



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

May 10, 2016

Dr. Isaac Crumbly
Fort Valley State University
1005 State University Drive
Fort Valley, GA 31030

VIA Electronic Mail
crumblyi@fvsu.edu

SUBJECT: GRANT NO: NRC-HQ-7P-14-G-0001

Dear Dr. Isaac Crumbly,

Pursuant to the authority contained in the Federal Grant and Cooperative Grantee Act of 1977 and the Atomic Energy Act of 1954, as amended, the Nuclear Regulatory Commission (NRC) hereby awards to the Fort Valley State University (hereinafter referred to as the "Grantee" or "Recipient"), the sum of \$324,000.00 to provide support for "Cooperative Developmental Energy Program" entitled "Program Description."

This award is effective as of the date of this letter and shall apply to expenditures made by the Grantee furtherance of program objectives during the period beginning with the effective date of May 10, 2016 and ending May 9, 2019.

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

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

Please sign the enclosed grant to acknowledge your receipt of the award, and return as a pdf file to Ms. M'Lita Carr by email at MLita.Carr@nrc.gov.

Sincerely yours,

M'Lita Carr

M'Lita Carr
Grants Officer
Resources & Grants Team
Acquisition Management Division (AMD)

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

TEMPLATE - ARMAM

SUNSI REVIEW COMPLETE

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Grant and Cooperative Agreement

CHOOSE ONE:

- ☐ COOPERATIVE AGREEMENT
- ☒ GRANT

CHOOSE ONE:

☒ EDUCATION☐ FACILITIES☐ RESEARCH☐ SDCR☐ TRAINING

1. GRANT/COOPERATIVE AGREEMENT NUMBER NRC-HQ-7P-14-G-0001		2. SUPPLEMENT NUMBER M0005		3. EFFECTIVE DATE 05/10/2016		4. COMPLETION DATE	
5. ISSUED TO NAME/ADDRESS OF RECIPIENT (No., Street, City/County, State, Zip) FORT VALLEY STATE UNIVERSITY 1005 STATE UNIVERSITY DR FORT VALLEY GA 310304313				6. ISSUED BY US NRC - HQ Mailing Address: ACQUISITION MANAGEMENT DIVISION MAIL STOP 3WFN-05-C64MP WASHINGTON DC 20555-0001			
7. TAXPAYER IDENTIFICATION NO. (TIN)				9. PRINCIPAL INVESTIGATOR/ORGANIZATION'S PROJECT OR PROGRAM MGR. (Name & Phone) Program A: Dr. Isaac Crumbly; crumblyi@fvsu.edu Program B: Dr. Isaac Crumbly; crumblyi@fvsu.edu			
8. COMMERCIAL & GOVERNMENT ENTITY (CAGE) NO.							
10. RESEARCH, PROJECT OR PROGRAM TITLE See Schedule							
11. PURPOSE See Schedule							
12. PERIOD OF PERFORMANCE (Approximately) 09/30/2014 through 05/09/2019							
13A.		AWARD HISTORY		13B.		FUNDING HISTORY	
PREVIOUS		\$724,312.00		PREVIOUS		\$724,312.00	
THIS ACTION		\$0.00		THIS ACTION		\$0.00	
CASH SHARE		\$0.00		TOTAL		\$724,312.00	
NON-CASH SHARE		\$0.00					
RECIPIENT SHARE		\$70,400.00					
TOTAL		\$724,312.00					
14. ACCOUNTING AND APPROPRIATION DATA							
PURCHASE REQUEST NO.		JOB ORDER NO.		AMOUNT		STATUS	
15. POINTS OF CONTACT							
	NAME	MAIL STOP	TELEPHONE	E-MAIL ADDRESS			
TECHNICAL OFFICER	TUWANDA M. SMITH		301-415-7394	Tuwanda.Smith@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 M'LITA R. CARR		DATE 05/10/2016		AUTHORIZED REPRESENTATIVE		DATE	

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APR 21 2016

GRANT REVIEW COMPLETE

TELETYPE - BUREAU

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: 77.007</p> <p>DUNS Number: 073459083</p> <p>NRC-HQ-7P-14-G-0001</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 "Cooperative Developmental Energy Program"; 2. Update the Terms and Conditions; 3. Extend the grant's period of performance for Program B. <p>As a result of this modification:</p> <ol style="list-style-type: none"> 1. Block 9 is hereby changed to read: "Program A: Dr. Isaac Crumbly; crumblyi@fvsu.edu Program B: Dr. Isaac Crumbly; crumblyi@fvsu.edu" 2. Block 10. RESEARCH, PROJECT OR PROGRAM TITLE: <ol style="list-style-type: none"> 1. Program A: Pre-College Pipeline: Mathematics, Science, and Engineering Academies for students from Under-Represented Minorities and Females. 2. Program B: Cooperative Developmental Energy Program. <p>Please see attached for detailed information.</p> <p>LIST OF CHANGES:</p> <p>Period Of Performance End Date changed from 2018-09-29 00:00:00 to 2019-05-09 00:00:00</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)
	Payment: ASAP GRANT FUNDS REIMBURSEMENT SYS US TREASURY Period of Performance: 09/30/2014 to 05/09/2019				

ATTACHMENT A - SCHEDULE**A.1 PURPOSE OF GRANT**

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

1. Program A: "Pre-College Pipeline: Mathematics, Science, and Engineering Academies for students from Under-Represented Minorities and Females"
2. Program B: "Cooperative Developmental Energy Program"

A.2 PERIOD OF GRANT

The effective date of this Grant is:

Program A: Pre-College Pipeline: Mathematics, Science, and Engineering Academies for students from Under-Represented Minorities and Females - September 30, 2014 through September 29, 2018. Funds obligated hereunder are available for program expenditures for the estimated period: September 30, 2014 – September 29, 2018.

