph.D.)

Holistic Selection Criteria

- vi. Undergraduate grade point average (GPA).
- vii. Graduate Record Examination (GRE) scores.
- viii. Quality of undergraduate university attended.
- ix. Relevance and quality of the undergraduate degree program pursued to the candidate's intended graduate program of study.
- x. Undergraduate academic awards and honors.
- xi. Undergraduate research experience (e.g. SURF)
- xii. Community involvement and citizenship
- xiii. Demonstrated leadership qualities or experience.
- xiv. References
- xv. Statement of interest in graduate study program.
- xvi. Statement on intended career goals.
- xvii. Statement on diversity.
- xviii. Willingness to work with a mentor and fulfill other specified expectations of a Fellow (e.g. completing summer internships and attending conferences).

**Management Structure:** The Nuclear Science and Engineering Fellowship program at Purdue will be managed within the existing university administrative framework, following the rules governing funded programs and taking advantage of the many established administrative tools and support organizations. At the School level, the Co-PIs will manage the Fellowship program in close collaboration with the Graduate Committees for the Nuclear Engineering, Materials Engineering, and Health Physics programs. Management of the Fellowship program will entail the following:

- Developing and implementing or overseeing implementation of an aggressive marketing and recruiting program as described earlier in this proposal.
- Preparing and disseminating application materials.
- Developing expectations of a Fellow's mentor.
- Developing a process for identifying mentors and matching Fellows with the appropriate mentors.

- Establishing and leading a Selection panel; ensuring that all applicants considered meet the selection criteria and that the selection process is conducted in accordance with university policies.
- Coordinating with the graduate committees in Nuclear Engineering, Materials Engineering, and Health Physics to ensure that students selected as Fellows meet the criteria for admission to the relevant graduate program and are properly processed.
- Working with the graduate administrator in each school to collect and analyze data required for evaluation of the effectiveness of the Fellowship program.
- Coordinating contacts with national laboratories, nuclear utilities, government agencies, radiation detection device manufacturers, or other entities that are likely to offer summer internships to the Fellows while ensuring that Fellows and their mentors are aware of the internships and facilitating placement of the Fellows.
- Serving as liaisons with the director of the Fellowship program at the NRC, prepare semi-annual progress reports on the Fellowship program, and prepare the final report at the end of the project.

The co-PIs are particularly well positioned to manage the NRC Fellowship program at Purdue.

[REDACTED]

This provides us with access to three of the primary Schools at Purdue related to nuclear science and engineering. The Co-PIs are familiar with and have access to the tools and services at the University, College, and School levels that will allow them to manage the Fellowship program effectively, as done in previous programs at Purdue.

**Evaluation Plan:** The College of Engineering at Purdue has a Graduate Program Database in which progress of all graduate students is tracked from the time they enter a program until they graduate, including recording the students' first jobs after graduation. This database will be used to track Engineering students, and the same information will be kept for Health Physics students. Moreover, program managers will track the following data for the Fellowship program over the next four years:

- Total number of applicants who meet the requirements in the years that a fellowship is offered.
- Number and percentage of women in the applicant pool.
- Number and percentage of members from federally recognized minorities in the applicant pool.
- Number and percentage of Fellows who complete their M.S. degrees
- Number and percentage of Fellows who complete their Ph.D. degrees.
- Number of M.S. Fellows who immediately enter a Ph.D. program and percentage whose Ph.D. program is related to the nuclear industry.
- First employer of Fellows after graduation.
- Number and percentage of Fellows who accept employment in the nuclear field.

**Tuition, Fees, and Other Pertinent Costs:** In-state tuition and fees: \$12,502 per year. Out-of-state tuition and fees: \$36,005.00 per year. Additional fee: \$1,124 per year for students enrolled in the College of Engineering.

**Will Fellowships Be Integrated with a State or Regional Partnership:** No.

**Arrangements with Non-Federal Entities:** None.

**Statement of Service Agreement:** Purdue will require individual Fellowship students to accept the service agreement terms in the Funding Opportunity Announcement. Students must agree “to serve six months in nuclear-related employment for each full or partial year of academic support.”

**Budget Justification for Purdue Nuclear Graduate Fellowship Proposal Sponsored by the Nuclear Regulatory Commission**

The requested amount is \$399,762.00 and budgeted as fellowship costs. Funds to be spent in the following ways:

- For each of the eleven equivalent student-years covered, [REDACTED]
- For each graduate fellow, [REDACTED] will be spent each year toward university tuition and fees with fees paid first and the rest of the funds going toward tuition. [REDACTED]
- Each Fellow will receive [REDACTED] for travel to conferences to present papers (a student covered for less than a year would receive a prorated amount).

The stipends were selected to be competitive with those offered to top students in engineering and health physics at major universities. While the stipend for the coveted NSF Graduate Research Fellowship [REDACTED], the opportunities to build strong relationships with potential employers provided by the NRC Graduate Fellowship at Purdue is an added bonus that we believe makes the NRC Fellowship very attractive.

Currently, the tuition and university fees for a full year (Fall, Spring, and Summer) for Indiana residents is \$12,502, and for nonresidents is \$36,005. [REDACTED]

[REDACTED] Because the NRC Fellowship is recognized as a prestigious, federally-funded fellowship, the Graduate School will provide a tuition scholarship for the remainder of the non-resident tuition.

At the present time, the College of Engineering’s differential fee is [REDACTED]. Thus, we have set aside [REDACTED] to pay this fee, which would otherwise be the responsibility of the student. This money will be provided to Health Sciences students for books.

Participating in professional conferences helps students to develop their communications skills and allows them to develop a professional network. Approximately [REDACTED] to support travel to conferences.



**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](#). 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, 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](mailto: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/](http://www.whitehouse.gov/omb/grants_forms/).

## **PERFORMANCE PROGRESS REPORTS**

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

### **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](mailto: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](mailto:Grants_FFR.Resource@nrc.gov) and [Grants\\_PPR.Resource@nrc.gov](mailto: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](http://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 (not a bibliography), for this reporting period and cumulative to the grant.

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.