

INTERAGENCY AGREEMENT		1. IAA NO. NRC-HQ-60-16-I-0005		PAGE OF 1 2	
2. ORDER NO.		3. REQUISITION NO. RES-16-0348		4. SOLICITATION NO.	
5. EFFECTIVE DATE 06/13/2016		6. AWARD DATE 06/13/2016		7. PERIOD OF PERFORMANCE 08/15/2016 TO 03/31/2019	
8. SERVICING AGENCY NATIONAL INSTITUTE OF STANDARDS TECHNOLOGY A.I.C.: 13060001 DUNS: 929956050 +4: NATIONAL INSTITUTE OF STANDARDS TECHNOLOGY US DEPARTMENT OF COMMERCE 100 BUREAU DRIVE GAITHERSBURG MD 20899-0001 POC SHARON REINHART TELEPHONE NO 301-975-5876			9. DELIVER TO US NUCLEAR REGULATORY COMMISSION 11555 ROCKVILLE PIKE ATTN: DAVID STROUP MAIL STOP T-10A12 ROCKVILLE MD 20852-2738		
10. REQUESTING AGENCY ACQUISITION MANAGEMENT DIVISION A.I.C.: 31000001 DUNS: 040535809 +4: US NUCLEAR REGULATORY COMMISSION ONE WHITE FLINT NORTH 11555 ROCKVILLE PIKE ROCKVILLE MD 20852-2738 POC MICHAEL TURNER TELEPHONE NO 301-415-6712			11. INVOICE OFFICE US NUCLEAR REGULATORY COMMISSION ONE WHITE FLINT NORTH 11555 ROCKVILLE PIKE MAILSTOP 03-E17A ROCKVILLE MD 20852-2738		
12. ISSUING OFFICE US NRC - HQ ACQUISITION MANAGEMENT DIVISION MAIL STOP TWEN-5E03 WASHINGTON DC 20555-0001			13. LEGISLATIVE AUTHORITY Energy Reorganization Act of 1974		
			14. PROJECT ID		
			15. PROJECT TITLE FIRE TESTING IN SUPPORT OF FIRE PRA APPLICATIONS		
16. ACCOUNTING DATA 2016-X0200-FREBASED-60-60DC02-11-6-213-1013-253A					
17. ITEM NO	18. SUPPLIES/SERVICES	19. QUANTITY	20. UNIT	21. UNIT PRICE	22. AMOUNT
00001	Agreement Number: NRC-HQ-60-16-I-0005 The Nuclear Regulatory Commission and the National Institute of Standards and Technology hereby enter into this Agreement for the project entitled "Fire Testing to Support Fire PRA Applications." Master IAA: N/A Authorized Cost Ceiling Continued ...				886,320.00
23. PAYMENT PROVISIONS IPAC			24. TOTAL AMOUNT \$886,320.00		
25a. SIGNATURE OF GOVERNMENT REPRESENTATIVE (SERVICING) <i>Nelson Bryner</i> 15/09/2016			25b. SIGNATURE OF GOVERNMENT REPRESENTATIVE (REQUESTING) <i>Michael A. Turner</i>		
25d. NAME AND TITLE Nelson Bryner, Acting Chief		25c. DATE	25e. CONTRACTING OFFICER MICHAEL A. TURNER		25f. DATE 6/13/2016

SUNSI REVIEW COMPLETE

SEP 16 2016

ADMD02

TEMPLATE - ADMD01

The apportionment of funds obligated in the amount of \$886,320.00 shall be used to fund Tasks 1-12. This increment includes:

- funding for Task 1 in the amount of \$30,000
- funding for Task 2 in the amount of \$50,840
- funding for Task 3 in the amount of \$133,150
- funding for Task 4 in the amount of \$36,480
- funding for Task 5 in the amount of \$27,680
- funding for Task 6 in the amount of \$72,840
- funding for Task 7 in the amount of \$142,140
- funding for Task 8 in the amount of \$43,120
- funding for Task 9 in the amount of \$32,920
- funding for Task 10 in the amount of \$107,690
- funding for Task 11 in the amount of \$159,700
- funding for Task 12 in the amount of \$49,760

Notwithstanding the agreement effective dates and period of performance start dates stated elsewhere in the agreement, the effective date of the agreement and start date of the period of performance are the last date of signature by the parties.

The following documents are hereby made part of this Agreement:

- Attachment No. 1: Statement of Work
- Attachment No. 2: NRC/NIST Standard Terms and Conditions

ADVANCE PAYMENT IS AUTHORIZED

NRC REQUIRES MONTHLY FINANCIAL STATUS REPORTS

NIST PI: Thomas Cleary
NRC COR: David Stroup

The total amount of award: \$886,320.00. The obligation for this award is shown in box 24.