Program B: Cooperative Developmental Energy Program – May 10, 2016 through May 9, 2019. Funds obligated hereunder are available for program expenditures for the estimated period: May 10, 2016 – May 9, 2019.

A.3 BUDGET

Revisions to the budget shall be made in accordance with Revision of Grant Budget in accordance with 2 CFR § 200.308. All travel must be in accordance with Fort Valley State University Travel Regulations or the US Government Travel Policy absent Grantee's travel regulation.

Program A

1. Total Estimated NRC Amount: \$400,312.00
2. Total Obligated Amount: \$400,312.00
3. Cost-Sharing Amount: \$70,400.00
4. Activity Title: Pre-College Pipeline: Mathematics, Science, and Engineering Academies for Students from Under-Represented Minorities and Females
5. NRC Project Officer: Tuwanda Smith
6. Principal Investigator: Dr. Isaac Crumbly

Category	Year 1	Year 2	Year 3	Total
Personnel	\$25,564.00	\$24,082.00	\$24,082.00	\$48,164.00
Fringe Benefits	\$858.00	\$2,802.00	\$2,802.00	\$5,604.00
Travel	\$41,188.00	\$139,737.00	\$103,303.00	\$243,040.00
Supplies	\$4,154.00	\$1,044.00	\$1,044.00	\$2,088.00
Indirect Charges	\$5,741.00	\$13,413.00	\$10,498.00	\$23,911.00
Total	\$77,505.00	\$181,078.00	\$141,729.00	\$400,312.00

Program B

- | | |
|--------------------------------|--|
| 1. Total Estimated NRC Amount: | \$324,000.00 |
| 2. Total Obligated Amount: | \$324,000.00 |
| 3. Cost-Sharing Amount: | \$0.00 |
| 4. Activity Title: | Cooperative Development Energy Program |
| 5. NRC Project Officer: | Tuwanda Smith |
| 6. Principal Investigator: | Dr. Isaac Crumbly |

Category	Year 1	Year 2	Year 3	Total
Scholarships	\$108,000.00	\$108,000.00	\$108,000.00	\$324,000.00
Indirect Charges	\$0.00	\$0.00	\$0.00	\$0.00
Total	\$108,000.00	\$108,000.00	\$108,000.00	\$324,000.00

A.4 AMOUNT OF AWARD AND PAYMENT PROCEDURES

1. Program A: NRC hereby obligates the amount of \$400,312.00 expenditures during the period set forth above and in support of the Budget above. NRC is not obligated to reimburse the Grantee for the expenditure of amounts in excess of the total obligated amount.
2. Program B: NRC hereby obligates the amount of \$324,000.00 expenditures during the period set forth above and in support of the Budget above. NRC is not obligated to reimburse the Grantee for the expenditure of amounts in excess of the total obligated amount.
3. Payment shall be made to the Grantee in accordance with procedures set forth in the Automated Standard Application for Payments (ASAP) Procedures set forth below.

ATTACHMENT B – PROGRAM DESCRIPTION

- | | |
|--------------------------------|---|
| Program A: | Pre-College Pipeline Mathematics, Science, and Engineering Academies for Students from Under-Represented Minorities and Females |
| Principal Investigator: | Dr. Isaac Crumbly |

The objective of this proposal is to request funds to support the Fort Valley State University (FVSU) Cooperative Developmental Energy Program's (CDEP) ninth through twelfth grade Mathematics, Science, and Engineering Academy or M-SEA and provide scholarships for dual degree scholars pursuing STEM degrees associated with CDEP. This proposal addresses the Nuclear Regulatory Commission's (NRC) goal of producing a more diverse workforce made up of U.S. citizens in STEM disciplines, especially in the areas of biology, chemistry, engineering, geology, geophysics, and health physics. During its four-year duration, the project will mentor a total of 175 M-SEA students and provide scholarships for 18 students. M-SEA responds to the need of preparing high school students with the prerequisite skills and interest to pursue degrees in the aforementioned disciplines when they enter college. Thus, M-SEA represents the first four years of CDEP's nine year STEM pipeline. Providing scholarships for academically talented minorities for STEM disciplines responds to the Nation's need to address the underrepresentation of minorities in STEM fields; this represents the five year collegiate component of CDEP's STEM pipeline.

A National Urgency

It has been well documented that minorities and women are under-represented in the nation's collegiate science, technology, engineering, and math (STEM) programs. Combined, these two groups constitute over seventy percent of the U.S. population. According to the American Society for Engineering Education (ASEE) women constituted 17.9 percent of the bachelor engineering degrees awarded in 2008 while accounting for over 50 percent of the nation's population; African Americans and Hispanics combined accounted for 11.1 percent of the conferred bachelor degrees in engineering which is 2.7 times below their combined 30 percent share of the general population.

At the doctoral level, the ASEE study shows that all segments of the U.S population are under-performing compared to foreign nationals who earned 61.1 percent of the doctoral engineering degrees awarded in 2007 and 38.7 of the Master's Degrees conferred. Thus, all segments of the U.S. population are under-represented in STEM disciplines, but it is more acute in women and minority groups.

As noted in the Presidential Council of Advisors on Science and Technology's report to President Barack Obama entitled "Engage to Excel: Producing One Million Additional College Graduates with Degrees in Science, Technology, Engineering, and mathematics", women and minority groups constitute approximately 70% of the college students enrolled in the nation's universities while earning only 45% of the undergraduate STEM degrees. Thus, women and minority groups make up the "underrepresented majority" and represent the largest potential source of STEM professionals.

