

**U.S. NUCLEAR REGULATORY COMMISSION
NOTICE OF GRANT/ASSISTANCE AWARD**

1. GRANT/AGREEMENT NO. NRC-04-10-152	2. MODIFICATION NO.	3. PERIOD OF PERFORMANCE FROM: 9/1/2010 TO: 2/28/2012	4. AUTHORITY Pursuant to Section 31b and 141b of the Atomic Energy Act of 1954, as amended													
5. TYPE OF AWARD <input checked="" type="checkbox"/> GRANT <input type="checkbox"/> COOPERATIVE AGREEMENT	6. ORGANIZATION TYPE Nonprofit Publicly Supported Organization DUNS: 041964057	7. RECIPIENT NAME, ADDRESS, and EMAIL ADDRESS The National Academy of Sciences National Research Council 500 Fifth Street, NW, Room T 433C Washington, DC 20001 DDenning@NAS.EDU														
8. PROJECT TITLE: <p align="center">Analysis of Cancer Risks in Populations near Nuclear Facilities Phase 1</p>																
9. PROJECT WILL BE CONDUCTED PER GOVERNMENT'S/RECIPIENT'S PROPOSAL(S) DATED See Program Description AND APPENDIX A-PROJECT GRANT PROVISIONS	10. TECHNICAL REPORTS ARE REQUIRED <input checked="" type="checkbox"/> PROGRESS AND FINAL <input type="checkbox"/> FINAL ONLY <input type="checkbox"/> OTHER (Conference Proceedings)	11. PRINCIPAL INVESTIGATOR(S) NAME, ADDRESS and EMAIL ADDRESS The National Academy of Sciences Attn: Kevin Crowley Sr. Board Director / Nuclear and Radiation Studies Board Email: kcrowley@nas.edu 202-334-3066														
12. NRC PROGRAM OFFICE (NAME and ADDRESS) NRC Attn: Terry Brock RES/DSA/HEB MS: CSB-2A07M Email: Terry.Brock@NRC.GOV TEL: 301-251-7487	13. ACCOUNTING and APPROPRIATION DATA APPN. NO: 31X0200.060 B&R NO: 060-15-111-207 JOB CODE: G6000 BOC NO: 4110 OFFICE ID NO: RFPA: RES-10-152 FES: RES-C10-855	14. METHOD OF PAYMENT <input type="checkbox"/> ADVANCE BY TREASURY CHECK <input type="checkbox"/> REIMBURSEMENT BY TREASURY CHECK <input type="checkbox"/> LETTER OF CREDIT <input checked="" type="checkbox"/> OTHER (SPECIFY) Electronic ASAP.gov (See Remarks in Item #20 "Payment Information")														
15. NRC OBLIGATION FUNDS <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;">THIS ACTION</td> <td style="text-align: right; border-bottom: 1px solid black;">\$631,000.00</td> </tr> <tr> <td>PREVIOUS OBLIGATION</td> <td style="text-align: right; border-bottom: 1px solid black;">\$0.0</td> </tr> <tr> <td>TOTAL</td> <td style="text-align: right; border-bottom: 1px solid black;">\$631,000.00</td> </tr> </table>	THIS ACTION	\$631,000.00	PREVIOUS OBLIGATION	\$0.0	TOTAL	\$631,000.00	16. TOTAL FUNDING AGREEMENT <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;">NRC</td> <td style="text-align: right; border-bottom: 1px solid black;">\$1,036,653.00</td> <td rowspan="3" style="vertical-align: top; padding-left: 20px;">This action provides funds for Fiscal Year in the amount of See Page Two</td> </tr> <tr> <td>RECIPIENT</td> <td style="text-align: right; border-bottom: 1px solid black;">\$0.00</td> </tr> <tr> <td>TOTAL</td> <td style="text-align: right; border-bottom: 1px solid black;">\$1,036,653.00</td> </tr> </table>			NRC	\$1,036,653.00	This action provides funds for Fiscal Year in the amount of See Page Two	RECIPIENT	\$0.00	TOTAL	\$1,036,653.00
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17. NRC ISSUING OFFICE (NAME, ADDRESS and EMAIL ADDRESS) U.S. Nuclear Regulatory Commission Div. of Contracts Attn: Mlita Carr Mail Stop: TWB-01-B10M Email: Mlita.Carr@NRC.GOV Rockville MD 20852																
18. Signature Not Required	19. NRC CONTRACTING OFFICER <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%; text-align: center;"> <i>Sheila Bumpass</i> (Signature) </td> <td style="width:50%; text-align: right;"> <u>8/10/2010</u> (Date) </td> </tr> <tr> <td>NAME (TYPED)</td> <td style="border-bottom: 1px solid black;">Sheila Bumpass</td> </tr> <tr> <td>TITLE</td> <td style="border-bottom: 1px solid black;">Contracting Officer</td> </tr> <tr> <td>TELEPHONE NO.</td> <td style="border-bottom: 1px solid black;">301-492-3484</td> </tr> </table>			<i>Sheila Bumpass</i> (Signature)	<u>8/10/2010</u> (Date)	NAME (TYPED)	Sheila Bumpass	TITLE	Contracting Officer	TELEPHONE NO.	301-492-3484					
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20. PAYMENT INFORMATION Payment will be made through the Automated Standard Application for Payment (ASAP.gov) unless the recipient has failed to comply with the program objectives, award conditions, Federal reporting requirements or other conditions specified in 2 CFR 215 (OMB Circular A110).																
21. Attached is a copy of the "NRC General Provisions for Grants and Cooperative Agreements Awarded to Non-Government Recipients. Acceptance of these terms and conditions is acknowledged when Federal funds are used on this project.																
22. ORDER OF PRECEDENCE In the event of a conflict between the recipient's proposal and this award, the terms of the Award shall prevail.																
23. By this award, the Recipient certifies that payment of any audit-related debt will not reduce the level of performance of any Federal Program.																