STATEMENT OF WORK

Fire Testing to Support Fire PRA Applications

1.0 BACKGROUND

The results of the Individual Plant Examination of External Events (IPEEE) program and actual fire events indicate that fire can be a significant contributor to nuclear power plant (NPP) fire risk, depending on design and operational conditions. Since the 1975 Browns Ferry Fire, numerous efforts have been undertaken both by the regulator and the utilities to reduce the occurrence and consequences of fire effects to plant safe operation. In addition, much research has been conducted to better understand the performance of various fire protection features and the fire effect on components. Today, there are two distinct but different approaches for achieving regulatory compliance; namely deterministic and performance-based. Both approaches required a fundamental understanding of the fire threat to adequately protect from its effects.

Fire modelling can be a key component for both approaches. For example, fire modelling results can be used as part of a fire probabilistic risk assessment (PRA) for a National Fire Protection Association (NFPA) 805 license amendment request or as part of a fire hazard analysis (FHA) to support a variation from deterministic requirements. Fire models can be used to evaluate fire scenarios in risk assessments, determine damage to cables and other systems and components important to safety, and characterize the progression of fire beyond initial targets. Used in these ways, fire models are important tools in determining the contribution of fire to the overall risk in NPPs.

The U.S. Nuclear Regulatory Commission (NRC) and the National Institute of Standards and Technology (NIST) have recognized that common interests between the two organizations are mutually beneficial and can lead to increased efficiency and effectiveness for both agencies in supporting their respective missions in fire safety. As a result of the mutual interests of both agencies in the use of fire models, the NRC and NIST have collaborated in the past on fire model verification and validation (V&V) studies, a phenomena identification and ranking table (PIRT) exercise for NPP fire modelling applications, and the development of a fire model applications guide for NPPs. In addition, NRC and NIST have participated in several experimental programs to develop data and additional algorithms to support use of fire modelling in NPP fire probabilistic risk analysis (PRA) applications. These programs include: the Cable Response to Live Fire (CAROLFIRE) project, the Cable Heat Release, Ignition, and Spread in Tray Installations during Fire (CHRISTIFIRE) project, the Heat Release Rate of Electrical Enclosures project, and an International Collaborative Fire Modelling project.

Over the last several years, the NRC has been conducting joint research with the Electric Power Research Institute (EPRI) under a Memorandum of Understanding to develop improved fire modelling techniques among other activities. Many of these improvements have been developed together with NIST. Recently, the Electric Power Research Institute (EPRI) has proposed several fire modelling related research topics focused on increasing realism in fire PRAs. These topic areas include wall and corner effects on fire environments, liquid spill fire heat release rates, obstructed plume zone of influence, in-cabinet fire growth modelling, ignition and flame spread criteria for cable tray fires, and cabinet to cabinet fire propagation. The majority of these research efforts conducted by EPRI are based on fire modelling and analysis of the Fire Event Database. There is limited to no confirmatory fire test data to support the conclusions or use of the EPRI results in regulatory decision-making. In addition, NRC is investigating various means to address electrical cable flammability through the use of cable tray tops and bottoms, cable coatings, and other fire protection techniques.

There is a need to conduct confirmatory research into the new methods that have been developed. This research will include small, laboratory and full scale fire testing. As necessary, NIST, as the developer of some of the fire models, will incorporate any identified enhancements directly into their respective models. The results of this research will be used to advance the methods used to quantify fire risk in fire PRAs and to update regulatory guides and other regulatory documents (as needed) to ensure that NPPs are adequately protected from the effects of fire.

2.0 OBJECTIVE

The objectives of this agreement are for the National Institute of Standards and Technology (NIST) to provide technical assistance to investigate the effects of fire in various nuclear power plant type scenarios through fire testing and other activities necessary to support improvements in the use of fire modelling for NFPA 805 applications and other NPP fire risk analyses. Specifically, laboratory and full scale testing will be conducted by NIST to develop data and improved understanding of the impact of fire location on fire-generated conditions, the potential reduction in the zone of influence for obstructed fire plumes, and the effectiveness of methods to reduce electrical ignition and flame spread. These objectives will require NIST to develop draft test plans, work with experts in the field to improve and finalize the test plans, procure equipment to support conducting the tests, and document the results from each test series.

3.0 SCOPE OF WORK/TASKS

NIST will all resources necessary to accomplish the tasks and deliverables described in this proposal. In general, specific tasks here include developing test plans, procuring tests samples, performing fire tests, and providing data. As specified below, NUREG/CR reports, documenting these efforts, will be prepared following NRC publication requirements. The specific tasks are explained below.

