

AWARD/CONTRACT		1. THIS CONTRACT IS RATED ORDER UNDER DPAS (15 CFR 700)		RATING N/A	PAGE OF PAGES 1 74	
2. CONTRACT NO. (Proc. Inst. (dent.) NRC-HQ-13-C-04-0022		3. EFFECTIVE DATE		4. REQUISITION/PURCHASE REQUEST/PROJECT NO. RES-12-261		
5. ISSUED BY U.S. Nuclear Regulatory Commission Div. of Contracts Attn: Adalis M Rodriguez, 301-492-3623 Mail Stop: TWB-01-B10M Washington, DC 20555		CODE 3100	6. ADMINISTERED BY (if other than Item 5) U.S. Nuclear Regulatory Commission Div. of Contracts Mail Stop: TWB-01-B10M Washington, DC 20555		CODE 3100	
7. NAME AND ADDRESS OF CONTRACTOR (No., street, city, county, State and ZIP Code) PURDUE UNIVERSITY 401 SOUTH GRANT ST WEST LAFAYETTE IN 479072024 DUNS: 072051394			8. DELIVERY <input type="checkbox"/> FOB ORIGIN <input checked="" type="checkbox"/> OTHER (See below)			
			9. DISCOUNT FOR PROMPT PAYMENT			
			10. SUBMIT INVOICES (4 copies unless otherwise specified) TO THE ADDRESS SHOWN IN		ITEM	
CODE		FACILITY CODE		12. PAYMENT WILL BE MADE BY Department of Interior / NBC NRC Payments_NBCDenver@NBC.gov Attn: Fiscal Services Branch - D2770 7301 W. Mansfield Avenue Denver CO 80235-2230 PHONE: FAK:		
11. SHIP TO/MARK FOR U.S. Nuclear Regulatory Commission Mail Stop: CSB/ C3 A7M Washington DC 20555		CODE	CODE 3100			
13. AUTHORITY FOR USING OTHER THAN FULL AND OPEN COMPETITION: <input type="checkbox"/> 10 U.S.C. 2304(a) <input type="checkbox"/> 41 U.S.C. 253(a)			14. ACCOUNTING AND APPROPRIATION DATA Obligate: \$127,000 2013-60-11-6-174 Job: V6017 BOC:252A PSC:R425 Approp.: 31X0200 FAIMIS; 131428 DUNS:072051394 NAICS: 541330			
15A. ITEM NO.	15B. SUPPLIES/SERVICES		15C. QUANTITY	15D. UNIT	15E. UNIT PRICE	15F. AMOUNT
	The contractor shall provide the services described in the statement of work Contract Title: Thermal Hydraulic Experimental and Model Development Contract Type: Cost Reimbursement Indefinite Delivery Indefinite Quantity Contract Total Contract Ceiling: \$2,187,825 Period of Performance: date of award - 60 months after.					
16G. TOTAL AMOUNT OF CONTRACT						
16. TABLE OF CONTENTS See Attached Table of Contents						
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CONTRACTING OFFICER WILL COMPLETE ITEM 17 (SEALED-BID OR NEGOTIATED PROCUREMENT) OR 18 (SEALED-BID PROCUREMENT) AS APPLICABLE						
17. <input checked="" type="checkbox"/> CONTRACTOR'S NEGOTIATED AGREEMENT (Contractor is required to sign this document and return 1 copies to issuing office.) Contractor agrees to furnish and deliver all items or perform all the services set forth or otherwise identified above and on any continuation sheets for the consideration stated herein. The rights and obligations of the parties to this contract shall be subject to and governed by the following documents: (a) this award/contract, (b) the solicitation, if any, and (c) such provisions, representations, certifications, and specifications, as are attached or incorporated by reference herein. (Attachments are listed herein.)				18. <input type="checkbox"/> SEALED-BID AWARD (Contractor is not required to sign this document.) Your bid on Solicitation Number _____ including the additions or changes made by you which additions or changes are set forth in full above, is hereby accepted as to the terms listed above and on any continuation sheets. This award consummates the contract which consists of the following documents: (a) the Government's solicitation and your bid, and (b) this award/contract. No further contractual document is necessary. (Block 18 should be checked only when awarding a sealed-bid contract.)		
19A. NAME AND TITLE OF SIGNED (Type or print) 19B. NAME OF CONTRACTOR BY <i>Adalis M Rodriguez</i> (Signature of Contracting Officer)				20A. NAME OF CONTRACTING OFFICER Adalis M Rodriguez Contracting Officer		
19C. DATE SIGNED 2/24/13				20B. UNITED STATES OF AMERICA BY <i>Adalis M Rodriguez</i> (Signature of Contracting Officer)		
20C. DATE SIGNED 2/25/13						
AUTHORIZED FOR LOCAL REPRODUCTION Previous edition is usable				STANDARD FORM 26 (REV. 5/2011) Prescribed by GSA - FAR (48 CFR) 53.214(a)		