In 1992, the Cooperative Developmental Energy Program (CDEP) of Fort Valley State University (FVSU) began addressing the under-representation of minorities and women in the STEM disciplines. CDEP's goal is to increase the number of minorities and women working in the energy industry and other STEM-dependent industries. This goal is accomplished by (1) forming partnerships with universities to offer dual degrees in STEM disciplines that are germane to the energy industry, namely, biology, chemistry, engineering, geology, geophysics, health physics, and mathematics; (2) forming partnerships with private sector energy companies and governmental agencies; and (3) offering a 9th through 12th grade pre-college mathematics, science and engineering academy (M-SEA).

The Thirty One Years of Accomplishments for the Cooperative Developmental Energy Program (CDEP)

Dual degree programs with Partnering Universities. From 1983 to 1992, CDEP operated as a Minority Student Summer Energy Internship Program (MSSEIP). In 1992, CDEP established a partnership with the University of Nevada at Las Vegas to offer dual degrees in math/engineering and in biology, chemistry, or math/health physics; a partnership was also established with the University of Oklahoma in 1992 to offer dual degrees in chemistry/geology, math/geophysics, and math/petroleum engineering.

In 2000, dual degree programs in math/engineering were developed with Georgia Tech. Dual degree programs in chemistry/geology, math/geophysics, and math/petroleum engineering with the University of Texas-Austin were established in 2004. Also in 2004, CDEP signed an MOU with the University of Texas-Pan American to offer dual degrees in math/engineering and a cooperative agreement with Penn State University to offer dual degrees in chemistry/geology, math/geophysics, and math/petroleum engineering. The University of Arkansas signed an MOU

with CDEP to offer dual degrees in chemistry/geology, math/geophysics, and math/engineering in 2010.

The dual degree programs work on a 3 + 2 format. Students attend FVSU for three years and major in biology, chemistry, or math and then transfer to one of the partnering universities for years four and five to earn a second degree in engineering, geology, geophysics, or health physics.

The dual degree programs produced the first graduate in 1996. Since 1996, CDEP and its partnering universities have graduated 83 engineers, 31 geoscientists, and 8 health physicists.

Partnerships with Private Sector Energy Companies and government Agencies. During its thirty-one years of existence, CDEP has formed partnerships with over sixty companies and government agencies. These partnerships are mutually-beneficial to FVSU-CDEP, energy companies and government agencies in that the partnerships provide a mechanism whereby all three entities can work in concert to produce a diverse workforce. This is accomplished by CDEP recruiting academically-talented students to pursue dual degrees in disciplines that are germane to the energy industry and energy companies and government agencies providing the funds for scholarships and internships for students.

Scholarships and Internships. To be eligible for a CDEP scholarship, students must graduate from high school with a GPA of 3.50 or above and a minimum SAT score of 1100 on the combined sections of critical reading and math. Since 1992, CDEP has awarded over \$10 million in scholarships. During its thirty-one years of existence, CDEP students have participated in over 900 energy and non-energy-related internships. As a result of having early access to the students via internships, sponsoring energy companies and government agencies enhance their chances of hiring CDEP graduates when they complete their respective dual degree programs.

Technical workforce Diversity Program. Follow up data show that CDEP has been an effective diversity program for the energy companies and government sponsors. Currently, over 45 CDEP graduates are employed with the private sector of the oil and gas companies, electric/gas utility companies, and governmental agencies with energy-related missions.

An additional benefit to energy companies and governmental agencies is that CDEP provides each participating organization an opportunity to become proactive at helping to grow its own future workforce.

Mathematics, Science, and Engineering Academy (M-SEA). In 1993, CDEP implemented the Mathematics, Science, and Engineering Academy or M-SEA. M-SEA is an early intervention outreach program for academically-talented students from under-represented groups in STEM disciplines. The students are selected in the second semester of the 8th grade based on their academic performance and state standardized test scores. They enter the program during the summer as rising 9th graders. The goal of CDEP's M-SEA program is to provide a continuous pipeline for minority and female students from 9th grade through high school, to undergraduate and graduate levels of study majoring in mathematics, science, or engineering. Students take a pre-test at the beginning of the 9th, 10th, and 11th grade academies and a post test at end of each academy. Each student must score a minimum of 80% on their M-SEA post-test as one of the criteria for continued participation. Additionally, during the academic school year, students cannot make a semester grade less than a B in any science or math class and must maintain an overall gpa of 3.0 or above.

Since M-SEA's implementation in 1993, 685 students have been mentored in the program. Out of that number, 316 were male and 369 female students. A total of 313 students have completed M-SEA through the 12th grade. The breakdown of M-SEA 12th grade graduates by gender consists of 141 male (46.1%) and 172 for females (53.9%). A total of 135 students have matriculated at FVSU and 108 or 80% of those have enrolled into CDEP's dual degree programs in biology, chemistry engineering, geology, geophysics, health physics, and mathematics. Fifty-seven of the 108 have either completed one of CDEP's dual degree programs or are currently in the M-SEA/CDEP pipeline, which shows a 53% success rate. Considering the national statistic for underrepresented students who receive STEM degrees is 45%, the M-SEA/CDEP pipeline compares favorably. Students who entered M-SEA as rising 9th graders during the summer of 2014 will graduate from high school in May of 2018 and from CDEP's BS dual degree programs in May of 2023, or 2025 if they pursue the MS degree. Thus, M-SEA/CDEP is a nine to eleven-year STEM pipeline program.

As an early outreach pre-college program, M-SEA has been successful at recruiting minority students into the aforementioned STEM disciplines, especially health physics and the geosciences.

Pre-college outreach programs that focus on introducing underrepresented groups to STEM disciplines can make a significant difference in increasing the number of minority and female students that pursue STEM majors. Students learn while they are in high school that understanding math well is a prerequisite to their success in pursuing STEM disciplines in college. Therefore, it is important to ensure the existence of such programs so that minority students are introduced to STEM disciplines early in their educational development.