- NIST shall provide knowledgeable individuals within the NIST when developing test plans

- The project is expected to have several planning and on-going periodic meetings and NIST is expected to support these meetings as directed by the NRC Contracting Officer Representative (COR).
- If the NRC decides to involve external parties in the test program (such as EPRI), NIST shall support to the extent practicable their involvement with the project (e.g., site visits). The NRC COR shall be the POC for all external parties.

4.0 SPECIFIC TASKS

NIST will perform the following tasks:

TASK 1. Assist in test plan development (Wall and Corner Effects – Fire Location)

Under this Task, NIST will assist NRC in developing a test plan for experiments to examine the impact of fire proximity to walls and corners on the fire-generated conditions. The NRC will release the test plan for public comment and work with NIST to resolve the comments prior to issuing the final test plan. The Test Plan will provide a detailed description of how the testing will be conducted, including:

- what facilities will be used,
- what configurations will be tested,
- how the thermal environment will be monitored and visually recorded,
- what fire sizes and ventilation conditions the individual tests are designed to evaluate,
- data acquisition system parameters, and
- any aspect of the test that NIST determines to be important in characterizing the test and/or possible effect on results.

Estimated Completion	Provide draft test plan	3 months after date of last signature
Dates:	Provide final test plan	1 month after receiving NRC comments
Dollar Amount:	\$30,000	

TASK 2. Procure Materials and Perform Pre-test Preparation Work (Wall and Corner Effects – Fire Location)

Under this Task, NIST will prepare for testing in accordance with the approved test plan. NIST will procure and prepare test samples (e.g., cabinets, electrical cables, gas burners, etc. In the case that samples must be prepared from individual components, NIST will procure the necessary items, including any equipment required for assembly. NIST will procure equipment (e.g., instrumentation, DAQ, etc.) to complete testing.

Estimated Completion	Procure Materials	2 months after approval of Test Plan
Dates:		
Dollar Amount:	\$50,840	

TASK 3. Conduct testing (Wall and Corner Effects – Fire Location)

Under this Task, NIST will perform the testing in accordance with the approved test plan. NIST shall give the NRC COR 30 days' notice as to the start date of testing. Experiments will be conducted in the National Fire Research Laboratory, building 205 on the NIST Gaithersburg campus. Any deviations from the test plan shall be communicated to the NRC COR, agreed to and documented in an email or other acceptable form.

Estimated Completion Dates:	Complete Small Scale Testing	NLT 8 months after Task 2 completion
Dollar Amount:	\$133,150	

TASK 4. Provide data report (Wall and Corner Effects – Fire Location)

Under this task, NIST will provide NRC with a report that documents the test configurations, instrumentation locations, and data obtained from the tests. Raw and reduced test data, photographs, and video recordings from each test will be provided to NRC in electronic format on appropriate media (CD's, USB flash drive, portable hard disk, etc.). The data shall be provided in Microsoft® Excel® compatible format. The data will include:

- Any environmental conditions (temperature, pressure, etc.) measured during the tests,
- Any data recorded by the data acquisition system,
- Any algorithms required to decipher the data

Estimated Completion Date:	Provide draft test report	NLT 2 months from Task 3 completion
	Provide final report with electronic media containing test data	1 month after receiving NRC comments

Dollar Amount: \$36,480

TASK 5. Assist in test plan development (Obstructed Plume Zone of Influence)

Under this Task, NIST will assist NRC in developing a test plan for experiments to examine the impact of an electrical enclosure on the horizontal zone of influence from a fire in the enclosure. The NRC will release the test plan for public comment and work with NIST to resolve the comments prior to issuing the final test plan. The Test Plan will provide a detailed description of how the testing will be conducted, including:

- what facilities will be used,
- what configurations will be tested,
- how the thermal environment will be monitored and visually recorded,
- what fire sizes and ventilation conditions the individual tests are designed to evaluate,
- data acquisition system parameters, and
- any aspect of the test that NIST determines to be important in characterizing the test and/or possible effect on results.

Estimated Completion Dates:	Provide draft test plan Provide final test plan	6 months after date of last signature 1 month after receiving NRC comments
Dollar Amount:	\$27,680	

TASK 6. Procure Materials and Perform Pre-test Preparation Work (Obstructed Plume Zone of Influence)

Under this Task, NIST will prepare for testing in accordance with the approved test plan. NIST will procure and prepare test samples (e.g., cabinets, electrical cables, gas burners, etc.). In the case that samples must be prepared from individual components, NIST will procure the necessary items, including any equipment required for assembly. NIST will procure equipment (e.g., instrumentation, DAQ, etc.) to complete testing.