TEMPLATE - ADM001

SUNSI REVIEW COMPLETE

AUG 12 2010

ADM002

ATTACHMENT A - SCHEDULE

A.1 PURPOSE OF GRANT

The purpose of this Grant is to provide support to The National Academies of Sciences, Division on Earth and Life Studies, Nuclear and Radiation Studies Board's Analysis of Cancer Risks in Populations near Nuclear Facilities as described in Attachment B entitled "Program Description."

A.2 PERIOD OF GRANT

1. The effective date of this Grant is September 1, 2010. The estimated completion date of this Grant is February 28, 2012.
2. Funds obligated hereunder are available for program expenditures for the estimated period: September 1, 2010 - February 28, 2012.

A. GENERAL

1. Total Estimated NRC Amount: \$1,036,653.00
2. Total Obligated Amount: \$631,000.00
3. Cost-Sharing Amount: \$ 0.0
4. Activity Title: Analysis of Cancer Risks in Populations near Nuclear Facilities
5. NRC Project Officer: Terry Brock
6. DUNS No.: 041964057

B. SPECIFIC

- RFPA No.: RES-10-152
 FFS: RES-C10-855
 Job Code: G6000
 BOC: 4110
 B&R Number: 060-15-111-207
 Appropriation #: 31X0200.060
 Amount Obligated: \$631,000.00

A.3 BUDGET

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

All travel must be in accordance with The National Academies of Sciences' Travel Regulations or the US Government Travel Policy absent Grantee's travel regulation.

A.4 AMOUNT OF AWARD AND PAYMENT PROCEDURES

Budget Line Items	Years 1 & 2
Personnel	\$ 251,773.00
Overhead	\$ 157,861.00
Overhead Cost of Money	\$ 7,567.00
Reports	\$ 29,250.00
Communication	\$ 24,498.00
Meeting Expense	\$ 39,236.00
Travel	\$ 306,236.00
Other Direct Costs	\$ 44,680.00
TOTAL DIRECT COSTS	\$ 861,101.00
G&A Costs	\$ 169,981.00
G&A Cost of Money	\$ 5,571.00
Total	\$ 1,036,653

1. The total estimated amount of this Award is \$1,036,653 for the two year period.
2. NRC hereby obligates the amount of \$631,000 for program expenditures during the period set forth above and in support of the Budget above. The Grantee will be given written notice by the Contracting Officer when additional funds will be added. NRC is not obligated to reimburse the Grantee for the expenditure of amounts in excess of the total obligated amount.
3. Payment shall be made to the Grantee in accordance with procedures set forth in the Automated Standard Application For Payments (ASAP) Procedures set forth below.

Attachment B – Program Description

PROGRAM DESCRIPTION

**Division on Earth and Life Studies
Nuclear and Radiation Studies Board**

Analysis of Cancer Risks in Populations near Nuclear Facilities: Phase 1

Summary

The National Academies will provide an assessment of cancer risks in populations living near U.S. Nuclear Regulatory Commission-licensed nuclear facilities. This assessment will be carried out in two consecutive phases. A Phase 1 scoping study, which is the subject of this proposal, will identify scientifically sound approaches for carrying out the cancer epidemiology study that has been requested by the U.S. Nuclear Regulatory Commission. The Phase 2 epidemiology study will be the subject of a future proposal.

Policy Background

In the late 1980s, the National Cancer Institute (NCI) initiated an epidemiological study of cancer risks in populations near 52 commercial nuclear power plants and 10 Department of Energy nuclear facilities in the United States. The report from this study, entitled *Cancer in Populations Living near Nuclear Facilities* (Jablon et al., 1990), concluded that deaths from cancer were not more frequent in the counties located near nuclear facilities compared to control counties with similar demographic characteristics. The authors of the study concluded "that if nuclear facilities posed a risk to neighboring populations, the risk was too small to be detected by a survey such as this one" (Jablon et al., 1991, p. 14082).