Objectives, Methodology, and Timetable

The primary objective of M-SEA is to respond to the need of preparing high school students with the **prerequisite skills** and **interest** to pursue STEM degrees in the above disciplines when they enter college. Thus, M-SEA represents the first four years of CDEP's nine year STEM pipeline. This proposal addresses NRC's goal of producing a more diverse workforce made up of U.S. citizens in STEM disciplines, especially in the areas of biology, chemistry, engineering, geology, geophysics, and health physics.

The Cooperative Developmental Energy Program of Fort Valley State University will continue to provide four summer academies for academically talented pre-college students from under-represented groups in STEM disciplines. CDEP will provide Mathematics, Science, and Engineering Academies for one hundred (twenty-five for each academy) 9th, 10th, 11th, and 12th grade students. Partnering federal agencies, corporations, and universities all will participate in the M-SEA program as described below for each academy.

The 9th grade M-SEA academy is hosted by Fort Valley State University and is scheduled for **July 13-26, 2014**. It also runs concurrently with the 12th grade academy. This two-week academy exposes the students to instruction in health physics, mathematics engineering, and geology. In health physics classes, students are introduced to how radiation forms from the splitting of atomic nuclei or from the fusion of atomic nuclei. In mathematics, the students study algebra and geometry; engineering classes introduce each student to the principles of electrical circuitry which is re-enforced when engineering faculty have students to work on projects that involve electrical circuitry; and in the geology class, the students focus on the geological formation of Stone Mountain (Atlanta, GA) and study the geologic features of this massive granite rock. Additionally, the students go on a five-day extended field trip to visit and learn about the following

federal agencies: The U. S. Nuclear Regulatory Commission in Rockville, MD; the U. S. Department of Energy in Washington, D.C.; the U. S. Geological Survey in Reston, VA.; and the National Energy Technology Laboratory in Pittsburgh, PA. Prior to visiting the federal agencies, each student has to research and write a two-page paper on the mission of each agency. Additionally, the students visit the campuses of Georgia Tech and Penn State University and are introduced to engineering and geosciences, respectively.

The 10th grade M-SEA academy is hosted by the University of Nevada, Las Vegas (UNLV) and is scheduled for **July 6-13, 2014**. The students are introduced to one week of intense instruction in civil engineering, computer engineering, electrical engineering, environmental engineering, mechanical engineering, health physics, geology, and mathematics. The engineering exercises are taught by professors within the Howard R. Hughes College of Engineering at UNLV. Students are also introduced to instrumentations that measure nuclear radiation by the faculty in the College of Health Sciences. In addition to classroom sessions, the students take fieldtrips to the Hoover Dam, the Grand Canyon, NV Energy, and the Acciona Solar One Power Plant. Visits to Hoover Dam and Acciona Solar One Plant teach students how electrical energy is produced from the forces of water and the sun, respectively. The visit to NV Energy Company exposes the students to how electrical energy is distributed to customers and the visit to the Grand Canyon teaches the students about the geological make-up of the earth. Students' math skills are enhanced with evening math classes.

The 11th grade M-SEA academy is hosted by the University of Arkansas at Fayetteville, AR and is scheduled for **June 15-22, 2014**. This academy focuses on geology, engineering, and mathematics. The aforementioned topics are all taught by university professors. The geology curriculum focuses on the local geology of Fayetteville, groundwater, karst formations, water quality and quantity, and ground water pollution. The engineering section of the curriculum exposes the students to the various types of engineering with emphasis placed on the production of energy from a variety of feedstock (mostly algae). The students also participate in sessions of mathematics. The math sessions focus on recurrence relations and how it can relate to geology and other everyday applications.

The 12th grade M-SEA academy is co-hosted by Fort Valley State University and partnering oil and gas companies in Houston, Texas. The two week academy is scheduled for **July 13-26, 2014** and runs concurrently with the 9th grade academy. The students engage in an intense one-week workshop designed to improve SAT scores with specific focus placed on improving mathematical and verbal skills. The SAT is given to the students at the end of the first week period.

During the second week of the 12th grade academy, BP, Chevron, ConocoPhillips, ExxonMobil, Marathon, and Shell sponsor a fieldtrip for the students to visit their corporate offices in Houston, TX and learn about the oil and gas industry. As a result, students are exposed to the various career fields and job opportunities within the industry. One of the major highlights of the field trip to Houston is that the students of the 12th grade academy are greeted and hosted by CDEP graduates who are currently employed by the oil and gas companies that they are visiting. CDEP has approximately two dozen graduates employed by the oil and gas industry in Houston.

Twelfth grade M-SEA students who graduate with a high school GPA of 3.50 or above and a SAT combined score of 1100 or above on both math and critical reading sections of the SAT or 26 or above on the ACT will be offered a CDEP scholarship. If the students accept the CDEP scholarships, they will pursue dual degree programs in the following STEM disciplines offered between FVSU-CDEP and its partnering universities: Biology/Health Physics, Math/

Health Physics, Chemistry/Health Physics, Math/Engineering (all fields), Chemistry/Chemical Engineering, Chemistry/Geology, and Math/Geophysics.

Benefits to the Nuclear Regulatory Commission

The M-SEA is a pre-college STEM program that begins at the rising-ninth grade level and continues through twelfth grade. Students are both mentored and introduced to STEM disciplines. Upon graduation from high school, they are encouraged to pursue degrees in health physics, engineering, math, chemistry, biology, and the geosciences. CDEP offers all of these disciplines in a 3+2 dual degree format via partnerships with the following universities: Georgia Tech, Penn State University, University of Arkansas, University of Nevada at Las Vegas, University of Texas at Austin, and the University of Texas Pan American. Because of the CDEP/NRC partnership, NRC will have access to all dual degree students as interns while they are matriculating at the universities and as regular employees upon the completion of the dual degree programs.