Estimated Completion Dates:	Procure Materials	5 months after approval of Test Plan
Dollar Amount:	\$72,840	

TASK 7. Conduct testing (Obstructed Plume Zone of Influence)

Under this Task, NIST will perform the testing in accordance with the approved test plan. NIST shall give the NRC COR 30 days' notice as to the start date of testing. Experiments will be conducted in the National Fire Research Laboratory, building 205 on the NIST Gaithersburg campus. Any deviations from the test plan shall be communicated to the NRC COR, agreed to and documented in an email or other acceptable form.

Estimated Completion Dates:	Complete Small Scale Testing	NLT 10 months from Task 6 completion
Dollar Amount:	\$142,140	

TASK 8. Provide data report (Obstructed Plume Zone of Influence)

Under this task, NIST will provide NRC with a report that documents the test configurations, instrumentation locations, and data obtained from the tests. Raw and reduced test data, photographs, and video recordings from each test will be provided to NRC in electronic format on appropriate media (CD's, USB flash drive, portable hard disk, etc.). The data shall be provided in Microsoft® Excel® compatible format. The data will include:

- Any environmental conditions (temperature, pressure, etc.) measured during the tests,
- Any data recorded by the data acquisition system,
- Any algorithms required to decipher the data

Estimated Completion Date:	Provide draft test report	NLT 2 months from Task 7 completion
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Provide final report with electronic media containing test data 1 month from receipt of NRC comments

Dollar Amount: \$43,120

TASK 9. Assist in test plan development (Electrical Cable Ignition and Flame Spread)

Under this Task, NIST will assist NRC in developing a test plan for experiments to understand the minimum conditions necessary for ignition and flame spread on electrical cables. The NRC will release the test plan for public comment and work with NIST to resolve the comments prior to issuing the final test plan. The Test Plan will provide a detailed description of how the testing will be conducted, including:

- what facilities will be used,
- what configurations will be tested,
- how the thermal environment will be monitored and visually recorded,
- what fire sizes and ventilation conditions the individual tests are designed to evaluate,
- data acquisition system parameters, and
- any aspect of the test that NIST determines to be important in characterizing the test and/or possible effect on results.

Estimated Completion Provide draft test plan 12 months after date of last signature
Dates: Provide final test plan 1 month after receiving NRC comments

Dollar Amount: \$32,920

TASK 10. Procure Materials and Perform Pre-test Preparation Work (Electrical Cable Ignition and Flame Spread)

Under this Task, NIST will prepare for testing in accordance with the approved test plan. NIST shall procure and prepare test samples (e.g., cabinets, electrical cables, gas burners, etc. In the case that samples must be prepared from individual components, NIST shall procure the necessary items, including any equipment required for assembly. NIST shall procure equipment (e.g., instrumentation, DAQ, etc.) to complete testing.

Estimated Completion Procure Materials 5 months after approval of Test Plan
Dates:

Dollar Amount: \$107,690

TASK 11. Conduct testing (Electrical Cable Ignition and Flame Spread)

Under this Task, NIST will perform the testing in accordance with the approved test plan. NIST shall give the NRC COR 30 days' notice as to the start date of testing. Experiments will be

conducted in the National Fire Research Laboratory, building 205 on the NIST Gaithersburg campus. Any deviations from the test plan shall be communicated to the NRC COR, agreed to and documented in an email or other acceptable form.

Estimated Completion Dates: Complete Small Scale Testing NLT 10 months after Task 10 completion

Dollar Amount: \$159,700

TASK 12. Provide data report (Electrical Cable Ignition and Flame Spread)

Under this task, NIST will provide NRC with a report that documents the test configurations, instrumentation locations, and data obtained from the tests. Raw and reduced test data, photographs, and video recordings from each test will be provided to NRC in electronic format on appropriate media (CD's, USB flash drive, portable hard disk, etc.). The data shall be provided in Microsoft® Excel® compatible format. The data will include:

- Any environmental conditions (temperature, pressure, etc.) measured during the tests,
- Any data recorded by the data acquisition system,
- Any algorithms required to decipher the data

Estimated Completion Date: Provide draft test report NLT 4 months from Task 11 completion
 Provide final report with electronic media containing test data 1 month from receipt of NRC comments

Dollar Amount: \$49,760

5.0 LIST OF DELIVERABLES

Task Number	Deliverable/Milestone Description <i>(include NRC acceptance criteria if applicable)</i>	Due Date <i>(if any)</i>
1	Draft Test Plan (Wall and Corner Effects – Fire Location)	3 months from date of last signature
1	Final Test Plan (Wall and Corner Effects – Fire Location)	1 month from NRC comments received
2	Procure Materials (Wall and Corner Effects – Fire Location)	2 months from approval of Test Plan
3	Complete Wall and Corner Effects – Fire Location Testing	NLT 8 months from the completion of Task 2
4	Draft Data Report (Wall and Corner Effects – Fire Location)	NLT 2 months from Task 3 complete
4	Final Data Report (Wall and Corner Effects – Fire Location)	1 month from NRC comments received