The U.S. Nuclear Regulatory Commission (USNRC) has been using this NCI study as a primary resource for communicating with the public about cancer risks near the commercial nuclear facilities that it regulates. However, this study is now over 20 years old. There have been substantial demographic shifts in populations near some of these facilities, and the facility inventory itself has changed: some facilities have shut down, new facilities have started up, and certain nuclear fuel-cycle facilities that were not included in the original study have become a focus of public interest. The USNRC is now responsible for regulating 104 nuclear power plants at 65 sites and nuclear fuel-cycle facilities at nine sites. Additionally, the USNRC anticipates that several new nuclear power plants could be constructed at new sites in the United States over the next decade.

The USNRC has asked the National Academy of Sciences to provide an up-to-date analysis of radiogenic cancer incidence and mortality risk to populations near currently and formerly licensed nuclear facilities as well as a baseline analysis of cancer risks in populations near proposed new facilities. The Commission staff intends to use this updated analysis in future communications with its stakeholders about cancer risks.

1 Jablon, S., Hrubec, Z., Boice, J.D., Jr., and B.J. Stone. 1990. *Cancer in Populations Living Near Nuclear Facilities*. Bethesda, Maryland: Public Health Service, Department of Health and Human Services, NIH Publication 90-874.

2 Jablon, S., Hrubec, Z., and J.D. Boice, Jr. 1991. Cancer in populations living near nuclear facilities. *JAMA* 265(11), 1403-1408.

Technical Background

The 1990 NCI study was considered to be state-of-the-art at the time it was undertaken. However, even its authors acknowledged its limitations. For example, the 1990 study focused primarily on cancer mortality, because good-quality cancer incidence data were largely unavailable at the time the study was being conducted. Since the study was completed, however, many state and county cancer registries have begun collecting good-quality incidence data. At the national level, the NCI's Surveillance, Epidemiology, and End Results (SEER) Program is an authoritative source of cancer incidence and survival data covering about 26 percent of the U.S. population.

Additionally, the 1990 study used county-level data for its study and control populations. The use of countywide data made it difficult to discern local effects around nuclear facilities, especially in counties with large population centers at distance from those facilities. Modern GIS and data-mining techniques may make it possible to more accurately circumscribe the geographic boundaries of the study populations to smaller areas of interest around the facilities.

The 1990 study also did not attempt to estimate radiation exposures resulting from operation of the facilities to individuals living nearby. However, the study authors noted that such exposures are likely to be "too small to result in detectable harm" (Jablon et al., 1991, p.1a07). Absent reliable information on radiation exposures, it is difficult to provide scientifically supportable explanations for any observed associations between proximity to a nuclear facility and cancer incidence or mortality.

Epidemiological studies of cancer risks near nuclear facilities have been carried out in several countries. Jablon et al. (1991) noted that the 1990 NCI study was motivated by earlier studies that described increases in leukemia and lymphoma among young persons living near certain nuclear installations in the United Kingdom. Other studies in Europe and the United States have yielded mixed results, with some showing statistically significant correlations and others showing no correlations. A recent epidemiological study of childhood cancer in Germany (Kaatsch et al., 2008) found a statistical correlation between a child's risk of contracting cancer before his or her fifth birthday and proximity of that child's residence to the nearest nuclear power plant at the time of diagnosis. However, the study authors were unable to identify risk factors to explain this correlation.

There are a number of additional difficulties for designing epidemiological studies to assess cancer risks around nuclear facilities. For example:

- Such studies generally have low statistical power. This can make it difficult to discern differences in cancer risks between study and control populations.
- Nuclear facilities typically operate for many decades. During that time there can be substantial shifts in the demographic characteristics of nearby populations.
- The gaseous and liquid radioactive releases and direct radiation exposures from nuclear facilities can vary over time. This can affect source terms, exposure pathways, and receptors for offsite radiation doses.
- There may be other factors, such as releases of environmental carcinogens from other types of facilities such as refineries or coal plants, that can confound the identification of risk factors for any observed associations between proximity to a nuclear facility and cancer incidence or mortality.

3 Kaatsch, P., Spix, C., Schulze-Rath, R., Schmiedel, S., and M. Blettner. 2008. Leukaemia in young children living in the vicinity of German nuclear power plants. *Int. Jour. Cancer* 122(4), 721-726.

A careful scoping effort will be needed to develop scientifically sound methodological approaches for carrying out the cancer epidemiology assessment that has been requested by the USNRC. The objective of this Phase 1 study is to advise the study sponsor and the National Academies on methodological approaches for carrying out such an assessment.