Evaluation and Dissemination

Tracking and statistical data will be kept on several performance parameters including but not limited to gender, ethnicity, attrition, retention, factors impacting attrition, percentage of students that enroll in all colleges, percentage that enroll in STEM disciplines at FVSU, and the percentages of students that enroll in CDEP's dual degree programs. Dissemination will occur when papers are presented at the annual meetings of American Society of Engineering Education, Geological Society of America, and other similar STEM organizations.

Program B: Cooperative Development Energy Program
Principal Investigator: Dr. Isaac Crumbly

As noted in the 2012 Presidential Council of Advisors on Science and Technology's report to President Barack Obama, women and minority groups constitute approximately 70% of the college students enrolled in the nation's universities while earning approximately 45% of the undergraduate STEM degrees. Since women and underrepresented minority groups make up approximately 80% of the nation's population ("the underrepresented majority"), the report, therefore, concluded women and minority groups represent the largest potential source of STEM professionals.

It has been well documented that minorities and women are under-represented in the nation's collegiate science, technology, engineering, and math (STEM) programs. According to the American Society for Engineering Education (ASEE) women constituted 17.9 percent of the bachelor engineering degrees awarded in 2008 while accounting for over 50 percent of the nation's population; African Americans and Hispanics combined accounted for 11.1 percent of the conferred bachelor degrees in engineering which is 2.7 times below their combined 30 percent share of the general population.

At the doctoral level, the ASEE study shows that all segments of the U.S population are under-performing compared to foreign nationals who earned 61.1 percent of the doctoral engineering degrees awarded in 2007 and 38.7 of the Master's Degrees conferred. Thus, all segments of the U.S. population are under-represented in STEM disciplines, but it is much more acute in women and minority groups.

In 1992, the Cooperative Developmental Energy Program of Fort Valley State University began addressing the under-representation of minorities and women in the STEM disciplines. CDEP's goal is to increase the number of minorities and women working in the energy industry and other STEM-dependent industries. This goal is accomplished by (1) forming partnerships with universities to offer dual degrees in STEM disciplines that are germane to the energy industry, namely, biology, chemistry, engineering, geology, geophysics, health physics, and mathematics; and (2) establishing partnerships with private sector energy companies and governmental agencies as sources of funding to support student scholarships and internships.

Accomplishments for the Cooperative Developmental Energy Program (CDEP)

Dual degree programs with Partnering Universities. From 1983 to 1992, CDEP operated as a Minority Student Summer Energy Internship Program (MSSEIP). MSSEIP recruited FVSU students from all disciplines, with both non- STEM and STEM majors. As the successful MSSEIP program continued, the CDEP staff moved the program to focus on STEM disciplines that are extremely important to the energy industry such as engineering, geology, geophysics, and health physics. Thus, in 1992, CDEP established a partnership with the University of Nevada at Las Vegas to offer dual degrees in math/engineering and in biology, chemistry, or math/health physics; a similar partnership was also established with the University of Oklahoma in 1992 to offer dual degrees in chemistry/geology, math/geophysics, and math/petroleum engineering.

In 2000, dual degree programs in math/engineering were implemented with Georgia Tech. Dual degree programs in chemistry/geology, math/geophysics, and math/petroleum engineering with the University of Texas-Austin were established in 2004. Also in 2004, CDEP signed a memorandum of understanding (MOU) with the University of Texas-Pan American to offer dual degrees in math/engineering and a cooperative agreement with Penn State University was signed in 2005 to offer dual degrees in chemistry/geology, math/geophysics, and math/petroleum engineering. The University of Arkansas signed an MOU with CDEP to offer dual degrees in chemistry/geology, math/geophysics, and math/engineering in 2010.

The dual degree programs work on a 3 + 2 five-year format. Students attend FVSU for three years and major in biology, chemistry, or math and then transfer to one of the aforementioned partnering universities for the remaining two years to earn a second degree in engineering, geology, geophysics, or health physics.

CDEP and its partnering universities have graduated 93 engineers, 33 geoscientists, and 8 health physicists for a total of 134 graduates. Of the 134 graduates, five have earned PhDs and seventeen have earned master's degrees.

Partnerships with Private Sector Energy Companies and Governmental Agencies. During its thirty-three years of existence, CDEP has formed partnerships with over sixty companies and governmental agencies. These partnerships are mutually-beneficial to FVSU-CDEP, energy companies, and governmental agencies in that the partnerships provide a mechanism whereby all three entities can work in concert to produce a diverse workforce. This is accomplished by CDEP recruiting academically-talented students to pursue dual degrees in disciplines that are germane to the overall energy industry and participating energy companies and governmental agencies providing the funds for student scholarships and internships.

Scholarships and Internships. To be eligible for a CDEP scholarship, students must graduate from an accredited high school with a grade point average 3.50 or above and a minimum SAT score of 1100 on the combined sections of critical reading and math. Since 1992, CDEP has

awarded over \$10 million in scholarships. During its thirty-one years of existence, CDEP students have participated in over 900 energy and non-energy-related internships. As a result of having early access to the students via internships, sponsoring energy companies and governmental agencies enhance their chances of hiring CDEP graduates when they complete their respective dual degree programs.

CDEP: A STEM Workforce Diversity Program. Follow up data show that CDEP has been an effective diversity program for the energy companies and governmental sponsors. Currently, 47 out of 134 CDEP graduates or 35% are employed with private sector oil and gas companies, electric/gas utility companies, and governmental agencies that have energy-related missions. Therefore, approximately 3.5 out of every 10 graduates are employed within the energy industry making CDEP a highly successful diversity program.