Task Number	Deliverable/Milestone Description <i>(include NRC acceptance criteria if applicable)</i>	Due Date <i>(if any)</i>
5	Draft Test Plan (Obstructed Plume Zone of Influence)	6 months from date of last signature
5	Final Test Plan (Obstructed Plume Zone of Influence)	1 month from NRC comments received
6	Procure Materials (Obstructed Plume Zone of Influence)	5 months from approval of Test Plan
7	Complete Obstructed Plume Zone of Influence Testing	NLT 10 months from the completion of Task 6
8	Draft Data Report (Obstructed Plume Zone of Influence)	NLT 2 months from Task 7 complete
8	Final Data Report (Obstructed Plume Zone of Influence)	1 month from NRC comments received
9	Draft Test Plan (Electrical Cable Ignition and Flame Spread)	12 months from date of last signature
9	Final Test Plan (Electrical Cable Ignition and Flame Spread)	1 month from NRC comments received
10	Procure Materials (Electrical Cable Ignition and Flame Spread)	5 months from approval of Test Plan
11	Complete Testing (Electrical Cable Ignition and Flame Spread)	NLT 10 months from the completion of Task 10
12	Draft Data Report (Electrical Cable Ignition and Flame Spread)	NLT 4 months from Task 11 complete
12	Final Data Report (Electrical Cable Ignition and Flame Spread)	1 month from NRC comments received

6.0 TECHNICAL AND OTHER SPECIAL QUALIFICATIONS REQUIRED

The work requires staff with significant experience in planning and conducting laboratory and large-scale fire tests, analysing results from these experiments, and developing mathematical models of the associated fire phenomena. Specific qualifications for this effort include an engineer with instrumentation and field testing experience. The engineer should be familiar with previous NRC work conducted by NRC, NIST and Sandia National Laboratories as documented in NUREG-1824, NUREG-1934, NUREG-2178, NUREG/CR-6850, NUREG/CR-6931, and NUREG/CR-6978 and NUREG/CR-7010.

7.0 CONTRACTING OFFICER REPRESENTATIVE (COR)

The COR monitors all technical aspects of the agreement/task order and assists in its administration. The COR is authorized to perform the following functions: assure that the servicing agency performs the technical requirements of the agreement/task order; perform inspections necessary in connection with agreement/task order performance; maintain written and oral communications with the servicing agency concerning technical aspects of the agreement/task order; issue written interpretations of technical requirements, including

Government drawings, designs, specifications; monitor the servicing agency's performance and notify the servicing agency of any deficiencies; coordinate availability of NRC-furnished material and/or GFP, and provide site entry of serving agency personnel.

Contracting Officer's Representative

Name: David Stroup
Agency: U.S. Nuclear Regulatory Commission
Office: T-10A53
Mail Stop: T-10A12
Washington, DC 20555-0001
E-Mail: David.Stroup@nrc.gov
Phone: 301.415.1649

Alternate Contracting Officer's Representative

Name: Tammie Rivera
Agency: U.S. Nuclear Regulatory Commission
Office: T-10D17
Mail Stop: T-10A12
Washington, DC 20555-0001
E-Mail: Tammie.Rivera@nrc.gov
Phone: 301.415.2376

Technical direction includes interpreting technical specifications, providing needed details, and suggesting possible lines of inquiry. Technical direction must not constitute new work or affect overall project cost or period of performance.

8.0 KEY PERSONNEL

Mr. Thomas G. Cleary
Dr. Kevin B. McGrattan
Mr. Scott Bareham

NIST management reserves the right to reassign its personnel.

9.0 MEETINGS AND TRAVEL

Domestic travel is anticipated for completion of this work. Local travel will be required for planning purposes. Four one-day meetings at NRC Headquarters office are envisioned for the planning and discussion of test results. Depending on availability of the NIST test facilities, it may be necessary to conduct tests at an alternative test site. Two days of travel for 2 NIST personnel are anticipated. In addition, one five-day trip for 3 NIST personnel are anticipated for testing at the alternative site. During any pre-test and testing phases of this project, NRC staff may travel to the test site for assistance and/or observation.

10.0 REQUIRED MATERIALS, FACILITIES, HARDWARE/SOFTWARE

Specific test materials will be identified, approved, and procured as part of Tasks 2, 6 and 10 in this proposal.