Statement of Task

The National Academies will provide an assessment of cancer risks in populations living near U.S. Nuclear Regulatory Commission-licensed nuclear facilities. This assessment will be carried out in two consecutive phases:

A Phase 1 scoping study will identify scientifically sound approaches for carrying out the cancer epidemiology study that has been requested by the U.S. Nuclear Regulatory Commission. It will address the following tasks:

1. Methodological approaches for assessing off-site radiation dose, including consideration of:
 - Pathways, receptors, and source terms.
 - Availability, completeness, and quality of information on gaseous and liquid radioactive releases and direct radiation exposure from nuclear facilities
 - Approaches for overcoming potential methodological limitations arising from the variability in radioactive releases over time and other confounding factors
2. Methodological approaches for assessing cancer epidemiology, including consideration of:
 - Demographic characteristics of the study and control populations (e.g., all age groups, including children and nuclear facility workers)
 - Geographic areas to use in the study (e.g., county, zip codes, census tracts, or annular rings around the facility at some nominal distances)
 - Cancer types and endpoints (i.e., incidence, mortality)
 - Availability, completeness, and quality of cancer incidence and mortality data
 - Different epidemiological study designs and statistical assessment methods (e.g., ecologic or case-control study designs)
 - Approaches for overcoming potential methodological limitations arising from low statistical power, random clustering, changes in population characteristics over time, and other confounding factors

The results of this Phase 1 scoping study will be used to inform the design of the cancer risk assessment, which will be carried out in Phase 2.

Preliminary Work Plan

An expert committee comprised of 21 members, including up to 2 experts from outside of the United States, will be appointed by the president of the National Academy of Sciences, acting in his capacity as chair of the National Research Council, to carry out this Phase 1 study.

The committee will hold 6 meetings to gather information and develop its final report. The committee may elect to break into two subgroups for the purposes of gathering information on the two parts of the task statement. The committee chair and vice chair would lead these two subgroups.

Information for the study will be gathered from several sources, including the scientific and medical literature as well as briefings from several organizations and individuals, including:

- USNRC staff, congressional staff, and other appropriate parties on the study task and work plan, especially with respect to important issues to be addressed and sources of information for the study.
- USNRC staff on the facilities proposed for examination in the Phase 2 assessment.
- NCI staff on the 1990 cancer risk study and lessons to be learned for the design of epidemiology studies.
- Authors of other cancer risk studies for nuclear facilities and lessons to be learned for the design of epidemiology studies.
- Medical specialists, state officials, and NCI staff on cancer mortality and incidence data characteristics, quality, and availability.
- Operators of nuclear facilities on their programs to assess pathways, receptors, and source terms for offsite radiation doses.
- USNRC staff on its regulatory program to ensure that off-site doses from its licensed facilities are in compliance with public dose limits and numerical objectives.

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The committee will examine a representative range of USNRC-licensed nuclear facilities to identify potential challenges and limitations for the design of the Phase 2 assessment. The committee may engage unpaid consultants to assist with data collection for this examination. All collected data will be placed into the project's Public Access File unless it is exempt from public release through the Freedom of Information Act (FOIA).⁴

The committee will prepare a consensus report with findings and recommendations at the conclusion of its study. The report will be subjected to National Research Council (NRC) review before being released to the study sponsor and the public. Funds have been included in the budget to support the dissemination of the final report to Congress, other federal agencies, nuclear facility operators, state regulatory agencies, and other interested members of the public.

A proposal to the USNRC for the Phase 2 study will be prepared after the Phase 1 study is completed. The study task and work plan will be based on the Phase 1 report and on comments received from the study sponsor and other interested parties about that report's proposed methodologies. Up to 60 days will be provided for comments on the Phase 1 report before the Phase 2 proposal is finalized.

Funds have been budgeted to develop a number of communications tools to keep interested parties informed about this Phase 1 study. These include:

- A dedicated project website supplementing the NRC's Current Projects System to provide additional information of interest to the public about the study and further enable interested parties to submit information for the committee's consideration.
- A listserv to notify interested parties about project milestones such as appointment of the study committee; meeting dates, locations, and agendas; and publication of the final report. . Webcasts of selected portions of the committee's open sessions, in consultation with the NRC Office of News and Public Information.
- Development of derivative products from the final report for different public audiences. The study staff, in consultation with the study committee and study sponsor, will identify appropriate audiences for these derivative products and confer with the NRC Report Review Committee in the process of developing such products in accordance with institutional guidelines.

Federal Advisory Committee Act (FACA)

The Academy has developed interim policies and procedures to implement Section 15 of the Federal Advisory Committee Act, 5 U.S.C. App. S 15. Section 15 includes certain requirements regarding public access and conflicts of interest that are applicable to agreements under which the Academy, using a committee, provides advice or recommendations to a Federal agency. In accordance with Section 15 of FACA, the Academy shall submit to the government sponsor(s) following delivery of each applicable report a certification that the policies and procedures of the Academy that implement Section 15 of FACA have been substantially complied with in the performance of the grant with respect to the applicable report.

Public Information About the Project

In order to afford the public greater knowledge of Academy activities and an opportunity to provide comments on those activities, the Academy may post on its website (<http://www.national-academies.org>) the following information as appropriate under its procedures: (1) notices of meetings open to the public; (2) brief descriptions of projects; (3) committee appointments, if any (including biographies of committee members); (4) report information; and (5) any other pertinent information.