Additional analysis of the data reveals that CDEP is highly successful in regards to recruiting and mentoring female students for STEM disciplines. Out of the total number of 134 CDEP students who have completed dual degrees, 53 or 43% are females compared to women on a national basis who earn 25% of STEM degrees. CDEP's result is even more striking when considering that CDEP graduates earn two STEM degrees. Further gender comparison of CDEP reveal that the graduation rates for females with bachelor degrees in engineering is 34 out of 81 or 41%. On a national level, women make up approximately 18% of the bachelor degrees awarded in engineering annually.

Objectives, Methodology, and Timetable

Objectives. The first objective of this proposal is to obtain funding to support academic scholarships for ten students (one cohort) for five years. Funds are used to recruit academically talented underrepresented minority and female students to pursue 3+2 dual degree programs in math/engineering, math/geophysics, chemistry/geology, and biology, chemistry, or math/health physics. The second objective of this proposal is to increase the number of graduates from underrepresented women and minority groups as STEM Energy Specialists. The third objective is to address the nation's need to graduate more STEM graduates from the underrepresented majority.

Methodology. Currently, CDEP has 56 students enrolled in its collegiate part of the STEM pipeline. Twenty-eight students are enrolled at FVSU and twenty-eight are enrolled at the partnering universities. CDEP recruits from ten to fifteen academically talented students into the program each year. Students are competitively recruited by offering them full academic scholarships. Scholarships cover tuition, mandatory fees, room, meals and a book stipend.

CDEP scholarships are funded from several partnering energy companies and federal agencies. Some of the partnering companies and governmental agencies also provide internships for the students which help to make the program more competitive in attracting academically talented students. The program's dual degrees operate on a 3+2 five-year format. Students spend the first three years at FVSU and major in biology, chemistry, or math prior to transferring to one of the partnering universities to obtain a second degree in engineering, geology, geophysics or health physics. The partnering universities consist of Georgia Tech, Penn State University, University of Arkansas, University of Nevada at Las Vegas, University of Texas at Austin, and the University of Rio Grande Valley (formerly UTPA).

Because the students have only three years or six semesters at FVSU, students generally enroll in 20 credit hours per semester. The Georgia Board of Regents requires 120 hours

(6X20=120 credits) to graduate with a bachelor degree. Partnering universities accept FVSU's core curriculum as satisfying its own requirements; therefore, CDEP students enroll with a junior status when pursuing the second degree in engineering, geology, geophysics, or health physics.

CDEP students are encouraged to participate in summer internship opportunities. Partnering energy companies and governmental agencies provide many of the internships. Also, partnering research universities provide students with opportunities to conduct summer research via Research Experience for Undergraduates (REUs). The majority of CDEP students will participate in three to four internships during the five-year duration of the dual degree programs.

Professional Development is another important component of CDEP. CDEP students participate in two peer organizations' national and regional conferences, namely, the National Society of Black Engineers (NSBE) and the National Association of Black Geoscientists (NABG). Part of the professional development consists of but not limited to presenting papers, learning how to prepare resumes, developing interviewing skills, and honing leadership skills. Some CDEP students also acquire summer internships at the NSBE and NABG conferences.

Timetable. CDEP is a dual degree STEM Program. This project is based on funding a cohort of six students with scholarships for three years. The timetable begins in 2016 and ends in 2018.

Benefits to the Nuclear Regulatory Commission

The Nuclear Regulatory Commission (NRC) was established in 1974 to license and regulate the nation's civilian use of radioactive materials, to protect public health and safety, to promote the common defense and security, and to protect the environment. In order to perform its mission effectively, NRC has to depend on professional engineers such as nuclear, mechanical, chemical, electrical, and environmental and scientists such as biologists, chemists, geologists, health physicists, hydrologists, mathematicians, and seismologists. CDEP and its partnering universities have graduated all of the above types of engineers and scientists. Since CDEP focuses on the participation of underrepresented minorities and female students, the program also addresses NRC's ethnic and gender diversity goals in STEM disciplines.

Evaluation and Dissemination

Tracking students with statistical data will be kept on several performance parameters including but not limited to gender, ethnicity, attrition, retention, factors impacting retention, and percentage of students that complete the program. The above parameters will also be compared on a national basis. When data suggest that certain program processes and/or procedures are impacting the program negatively, those processes/procedures will be corrected immediately. Dissemination of performance data from the program will occur when papers are presented at the annual meetings of the American Society of Engineering Education, Geological Society of America, and other similar STEM organizations.

ATTACHMENT C – STANDARD TERMS AND CONDITIONS**The Nuclear Regulatory Commission's
Standard Terms and Conditions for U.S. Nongovernmental Grantees****Preface**

This award is based on the application submitted to, and as approved by, the Nuclear Regulatory Commission (NRC) under the authorization 42 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 following:

- Grant program legislation and program regulation cited in this Grant and Cooperative Agreement.
- Restrictions on the expenditure of Federal funds in appropriation acts, to the extent those restrictions are pertinent to the award.
- Code of Federal Regulations/Regulatory Requirements – 2 CFR Part 200, Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards.

Any inconsistency or conflict in terms and conditions specified in the award will be resolved according to the following order of precedence: public laws, regulations, applicable notices published in the Federal Register, Executive Orders (E.O.), Office of Management and Budget (OMB) Circulars, the NRC's Mandatory Standard Provisions, special award conditions, and standard award conditions.

Certifications and Representations: These terms incorporate the certifications and representations required by statute, executive order, or regulation that were submitted with the SF424B application through GRANTS.GOV.

I. Mandatory General Requirements

The order of these requirements does not make one requirement more important than any other requirement.