11.0 NRC-FURNISHED PROPERTY/MATERIALS

none

12.0 REPORTING REQUIREMENTS AND SCHEDULE

The servicing agency is responsible for structuring the deliverable to follow agency standards. The current agency standard is Microsoft Office Suite 2010. The current agency Portable Document Format (PDF) standard is Adobe Acrobat 9 Professional. Deliverables must be submitted free of spelling and grammatical errors and conform to requirements stated in this section. In addition to the reports described under, "Deliverables/Schedules and/or Milestones", NIST shall comply with the following reporting requirements.

12.1 Monthly Letter Status Report

A Monthly Letter Status Report (MLSR) is to be submitted to the NRC COR by the 20th of the month following the month to be reported with copies provided to the following:

David Stroup	David.Stroup@nrc.gov
Acquisition Management Division	ContractsPOT.Resource@nrc.gov
RESDRAMLSR	RESDRAMLSR.Resource@nrc.gov

The MLSR will identify the title of the project, the Agreement Number, the Principal Investigator, the period of performance, the reporting period, summarize each month's technical progress, list monthly spending, total spending to date, and the remaining funds and will contain information as directed in NRC Management Directive 11.8, Exhibit 5 (dated March 2, 2007). Any administrative or technical difficulties which may affect the schedule or costs of the project shall be immediately brought to the attention of the NRC COR.

13.0 PERIOD OF PERFORMANCE

Date of last signature through March 31, 2019.

14.0 CONTACTS

For NIST:

Administrative Point of Contact:

For U.S. NRC:

Administrative Point of Contact:

Sharon Rinehart	Michael Turner
Administrative Officer	Contracting Officer
100 Bureau Drive, Mail Stop 8602 Gaithersburg, MD 20899	11555 Rockville Pike Rockville, MD 20852
Phone # 301-975-5876	Phone # 301-415-6712
Fax #	Fax #
Sharon.rinehart@nist.gov	michael.turner@NRC.GOV

For NIST:

Technical Point of Contact:

For U.S. NRC:

Technical Point of Contact:

Anthony Putorti	David W. Stroup
Fire Protection Engineer	
100 Bureau Drive, Mail Stop 8664 Gaithersburg, MD 20899	Mail Stop: T-10A12 U.S. Nuclear Regulatory Commission Washington, D.C. 20555-0001
Phone # 301-975-8615	Phone # 301-415-1649
Fax #	Fax # 301-415-6671
<u>Anthony.putorti@nist.gov</u>	<u>David.Stroup@NRC.GOV</u>

For NIST:

Financial Point of Contact:

For U.S. NRC:

Financial Point of Contact:

Rayna R. Knowles	Accounts Receivable
Group Leader, Reimbursable Group, NIST Finance Division	Title
100 Bureau Dr. Stop 1624, Gaithersburg, MD 20899-1624	11555 Rockville Pike, Mail Stop 03-E17A Rockville, MD 20852
Phone # 301-975-5183	Phone # 301-415-7554
Fax #301-975-8943	Fax #
<u>Urayna.knowles@nist.gov</u>	<u>NRCIPAC.Resouce@NRC.GOV</u>

For NIST:

Financial Reporting Contact:

For U.S. NRC:

Financial Reporting Contact:

Mitchell Channell	[Name]
Reimbursables Group, Finance Division	[Title]
100 Bureau Dr. Stop 1624, Gaithersburg, MD 20899-1624	[Address]
Phone # 301-975-6929	[Phone #]
Fax: #301-975-8943	[Fax #]
<u>Mitchell.channell@nist.gov</u>	[E-mail address]

NRC/NIST STANDARD TERMS AND CONDITIONS

RESEARCH QUALITY

The quality of NRC research programs are assessed each year by the Advisory Committee on Reactor Safeguards. Within the context of their reviews of RES programs, the definition of quality research is based upon several major characteristics:

Results meet the objectives (75% of overall score)
Justification of major assumptions (12%)
Soundness of technical approach and results (52%)
Uncertainties and sensitivities addressed (11%)

Documentation of research results and methods is adequate (25% of overall score)
Clarity of presentation (16%)
Identification of major assumptions (9%)

It is the responsibility of NIST to ensure that these quality criteria are adequately addressed throughout the course of the research that is performed. The NRC Contracting Officer's Representative (COR) will review all research products with these criteria in mind.

NEW STANDARDS FOR CONTRACTORS WHO PREPARE NUREG-SERIES MANUSCRIPTS

The U.S. Nuclear Regulatory Commission (NRC) began to capture most of its official records electronically on January 1, 2000. The NRC will capture each final NUREG-series publication in its native application. Therefore, please submit your final manuscript that has been approved by your NRC COR in both electronic and camera-ready copy.