SUNSI REVIEW COMPLETE

TEMPLATE - ADM001

MAR 05 2013

ADM002

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SECTION B - SUPPLIES OR SERVICES AND COSTS**B.1 BRIEF DESCRIPTION OF WORK (AUG 2011) ALTERNATE I (AUG 2011)**

- (a) The title of this project is: Thermal Hydraulic Experimental and Model Development
- (b) Summary work description:

This project supports the Office of Nuclear Regulatory Research (RES) and other offices that use the TRACE thermal-hydraulic system code for analyses of transients in operating reactors, analyses to support resolution of generic issues, evaluation of emergency procedures and accident management strategies, and supporting analyses for new reactors. This work is an essential part of the RES development plan for TRACE and PARCS (Purdue Advanced Reactor Core Simulator, a three-dimensional (3D) core neutronics simulator that can be coupled TRACE).

- (c) Orders will be issued for work in accordance with 52.216-18 - ORDERING.

B.2 CONSIDERATION AND OBLIGATION-INDEFINITE-QUANTITY CONTRACT (AUG 2011)

- (a) The estimated total quantity of this contract for the products/services under this contract is \$2,187,825.
- (b) The Contracting Officer will obligate funds on each task order issued.
- (c) The minimum guarantee under this contract is 1,000 staff hours.
- (d) The obligated amount for this contract is \$127,000. This amount satisfies the contract minimum guarantee of 1,000 hours.
- (e) A total estimated cost and fee, if any, will be negotiated for each task order and will be incorporated as a ceiling in the resultant task order. The Contractor shall comply with the provisions of 52.232-20 - Limitation of Cost for fully-funded task orders and 52.232-22 - Limitation of Funds for incrementally-funded task orders, issued hereunder.

SECTION C - STATEMENT OF WORK

STATEMENT OF WORK
FOR CONTRACTOR TO PROVIDE
THERMAL-HYDRAULIC EXPERIMENTAL AND MODEL DEVELOPMENT SUPPORT
Job Code V6017

I. BACKGROUND

The U.S. Nuclear Regulatory Commission (NRC), Office of Nuclear Regulatory Research (RES) is maintaining and developing the TRAC/RELAP Advanced Computational Engine (TRACE) code, which is a modern thermal-hydraulic system analysis tool. Uses of the TRACE code include analyses of transients in operating reactors, analyses to support resolution of generic issues, evaluation of emergency procedures and accident management strategies, confirmation of licensees' analyses, training exercises for NRC staff, and supporting analyses for the certification of advanced reactor designs.

TRACE is subject to continual development and testing due to its reliance upon empirically based constitutive models. The need for development arises in two ways: a) assessment results for an existing code model indicate that models have either a bias or uncertainty that affects the degree of realism and/or conservatism of the simulation, or b) a code model required for an important phenomenon, process, or system is not available. An example of the former is that the assessment of interfacial drag in rod bundles at low pressure conditions indicated that the TRACE model has a bias towards under-prediction of the core inventory. This bias would result in an overly conservative calculation for boil-off transients where the code would predict an early uncover and higher than actual peak clad temperatures. This contract also may be used to address generic issues if small experiments can contribute to the solution.

The processes of modifying an existing model or developing a new model include:

1. identifying physical requirements for the new model consistent with existing code structure and numerical scheme,
2. specifying required model accuracy or behavior,
3. identifying data available for devising the new model, or acquiring appropriate experimental data if the available database is inadequate,
4. identifying the uncertainty (i.e., experimental error band) associated the acquired data,
5. developing analytical relationships that describe relevant physical phenomena,
6. encoding the new model analytical relationships,
7. identifying or acquiring data to be used in assessing the encoded model, and
8. testing that the encoded model meets its requirements and that code functionality was not adversely impacted by the modification.

This contract seeks experimental assistance for the TRACE code development including subsequent numerical model development and implementation. It represents the fourth contract that provides NRC staff with assistance in conducting the requisite experiments necessary for the continued advancement of the TRACE code. The predecessor contracts also have been referred to as thermal-hydraulic institute (THI) contracts. The first THI contracts were focused on the consolidation of models and features from other system thermal hydraulic codes into the TRACE code. The more recent contracts have concentrated on separate effect experiments to develop and validate models that allow the TRACE code to simulate a broad range of problems that were previously handled separately by different codes. Because of these experimental programs, the capability of TRACE is continually improving and the code is able to simulate a very wide variety of transients for operating Boiling Water Reactor (BWR) and Pressurized Water Reactor (PWR) plants. Development is continuing throughout subsequent contracts in support of TRACE applicability to Generation III and IV advanced reactor designs.