⁴ NOTE: In the event that a requirement arises in the course of the Phase 1 study for committee access to any information that is to be withheld from public disclosure under exemptions in FOIA described in title 5 U.S.C. S 552(b), the study staff will promptly contact the National Research Council (NRC) Executive Office (NRCEO) for additional guidance. NRC staff will ascertain as early as possible from the study sponsor the nature of such information and will confer with the NRCEO, the NRC's Office of General Counsel and, as appropriate, the NRC's Institutional Review Board and Office of Security before any of it is distributed to the committee.

Attachment C – Standard Terms and Conditions

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

Preface

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

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

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

A-21 (now 2CFR 220): <http://www.whitehouse.gov/omb/circulars/a021/print/a021.html>
A-87 (now 2CFR 225): <http://www.whitehouse.gov/omb/circulars/a087/print/a087-all.html>
A-122 (now 2 CFR 230) <http://www.whitehouse.gov/omb/circulars/a122/print/a122.html>
A-102, SF 424: <http://www.whitehouse.gov/omb/circulars/a102/print/a102.html>
Form 990: <http://www.irs.gov/pub/irs-pdf/i990-ez.pdf>

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

By drawing funds from the Automated Standard Application for Payment system (ASAP), the recipient agrees to the terms and conditions of an award.

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

I. Mandatory General Requirements

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

1. Applicability of 2 CFR Part 215

a. All provisions of 2 CFR Part 215 and all Standard Provisions attached to this grant/cooperative agreement are applicable to the Grantee and to sub-recipients which meet the definition of "Grantee" in Part 215, unless a section specifically excludes a sub-recipient from coverage. The Grantee and any sub-recipients must, in addition to the assurances made as part of the application, comply and require each of its sub-awardees employed in the completion of the project to comply with Subpart C of 2 CFR 215 Part 180 and include this term in lower-tier (subaward) covered transactions.

b. Grantees must comply with monitoring procedures and audit requirements in accordance with OMB Circular A-133. < http://www.whitehouse.gov/omb/circulars/a133_compliance/08/08toc.aspx >

2. Award Package

§ 215.41 Grantee responsibilities.

The Grantee is obligated to conduct such project oversight as may be appropriate, to manage the funds with prudence, and to comply with the provisions outlined in 2 CFR 215.41. Within this framework, the Principal Investigator (PI) named on the award face page, Block 11, is responsible for the scientific or technical direction of the project and for preparation of the project performance reports. This award is funded on a cost reimbursement basis not to exceed the amount awarded as indicated on the face page, Block 16, and is subject to a refund of unexpended funds to NRC.

The standards contained in this section do not relieve the Grantee of the contractual responsibilities arising under its contract(s). The Grantee is the responsible authority, without recourse to the NRC, regarding the settlement and satisfaction of all contractual and administrative issues arising out of procurements entered into in support of an award or other agreement. This includes disputes, claims, and protests of award, source evaluation or other matters of a contractual nature. Matters concerning violation of statute are to be referred to such Federal, State or local authority as may have proper jurisdiction.

Subgrants

Appendix A to Part 215—Contract Provisions

Sub-recipients, sub-awardees, and contractors have no relationship with NRC under the terms of this grant/cooperative agreement. All required NRC approvals must be directed through the Grantee to NRC. See 2 CFR 215.180 and 215.41.

Nondiscrimination

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

No U.S. citizen or legal resident shall be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity funded by this award on the basis of race, color, national origin, age, religion, handicap, or sex. The Grantee agrees to comply with the non-discrimination requirements below:

Title VI of the Civil Rights Act of 1964 (42 USC §§ 2000d et seq)
Title IX of the Education Amendments of 1972 (20 USC §§ 1681 et seq)
Section 504 of the Rehabilitation Act of 1973, as amended (29 USC § 794)
The Age Discrimination Act of 1975, as amended (42 USC §§ 6101 et seq)
The Americans with Disabilities Act of 1990 (42 USC §§ 12101 et seq)
Parts II and III of EO 11246 as amended by EO 11375 and 12086.
EO 13166, "Improving Access to Services for Persons with Limited English Proficiency."
Any other applicable non-discrimination law(s).

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

Modifications/Prior Approval

NRC prior written approval may be required before a Grantee makes certain budget modifications or undertakes particular activities. If NRC approval is required for changes in the grant or cooperative agreement,

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it must be requested of, and obtained from, the NRC Grants Officer in advance of the change or obligation of funds. All requests for NRC prior approval must be made, in writing (which includes submission by e-mail), to the designated Grants Specialist and Program Office no later than 30 days before the proposed change. The request must be signed by both the PI and the authorized organizational official. Failure to obtain prior approval, when required, from the NRC Grants Officer may result in the disallowance of costs, termination of the award, or other enforcement action within NRC's authority.