The final manuscript shall be of archival quality and comply with the requirements of NRC Management Directive 3.7 "NUREG-Series Publications." The document shall be technically edited consistent with NUREG-1379, Rev. 2 (May 2009) "NRC Editorial Style Guide." The goals of the "NRC Editorial Style Guide" are readability and consistency for all agency documents.

All format guidance, as specified in NUREG-0650, Revision 2, will remain the same with one exception. You will no longer be required to include the NUREG-series designator on the bottom of each page of the manuscript. The NRC will assign this designator when we send the camera-ready copy to the printer and will place the designator on the cover, title page, and spine. The designator for each report will no longer be assigned when the decision to prepare a publication is made. The NRC's Publishing Services Branch will inform the NRC COR for the publication of the assigned designator when the final manuscript is sent to the printer.

For the electronic manuscript, the Contractor shall prepare the text in Microsoft Word, and use any of the following file types for charts, spreadsheets, and the like.

File Types to be Used for NUREG-Series Publications

File Type	File Extension
Microsoft®Word®	.doc
Microsoft® PowerPoint®	.ppt
Microsoft®Excel	.xls
Microsoft®Access	.mdb
Portable Document Format	.pdf

This list is subject to change if new software packages come into common use at NRC or by our licensees or other stakeholders that participate in the electronic submission process. If a portion of your manuscript is from another source and you cannot obtain an acceptable electronic file type for this portion (e.g., an appendix from an old publication), the NRC can, if necessary, create a tagged image file format (file extension.tif) for that portion of your report. Note that you should continue to submit original photographs, which will be scanned, since digitized photographs do not print well.

If you choose to publish a compact disk (CD) of your publication, place on the CD copies of the manuscript in both (1) a portable document format (PDF); (2) a Microsoft Word file format, and (3) an Adobe Acrobat Reader, or, alternatively, print instructions for obtaining a free copy of Adobe Acrobat Reader on the back cover insert of the jewel box.

DISSEMINATION OF PROJECT INFORMATION/PUBLICATION REQUIREMENTS

Prior to any dissemination, display, publication, presentation, or release of papers, articles, reports, summaries, or abstracts developed under the NRC/NIST Agreement, NIST/NIST Laboratory shall submit them to the NRC for review and comment. NRC shall have a review and comment period of at least [60] days, after which both an NRC and NIST/NIST Laboratory representative at the lowest management level, shall attempt to resolve any differing viewpoints or statements which are the subject of NRC objection. If the matter cannot be resolved at that level, the issue shall be brought up to the next management level in both organizations until an agreement can be reached or it reaches the Office Director level. In the event resolution cannot be achieved, the NIST/NIST Laboratory will not publish the work as a NUREG/CR, but publish as a NIST/ NIST Laboratory report without reference to NRC, the NRC office name or COR's name on the report.

ACQUIRED MATERIAL, EQUIPMENT, OR SOFTWARE (PROPERTY)

In accordance with Management Directive 11.8, Part V, Section F, the Servicing Agency's proposal must include a description of the property required for project performance that has an estimated acquisition cost of \$500 or more. The proposal must also identify the potential development of NRC-funded software with a useful life of 2 years or more and a development cost of \$500 or more during the project. NRC-funded software is software specifically developed for NRC by the laboratory and is generally the deliverable for the project.

After the NRC reviews the list of property and NRC-funded software included in the Servicing Agency's proposal, any questions regarding the acquisition of property or the development of NRC funded software will be addressed with the laboratory during negotiations. After negotiating project terms and conditions, NRC shall issue an "Interagency Agreement," authorizing the work and approving acquisition of property or development of NRC-funded software.

The Servicing Agency shall submit a written request to the NRC COR for approval to develop additional NRC-funded software or purchase additional property with an estimated acquisition cost of \$500 or more after work initiation. The NRC COR shall approve or disapprove the acquisition or development of any additional items in writing.

The Servicing Agency shall report property, including software, with an acquisition cost of \$500 or more in the monthly letter status report in the month the property or software was acquired. The Servicing Agency shall provide a copy of all monthly letter status reports to the regular distribution. The Servicing Agency shall provide the information listed in Management Directive 11.8, Part V, Section C, for each item reported as appropriate, in the monthly letter status report.