1. Applicability of 2 CFR Part 200

All provisions of 2 CFR Part 200 and all Standard Provisions attached to this grant/cooperative agreement are applicable to the Recipient and to sub-recipients which meet the definition of "Recipient" in 2 Part §200.86, unless a section specifically excludes a sub-recipient from coverage. The Recipient and any sub-recipients must, in addition to the assurances made as part of the application, comply and require each of its sub-awardees employed in the completion of the project to comply with Subpart D of 2 CFR Part 200 and include this term in lower-tier (sub-award) covered transactions.

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

2. Award Package

The Recipient is obligated to conduct project oversight as may be appropriate, to manage the funds with prudence, and to comply with the provisions outlined in 2 CFR Part 200. Within this framework, the Principal Investigator (PI) named on the award face page, is responsible for the scientific or technical direction of the project and for preparation of the project performance

reports. This award is funded on a cost-reimbursement basis, not to exceed the amount awarded as indicated on the face page, and is subject to a refund of unexpended grant funds to the NRC.

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

Subawards

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

Sub-recipients, sub-awardees, and contractors have no relationship with NRC under the terms of this grant/cooperative agreement. All required NRC approvals must be directed through the Recipient to NRC. See 2 CFR § 200.318.

Nondiscrimination

This provision is applicable when work under the grant/cooperative agreement is performed in the U.S. or when employees are recruited in the U.S.

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

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

affirmative action to ensure that equal opportunity is provided in all aspects of their employment.

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

Generally, Title VII of the Civil Rights Act of 1964, 42 U.S.C. § 2000e et seq, provides that it shall be an unlawful employment practice for an employer to discharge any individual or otherwise to discriminate against an individual with respect to compensation, terms, conditions, or privileges of employment because of such individual's race, color, religion, sex, or national origin. However, Title VII, 42 U.S.C. § 2000e-1(a), expressly exempts from the prohibition against discrimination on the basis of religion, a religious corporation, association, educational institution, or society with respect to the employment of individuals of a particular religion to perform work connected with the carrying on by such corporation, association, educational institution, or society of its activities.

Modifications/Prior Approval

NRC's prior written approval may be required before a Recipient makes certain budget modifications or undertakes particular activities. If NRC approval is required for changes in the grant or cooperative agreement, it must be requested and obtained from the NRC Grants Officer in advance of the change or obligation of funds. All requests for NRC prior approval, including requests for extensions to the period of performance, must be made, in writing (which includes submission by e-mail), to the designated Grants Officer at least 30 days before the proposed change. The request must be signed by the authorized organizational official. Failure to obtain prior approval, when required, from the NRC Grants Officer, may result in the disallowance of costs, or other enforcement action within NRC's authority.

Lobbying Restrictions

The Recipient will comply, as applicable, with provisions of the Hatch Act (5 U.S.C. §§ 1501-1508 and 7324-7328) which limits the political activities of employees whose principal employment activities are funded in whole or in part with Federal funds.

The Recipient will comply with provisions of 31 U.S.C § 1352. This provision generally prohibits the use of Federal funds for lobbying in the Executive or Legislative Branches of the Federal Government in connection with the award, and requires disclosure of the use of non-Federal funds for lobbying.

The Recipient receiving in excess of \$100,000.00 in Federal funding shall submit a completed Standard Form (SF-LLL), "Disclosure of Lobbying Activities." 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. The Recipient must submit the SF-LLL, including those received from sub-recipients, contractors, and subcontractors, to the Grants Officer.

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

The Recipient agrees to notify the Grants Officer immediately upon learning that it or any of its principals:

- (1) Are presently excluded or disqualified from covered transactions by any Federal department or agency;
- (2) Have been convicted within the preceding three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, tax evasion, receiving stolen property, making false claims, or obstruction of justice; commission of any other offense indicating a lack of business integrity or business honesty that seriously and directly affects your present responsibility;
- (3) Are presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State, or local) with commission of any of the offenses enumerated in paragraph (1)(b); 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: www.gsa.gov/federaltravelregulation and the per diem rates set forth at: www.gsa.gov/perdiem, absent Recipient's travel regulations. Travel and transportation costs for the grant must be consistent with provisions as established in 2 CFR § 200.473-474.

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

Domestic Travel:

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

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

International Travel:

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

The Recipient will comply with the provisions of the Fly America Act (49 U.S.C 40118), as implemented at 41 CFR §§ 301-10.131 through 301-10.143.

Property Standards

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

Intangible Property

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

Inventions Report - The Bayh-Dole Act (P.L. 96-517) affords Recipients the right to elect and retain title to inventions they develop with funding under an NRC grant award ("subject inventions"). In accepting an award, the Recipient agrees to comply with applicable NRC policies, the Bayh-Dole Act, and its Government-wide implementing regulations found at Title 37, Code of Federal Regulations (CFR) Part 401. A significant part of the regulations require that the Recipient report all subject inventions to the awarding agency (NRC) as well as include an acknowledgement of federal support in any patents.

Patent Notification Procedures - If the NRC or its Recipients, without making a patent search, knows (or has demonstrable reasonable grounds to know) that technology covered by a valid United States patent has been or will be used without a license from the owner, E.O. 12889 requires NRC to notify the owner. If the Recipient uses or has used patented technology under this award without license or permission from the owner, the Recipient must notify the Grants Officer. This notice does not imply that the Government authorizes and consents to any copyright or patent infringement occurring under the financial assistance.

Data, Databases, and Software - The rights to any work produced or purchased under a NRC federal financial assistance award, such as data, databases or software are determined by Subpart D of 2 CFR Part 200. The Recipient owns any work produced or purchased under a NRC federal financial assistance award subject to NRC's right to obtain, reproduce, publish or otherwise use the work or authorize others to receive, reproduce, publish or otherwise use the data for Government purposes.