Lobbying Restrictions

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

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

The Grantee receiving in excess of \$100,000 in Federal funding shall submit a completed Standard Form (SF) LLL, "Disclosure of Lobbying Activities," regarding the use of non-Federal funds for lobbying within 30 days following the end of the calendar quarter in which there occurs any event that requires disclosure or that materially affects the accuracy of the information contained in any disclosure form previously filed. The Grantee must submit the SF-LLL, including those received from sub-recipients, contractors, and subcontractors, to the Grants Officer.

§ 215.13 Debarment And Suspension.

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

- (1) Are presently excluded or disqualified from covered transactions by any Federal department or agency;
- (2) Have been convicted within the preceding three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, tax evasion, receiving stolen property, making false claims, or obstruction of justice; commission of any other offense indicating a lack of business integrity or business honesty that seriously and directly affects your present responsibility;
- (3) Are presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State, or local) with commission of any of the offenses enumerated in paragraph (1)(b); and
- (4) Have had one or more public transactions (Federal, State, or local) terminated for cause or default within the preceding three years.

b. The Grantee agrees that, unless authorized by the Grants Officer, it will not knowingly enter into any subgrant or contracts under this grant/cooperative agreement with a person or entity that is included on the Excluded Parties List System (<http://epls.arnet.gov>).

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

'Debarment, Suspension, Ineligibility, and Voluntary Exclusion

The Grantee certifies that neither it nor its principals is presently excluded or disqualified from participation in this transaction by any Federal department or agency. The policies and procedures applicable to debarment, suspension, and ineligibility under NRC-financed transactions are set forth in 2 CFR Part 180.'

Drug-Free Workplace

The Grantee must be in compliance with The Federal Drug Free Workplace Act of 1988. The policies and procedures applicable to violations of these requirements are set forth in 41 USC 702.

Implementation of E.O. 13224 -- Executive Order On Terrorist Financing

The Grantee is reminded that U.S. Executive Orders and U.S. law prohibits transactions with, and the provision of resources and support to, individuals and organizations associated with terrorism. It is the legal responsibility of the Grantee to ensure compliance with these Executive Orders and laws. This provision must be included in all contracts/sub-awards issued under this grant/cooperative agreement. Award Grantees must comply with Executive Order 13224, Blocking Property and Prohibiting Transactions with Persons who Commit, Threaten to Commit, or Support Terrorism. Information about this Executive Order can be found at: www.fas.org/irp/offdocs/eo/eo-13224.htm.

Procurement Standards. § 215.40

Sections 215.41 through 215.48 set forth standards for use by Grantees in establishing procedures for the procurement of supplies and other expendable property, equipment, real property and other services with Federal funds. These standards are furnished to ensure that such materials and services are obtained in an effective manner and in compliance with the provisions of applicable Federal statutes and executive orders. No additional procurement standards or requirements shall be imposed by the Federal awarding agencies upon Grantees, unless specifically required by Federal statute or executive order or approved by OMB.

Travel

Travel is an appropriate charge to this award and prior authorization for specific trips are not required, as long as the trip is identified in the Grantee's original program description and original budget. All other travel, domestic or international, must not increase the total estimated award amount. Trips that have not been identified in the approved budget require the written prior approval of the Grants Officer.

Travel will be in accordance with the US Government Travel Regulations at: www.gsa.gov/federaltravelregulation and the per diem rates set forth at: www.gsa.gov/perdiem.

Travel costs to the grant must be consistent with provisions as established in Appendix A to 2 CFR 220 (J.53)

Property Management Standards

Property standards of this award shall follow provisions as established in 2 CFR 215.30.

Equipment procedures shall follow provision established in 2 CFR 215.34.

Procurement Standards

Procurement standards of this award shall follow provisions as established in 2 CFR 215.40.

Intangible and Intellectual Property

Intangible and intellectual property of this award shall generally follow provisions established in 2 CFR 215.36.

Inventions Report - The Bayh-Dole Act (P.L. 96-517) affords Grantees the right to elect title and retain ownership to inventions they develop with funding under an NRC grant award ("subject inventions"). In accepting an award, the Grantee agrees to comply with applicable NRC policies, the Bayh-Dole Act, and its Government-wide implementing regulations found at Title 37, Code of Federal Regulations (CFR) Part 401. A significant part of the regulations require that the Grantee report all subject inventions to the awarding agency (NRC) as well as include an acknowledgement of federal support in any patents. NRC participates in the trans-government Interagency Edison system (http://www.iedison.gov) and expects NRC funding Grantees to use this system to comply with Bayh-Dole and related intellectual property reporting requirements. The system allows for Grantees to submit reports electronically via the Internet. In addition, the invention must be reported in continuation applications (competing or non-competing).