ORGANIZATIONAL CONFLICT OF INTEREST REPRESENTATION AND DISCLOSURE

NIST recognizes that Section 170A of the Atomic Energy Act of 1954, as amended, requires that NRC be provided with disclosures on potential conflicts when NRC obtains technical, consulting, research and other support services. NIST further recognizes that the assignment of NRC work to another Agency must satisfy NRC's conflicts standards. In accordance with 42 U.S.C. § 2210a, NIST has disclosed present and currently planned agreements and arrangements with others (meaning, persons and Government agencies as defined in 42 U.S.C. § 2014 including NRC licensees, vendors, industry groups or research institutes that represent or are substantially comprised of nuclear utilities) and represents that NIST is presently not involved in situations or relationships with others in the same/similar technical area as the NRC project scope of work identified in this interagency agreement that would either (a) preclude NIST from being able to provide impartial, technically sound, or objective advice or assistance in light of other activities or relationships with others, or (2) give NIST an unfair competitive advantage with respect to present and currently planned agreements and arrangements with others.

NIST further recognizes that the performance of NRC work by NIST must satisfy NRC's conflicts standards and that the obligation to conform to the NRC's conflicts standards continues throughout the duration of this interagency agreement. Accordingly, during the life of this agreement, NIST shall review and promptly disclose its current work and planned work for others (meaning, persons and Government agencies as defined in 42 U.S.C. § 2014 including NRC licensees, vendors, industry groups or research institutes that represent or are substantially comprised of nuclear utilities) in the same/similar technical area as the NRC project scope of work identified in this interagency agreement.

NIST agrees to include provisions effecting the disclosure of any such potential conflicts of interest to NIST in any contracts or other agreements into which NIST enters for assistance in providing the service to NRC. NIST will disclose to NRC any potential conflicts of which it is made aware under the terms of those contracts or other agreements.

Disclosures for current or planned work for NIST or others in the same or similar technical area as the proposed work, are to include the following information: (1) the name of organization; (2) dollar value; (3) period of performance of the work identified; and (4) statements of work for the projects. Within 30 days of NIST disclosure, NRC shall then determine whether a conflict would result and, if one does, determine, after consultation with NIST, the appropriate action NRC or NIST should take to avoid the conflict, or when appropriate under the NRC procedures, waive the conflict. If NIST determines there is no applicable work in the same or similar technical area, it should be stated in its proposal.

TERMINATING THE AGREEMENT

Any party may terminate this agreement by providing 30 days written notice to the other party. If NRC terminates the agreement, NIST is authorized to collect costs incurred prior to cancellation of the order plus any termination costs, up to the total value of the agreement.

COST RECOVERY

NIST will be reimbursed for all costs incurred.

ACCOUNTING INFORMATION

	NIST	NRC
Agency Location Code (ALC)	13 06 0001	3100001
Funding Expiration Date (requesting agency)		No - Year Funds
Business Event Type Code (BETC)	COLL	DISB
Business Partner Network Number (BPN)	929956050	040535809
Additional Accounting Classification /Information (Optional)	Funding Agency Code: 1341	Funding Agency Code: 3100

Treasury Account Symbol (TAS) in Central Accounting System (CARS) format:

Component TAS	SP	ATA	AID	BPOA	EPOA	A	Main	Sub
NIST			013			X	4650	000
NRC			031			X	0200	000

AUTHORITIES

The NRC is acting pursuant to authority conferred in the Energy Reorganization Act of 1974, 42, U.S.C. 5801 et seq. (42 U.S.C. Section 5845 (b), (c), and (e)). Section 205(c) of the Energy Reorganization Act of 1974 (42 U.S.C. 5845(c)(2)) authorizes the NRC to request from other Federal agencies that they furnish, on a reimbursable basis, such research services as the NRC deems necessary for the conduct of its functions.

NIST's programmatic authority for undertaking this work is (Need to cite correct NIST programmatic authority depending on the type of work) 15 U.S.C. 278f.

DISPUTES RESOLUTION

Should disagreements arise on the interpretation of the provisions of this agreement or amendments and/or revisions thereto, that cannot be resolved at the operating level, the areas(s) of disagreement shall be stated in writing by each party and presented to the other party for consideration. If agreement or interpretation is not reached within 30 days, the parties shall forward the written presentation of the disagreement to respective higher officials for appropriate resolution. If a dispute related to funding remains unresolved for more than 30 calendar days after the parties have engaged in an escalation of the dispute, the dispute shall be resolved in accordance with instructions provided in the Treasury Financial Manual (TFM) Volume 1, Part 2, Chapter 4700, Appendix 10, available at <http://www.fms.treas.gov/tfm/index.html>.

NIST CONTRACTS, GRANTS, AND FELLOWSHIPS

- (a.) No NIST contractors will perform work under this agreement.
- (b.) No students or U.S. citizens working under a NIST financial assistance award made under the authority of 15 U.S.C. § 278g-1 will perform work under this agreement.
- (c) No employees or agents of recipients working under a NIST financial assistance award will perform work under this agreement.