Copyright - The Recipient may copyright any work produced under a NRC federal financial assistance award subject to NRC's royalty-free nonexclusive and irrevocable right to reproduce, publish or otherwise use the work or authorize others to do so for Government purposes. Works jointly authored by NRC and Recipient employees may be copyrighted, but only the part authored by the Recipient is protected because, under 17 U.S.C. § 105, works produced by Government employees are not copyrightable in the United States. On occasion, NRC may ask the Recipient to transfer to NRC its copyright in a particular work when NRC is undertaking the primary dissemination of the work. Ownership of copyright by the Government through assignment is permitted under 17 U.S.C. § 105.

Record Retention and Access

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

Conflict Of Interest

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

Dispute Review Procedures

a. Any request for review of a notice of termination or other adverse decision should be addressed to the Grants Officer. It must be postmarked or transmitted electronically no later

than 30 days after the postmarked date of such termination or adverse decision from the Grants Officer.

b. The request for review must contain a full statement of the Recipient's position and the pertinent facts and reasons in support of such position.

c. The Grants Officer will promptly acknowledge receipt of the request for review and shall forward it to the Director, Office of Acquisition Management Division, unless otherwise delegated, who shall appoint an intra-agency Appeal Board to review a recipient appeal of an agency action, if required, which will consist of the program office director, the Deputy Director of Office of Administration, and the Office of General Counsel.

d. Pending resolution of the request for review, the NRC may withhold or defer payments under the award during the review proceedings.

e. The review committee will request the Grants Officer who issued the notice of termination or adverse action to provide copies of all relevant background materials and documents. The committee may, at its discretion, invite representatives of the Recipient and the NRC program office to discuss pertinent issues and to submit such additional information as it deems appropriate. The chairman of the review committee will insure that all review activities or proceedings are adequately documented.

f. Based on its review, the committee will prepare its recommendation to the Director, Office of Administration, who will advise the parties concerned of his/her decision.

Remedies for Noncompliance

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

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

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

- Payment – 2 CFR § 200.305
- Cost Share or Matching – 2 CFR § 200.306
 - Recipients are to be careful with providing excessive cost share or match since at the end of the grant, if the identified match has not been provided, then a portion of the federal share may be required to be returned to the Government.
- Program Income – 2 CFR § 200.307
 - Earned program income, if any, will be added to funds committed to the project by the NRC and Recipient and used to further eligible project or program objectives or be deducted from the total project cost for the grant, as directed by the Grants Officer or indicated in the terms and conditions of the award.
- Revision of Budget and Program Plans – 2 CFR § 200.308
 - The Recipient is required to report deviations from the approved budget and program descriptions in accordance with – 2 CFR § 200.308(b) and request prior written approval from the Project Officer and the Grants Officer.
 - The Recipient is not authorized to re-budget between direct costs and indirect costs without written prior approval of the Grants Officer.

- The Recipient is authorized to transfer funds among direct cost categories up to a cumulative 10 percent of the total approved budget. The Recipient is not allowed to transfer funds if the transfer would cause any Federal appropriation to be used for purposes other than those consistent with the original intent of the appropriation.
- Allowable Costs – 2 CFR §§ 200.401-403
- See section 2 CFR §§ 200.330-332 for Subrecipient Monitoring and Management.

Federal Financial Reports - In accordance with 2 CFR § 200.327, the Recipient will submit a "Federal Financial Report" (SF-425) on a semi-annual basis for the periods ending March 31, and September 30, or any portion thereof, unless otherwise authorized by the Grants Officer. Reports are due no later than 30 days following the end of each reporting period. A final SF-425 is due within 90 days after expiration of the award. The report should be submitted electronically to: Grants_FFR.Resource@NRC.GOV. **(NOTE: There is an underscore between Grants and FFR).**

Performance Progress Reports - In accordance with 2 CFR § 200.328, the Recipient will submit Performance Progress Reports (SF-PPR, SF-PPR-B, and the SF-PPR-E) on a semi-annual basis for the periods ending March 31, and September 30, or any portion thereof, unless otherwise authorized by the Grants Officer. Reports are due no later than 30 days following the end of the reporting period. Performance reports are sent to the Program Officer at the email address indicated in the Notice of Award, and to Grants Officer at: Grants_PPR.Resource@NRC.GOV. **(NOTE: There is an underscore between Grants and PPR).**

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.

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. However, the NRC has no obligation to provide any additional prospective or incremental funding. Any modification of the award to increase funding and to extend the period of performance is at the sole discretion of the NRC.

Automated Standard Application For Payments (ASAP) Procedures

Unless otherwise stated, 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 your online report ID at: <http://harvester.census.gov/fac/collect/ddeindex.html>;
2. Complete the Form SF-SAC;
3. Upload the Single Audit;
4. Certify the Submission; 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

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.

The performance (technical) reports will contain brief information as prescribed in the applicable uniform administrative requirements 2 CFR §200.328. In addition to the customary performance progress report requested on the SF-PPR, SF-PPR-B, and SF-PPR-E forms, SBCR requires the following metrics to be reported on by the awardees as follows:

1. The number and percentage of STEM graduates who take a job in a STEM or STEM related Field
2. The number and percentage of students who participate in scientific activities or research experiences in industry, government, or the not-for-profit sector.
3. The number and percentage of students that present research findings at scientific meetings or student science exchange events.
4. The number of students who participate in inter disciplinary research or educational experiences.
5. The number of students who engage in research experiences in an academic, government, or not-for-profit industry

6. The number and percentage of graduate and post-doctoral fellowships who complete a STEM graduate or post-doctoral program
7. The number and percentage of program completers who are employed in a STEM or STEM-related field.
8. The number and percentage of students who participate in scientific activities or research experiences in industry, government, or the not-for-profit sector. This metric will include internships.

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. Miscellaneous 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.