Patent Notification Procedures- Pursuant to EO 12889, NRC is required to notify the owner of any valid patent covering technology whenever the NRC or its financial assistance Grantees, without making a patent search, knows (or has demonstrable reasonable grounds to know) that technology covered by a valid United States patent has been or will be used without a license from the owner. To ensure proper notification, if the Grantee uses or has used patented technology under this award without license or permission from the owner, the Grantee must notify the Grants Officer. This notice does not necessarily mean that the Government authorizes and consents to any copyright or patent infringement occurring under the financial assistance.

Data, Databases, and Software - The rights to any work produced or purchased under a NRC federal financial assistance award are determined by 2 CFR 215.36. Such works may include data, databases or software. The Grantee owns any work produced or purchased under a NRC federal financial assistance award subject to NRC's right to obtain, reproduce, publish or otherwise use the work or authorize others to receive, reproduce, publish or otherwise use the data for Government purposes.

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

Records retention and access requirements for records of the Grantee shall follow established provisions in 2 CFR 215.53.

Organizational Prior Approval System

In order to carry out its responsibilities for monitoring project performance and for adhering to award terms and conditions, each Grantee organization shall have a system to ensure that appropriate authorized officials provide necessary organizational reviews and approvals in advance of any action that would result in either the performance or modification of an NRC supported activity where prior approvals are required, including the obligation or expenditure of funds where the governing cost principles either prescribe conditions or require approvals.

The Grantee shall designate an appropriate official or officials to review and approve the actions requiring NRC prior approval. Preferably, the authorized official(s) should be the same official(s) who sign(s) or countersign(s) those types of requests that require prior approval by NRC. The authorized organization official(s) shall not be the principal investigator or any official having direct responsibility for the actual conduct of the project, or a subordinate of such individual.

Conflict Of Interest Standards of this award shall follow provisions as established in 2 CFR 215.42 Codes of Conduct.

Dispute Review Procedures

a. Any request for review of a notice of termination or other adverse decision should be addressed to the Grants Officer. It must be postmarked or transmitted electronically no later than 30 days after the postmarked date of such termination or adverse decision from the Grants Officer.

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

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- c. The Grants Officer will promptly acknowledge receipt of the request for review and shall forward it to the Director, Office of Administration, who shall appoint a review committee consisting of a minimum of three persons.
- d. Pending resolution of the request for review, the NRC may withhold or defer payments under the award during the review proceedings.
- e. The review committee will request the Grants Officer who issued the notice of termination or adverse action to provide copies of all relevant background materials and documents. The committee may, at its discretion, invite representatives of the Grantee and the NRC program office to discuss pertinent issues and to submit such additional information as it deems appropriate. The chairman of the review committee will insure that all review activities or proceedings are adequately documented.
- f. Based on its review, the committee will prepare its recommendation to the Director, Office of Administration, who will advise the parties concerned of his/her decision.

Termination and Enforcement. Termination of this award by default or by mutual consent shall follow provisions as established in 2 CFR 215.60.

Monitoring and Reporting § 215.51

- a. Grantee Financial Management systems must comply with the established provisions in 2 CFR 215.21
- Payment – 2 CFR 215.22
 - Cost Share – 2 CFR 215.23
 - Program Income – 2 CFR 215.24
 - Earned program income, if any, shall be added to funds committed to the project by the NRC and Grantee and used to further eligible project or program objectives.
 - Budget Revision – 2 CFR 215.25
 - In accordance with 2 CFR 215.25(e), the NRC waives the prior approval requirement for items identified in sub-part (e)(1-4).
 - The Grantee is not authorized to rebudget between direct costs and indirect costs without written approval of the Grants Officer.
 - Allowable Costs – 2 CFR 215.27

b. Federal Financial Reports

Effective October 1, 2008, NRC transitioned from the SF-269, SF-269A, SF-272, and SF-272A to the Federal Financial Report (SF-425) as required by OMB:

http://www.whitehouse.gov/omb/fedreg/2008/081308_ffr.pdf

http://www.whitehouse.gov/omb/grants/standard_forms/ffr.pdf

http://www.whitehouse.gov/omb/grants/standard_forms/ffr_instructions.pdf

The Grantee shall submit a "Federal Financial Report" (SF-425) on a quarterly basis for the periods ending 3/31, 6/30, 9/30, and 12/31 or any portion thereof, unless otherwise specified in a special award condition. Reports are due no later than 30 days following the end of each reporting period. A final SF-425 shall be submitted within 90 days after expiration of the award.

Period of Availability of Funds 2 CFR § 215.28

- a. Where a funding period is specified, a Grantee may charge to the grant only allowable costs resulting from obligations incurred during the funding period and any pre-award costs authorized by the NRC.

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- b. Unless otherwise authorized in 2 CFR 215.25(e)(2) or a special award condition, any extension of the award period can only be authorized by the Grants Officer in writing. Verbal or written assurances of funding from other than the Grants Officer shall not constitute authority to obligate funds for programmatic activities beyond the expiration date.
- c. 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.
- d. Requests for extensions to the period of performance shall be sent to the Grants Officer at least 30 days prior to the grant/cooperative agreement expiration date. Any request for extension after the expiration date shall not be honored.