It should be noted that physical conditions can occur in nuclear reactor systems that are still too intricate and complicated to model accurately with a computer code. That is, there are times when experiments are essential to gain data and necessary physical insights to make informed regulatory decisions about the behavior of a certain component or system. This THI contract scope also designed to accommodate these situations as they are needed.

As in previous THI contracts, task orders that deal with the acquisition of specific sets of data, development of physical models and subsequent model implementation will be issued as the NRC identifies model development or improvement needs. Some of the more recent subjects to be addressed in this contract are additional GSI-193 testing where both experimental data and TRACE modeling were developed to consider effects of non-condensable gases in horizontal runs of piping and the effect of the entrained gases on safety injection pump performance. The experimental evidence showed that gas may reach the pumps during a loss-of-coolant accident but that the pumps can recover given a limited amount of voiding. Development of models in TRACE based on this data is essentially completed and technical review meetings are being scheduled with the Advisory Committee on Reactor Safeguards (ACRS) to finalize this issue in Fiscal Year (FY) 2013. This activity highlights the role of small experiments being used to address pertinent NRC issues and provide data to improve correlations and modeling so the TRACE code can more accurately predict the correct behavior.

In addition, as the nuclear industry moves forward with more new reactor designs that consider small and medium-sized Light Water Reactor (LWRs) (e.g., NuScale, PRISM, and mPower) many more features, improvements, and assessments will be required for TRACE. Applications for these designs are expected to be received in the near future, now likely in FY 2014. The preliminary technical reviews for these advanced designs are ongoing and expected to require significant research and challenge the capabilities of the TRACE code in many areas.

Since TRACE is the main tool for confirmatory analyses of a broad range of thermal-hydraulic problems for current and new reactor designs, it is essential that this experimental program continues to provide necessary research and development activities to stay slightly ahead of analysis requirements of advanced next generation and the atypical smaller LWR designs.

II. OBJECTIVES

The objective of this contract is to obtain contractor support conducting small-scale experiments, acquiring data, and developing and implementing new or improved physical models and correlations into the TRACE code. As areas that require contractor support are identified by the staff, individual task order statements of work will be issued that specify objectives, scope, deliverables, schedule and other necessary requirements. Therefore, the work that will be tasked through this contract is not listed here in specific detail so that the focus of the scope remains somewhat generic and flexible enough to allow it to also address important emergent issues as they develop.

Task orders will be issued for experimental or code-related activities that fall within the following broad categories:

- acquiring experimental data for model development or testing,
- development of new or improved constitutive models and correlations,
- implementation of the developed models within either the TRACE code or a thermal-hydraulics pilot code, and
- consulting and peer-review for physical model development and testing.

The contractor shall provide the personnel, facilities, equipment, and report deliverables as required to accomplish the specified objective(s) of each task order.

III. SCOPE OF WORK

The contractor shall provide centralized program support and all encompassing administrative, clerical, documentation, and all other related tasks. The contractor shall furnish the necessary personnel, incidental materials, contractor facilities and equipment, travel, and other services required to perform tasking under respective task orders statements of work.

The contractor shall also provide all necessary supervision, management, and administrative support to accomplish each task as specified in each task order. Support services in this effort include but are not limited to the following areas:

1. Task order management
2. Develop test facility with necessary component setup and instrumentation
3. Conduct tests and acquire/ analyze experimental data
4. Development of desired constitutive models and correlations
5. Model implementation, testing, and optimization
6. Documenting results and conclusions
7. Consulting and peer-review completion and potential follow-up model development and testing work.

IV. SPECIFIC TASK AREAS

The NRC will issue task orders for work in the following general areas:

1. Task Order Management

The contractor shall prepare a task order management plan describing the technical approach, organizational resources, and management controls to be employed to meet the cost, performance and schedule requirements individually throughout the execution of each task order.

The contractor shall provide a monthly letter status report (MLSR) monitoring the quality assurance and management that apply to each task order area. The monthly status report shall contain, but is not limited to, information on technical activities, accomplishments, problems, potential delays in the deliverable schedule, any personnel changes or issues, travel, financial expenditures (months-to-date and task-to-date) for each task order. The monthly status report will be required within 60 days after issuance of the first task order and every monthly reporting period thereafter. The MLSR shall be prepared in accordance with the section below entitled: "REPORTING REQUIREMENTS," subsection entitled "Monthly Letter Status report (MLSR)."

The contractor shall also prepare annual progress letter reports in accordance with section below entitled: "REPORTING REQUIREMENTS," subsection entitled: "Annual Progress Letter Reports."