Automated Standard Application For Payments (ASAP) Procedures

Unless otherwise provided for in the award document, payments under this award will be made using the Department of Treasury's Automated Standard Application for Payment (ASAP) system < <http://www.fms.treas.gov/asap/> >. Under the ASAP system, payments are made through preauthorized electronic funds transfers, in accordance with the requirements of the Debt Collection Improvement Act of 1996. In order to receive payments under ASAP, Grantees are required to enroll with the Department of Treasury, Financial Management Service, and Regional Financial Centers, which allows them to use the on-line method of withdrawing funds from their ASAP established accounts. The following information will be required to make withdrawals under ASAP: (1) ASAP account number – the award number found on the cover sheet of the award; (2) Agency Location Code (ALC) – 31000001; and Region Code. Grantees enrolled in the ASAP system do not need to submit a "Request for Advance or Reimbursement" (SF-270), for payments relating to their award.

Audit Requirements

Organization-wide or program-specific audits shall be performed in accordance with the Single Audit Act Amendments of 1996, as implemented by OMB Circular A-133, "Audits of States, Local Governments, and Non-Profit Organizations." <http://www.whitehouse.gov/omb/circulars/a133/a133.html> Grantees are subject to the provisions of OMB Circular A-133 if they expend \$500,000 or more in a year in Federal awards.

The Form SF-SAC and the Single Audit Reporting packages for fiscal periods ending on or after January 1, 2008 must be submitted online.

1. Create your online report ID at <http://harvester.census.gov/fac/collect/ddeindex.html>
2. Complete the Form SF-SAC
3. Upload the Single Audit
4. Certify the Submission
5. Click "Submit."

Organizations expending less than \$500,000 a year are not required to have an annual audit for that year but must make their grant-related records available to NRC or other designated officials for review or audit.

III. Programmatic Requirements

Performance (Technical) Reports

- a. The Grantee shall submit performance (technical) reports electronically to the NRC Project Officer and Grants Officer as specified in the special award conditions in the same frequency as the Federal Financial Report unless otherwise authorized by the Grants Officer.
- b. Unless otherwise specified in the award provisions, performance (technical) reports shall contain brief information as prescribed in the applicable uniform administrative requirements 2 CFR §215.51 which are incorporated in the award.

Unsatisfactory Performance

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

Failure to comply with any or all of the provisions of the award may have a negative impact on future funding by NRC and may be considered grounds for any or all of the following actions: establishment of an accounts receivable, withholding of payments under any NRC award, changing the method of payment from advance to reimbursement only, or the imposition of other special award conditions, suspension of any NRC active awards, and termination of any NRC award.

Other Federal Awards With Similar Programmatic Activities

The Grantee shall immediately provide written notification to the NRC Project Officer and the Grants Officer in the event that, subsequent to receipt of the NRC award, other financial assistance is received to support or fund any portion of the program description incorporated into the NRC award. NRC will not pay for costs that are funded by other sources.

Prohibition Against Assignment By The Grantee

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

Site Visits

The NRC, through authorized representatives, has the right, at all reasonable times, to make site visits to review project accomplishments and management control systems and to provide such technical assistance as may be required. If any site visit is made by the NRC on the premises of the Grantee or contractor under an award, the Grantee shall provide and shall require his/her contractors to provide all reasonable facilities and assistance for the safety and convenience of the Government representative in the performance of their duties. All site visits and evaluations shall be performed in such a manner as will not unduly delay the work.

IV. Miscellaneous Requirements

Criminal and Prohibited Activities

- a. The Program Fraud Civil Remedies Act (31 USC §§ 3801-3812), provides for the imposition of civil penalties against persons who make false, fictitious, or fraudulent claims to the Federal government for money (including money representing grant/cooperative agreements, loans, or other benefits.)
- b. False statements (18 USC § 287), provides that whoever makes or presents any false, fictitious, or fraudulent statements, representations, or claims against the United States shall be subject to imprisonment of not more than five years and shall be subject to a fine in the amount provided by 18 USC § 287.
- c. False Claims Act (31 USC 3729 et seq), provides that suits under this Act can be brought by the government, or a person on behalf of the government, for false claims under federal assistance programs.
- d. Copeland "Anti-Kickback" Act (18 USC § 874), prohibits a person or organization engaged in a federally supported project from enticing an employee working on the project from giving up a part of his compensation under an employment contract.

American-Made Equipment And Products

Grantees are hereby notified that they are encouraged, to the greatest extent practicable, to purchase American-made equipment and products with funding provided under this award.

Increasing Seat Belt Use in the United States

Pursuant to EO 13043, Grantees should encourage employees and contractors to enforce on-the-job seat belt policies and programs when operating company-owned, rented or personally-owned vehicle.

Federal Employee Expenses

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

Minority Serving Institutions (MSIs) Initiative

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

Research Misconduct

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

Publications, Videos, and Acknowledgment of Sponsorship

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

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