2. Acquiring Experimental Data for Model Development or Testing

The contractor shall provide assistance with planning, designing, constructing and deploying reduced-scale, separate-effects experiments for model development and testing. The NRC will specify requirements through individual task orders. These may include, but are not limited to, experimental data to improve models for the analysis of operating reactors, such as:

- BWR separate-effects experiments
 - top down quenching
 - two-phase pressure drop
 - void fraction in rod bundles
 - determination of T_{min} in ATWS transients
 - technical support for follow-up GSI-193 activities
- PWR small-break loss-of-coolant accident (SBLOCA) experiments
 - hot-leg stratified flow and counter-current flow (CCFL)
 - reflux condensation with and without non-condensable gases
 - loop seal clearing
- PWR large-break, loss-of-coolant accident (LBLOCA) experiments
 - post critical heat flux heat transfer improvement under reflood conditions
 - blowdown heat transfer and rewet in high-pressure, high-to-moderate flow and low quality conditions

- determination of quench, or rewet, temperature for particular conditions
- model develop to improve robustness during reflood
- downcomer and cold-leg condensation
- upper plenum de-entrainment
- entrained gas in emergency core cooling system (ECCS) pump suction lines
- steam generator heat transfer in transition boiling with highly dispersed flow
- downcomer interfacial drag.

These also may include extension of existing experiments and data to improve the accuracy of models for the simulation of the proposed Economic Simplified Boiling Water Reactor (ESBWR) transients, such as:

- void fraction in large-diameter channels
- two-phase instabilities in a simple natural circulation loop
- condensation with non-condensable gas in the laminar-turbulent transition region.

Additionally, new small and medium-sized advanced reactor designs that will be submitted for licensing review during this contract may also give rise to needs for data generation and model development that would be addressed for an array of thermal-hydraulic related topics. Such areas for experimentation may include, but are not limited to:

- two-phase flow and heat transfer in horizontal rod bundles
- helical steam generator steady-state and transient performance
- heat transfer in finned condensers in presence of non-condensable gases
- heat transfer and hydrodynamics of pebble beds.

Also, to improve the fundamental models for two-phase flow, the NRC is continuing to pursue development of the requisite models for development of the interfacial area transport equations. This experimental work is expected to be continued under this contract until developed and tested models are fully implemented into the TRACE code. Specific areas for experimentation and data acquisition include, but are not limited to:

- transition from slug or churn-turbulent flow to annular/mist flow,
- counter-current flow,
- cold-leg to downcomer transition,
- flow in vertical elbows, tees, and other area changes.

To simulate high pressure and high temperature conditions, some tasks may require use of simulant fluids such as refrigerants.

The contractor shall propose a task plan in accordance with the task order objective(s) regarding all key aspects of the of the experimental setup, including type and placement of instrumentation and controls. The contractor shall propose data acquisition and reduction procedures in accordance with task order objective(s). The contractor shall specifically detail their approach for measuring and determining data uncertainty and shall include appropriate error bands on all plotted experimental results. NRC staff must approve the task plan prior to implementation. If the plan is acceptable to the NRC, a task order will be issued to cover this work.

The contractor shall document every aspect of facility design, and produce an as-built facility description. The contractor shall further issue revisions of the as-built facility description report as modifications are implemented. All activities related to the data obtained by a facility (e.g., instrumentation characteristics, calibration procedures, conditioning for initial conditions, imposition of boundary conditions, data acquisition, and data reduction) have to be documented with sufficient detail for complete reproducibility.

3. Development of Constitutive Models and Correlations

In concert with tasks to develop experimental data, the contractor shall develop the necessary constitutive models and correlations to model the targeted phenomena within the framework of the two-fluid code models and architecture within TRACE. The contractor shall provide both the reduced data and the data reduction algorithms used in this model development activity in an electronic format to be specified by the NRC.

4. Model Implementation and Testing

As directed by the NRC, the contractor shall implement the developed physical models and correlations within either the TRACE code or a pilot code. For physical models that do not require substantial changes to the TRACE field equations or numerical solution, the contractor should expect to be required to implement the model directly into the TRACE code. In other cases, for example, where the model implementation would require the addition of a new set of field equations, a pilot code may be needed to illustrate the correct integration of the constitutive model within a two-fluid numerical framework. If the latter approach is followed, subject to the approval of the NRC contracting officer representative (COR), the pilot code will either be provided by the NRC or developed by the contractor. In either case, a complete set of test problems will be developed to demonstrate proper implementation and quantification of modeling accuracy.

For models to be implemented in TRACE, all code development activities must follow principles described in NUREG-1737, "Software Quality Assurance Procedures for NRC Thermal Hydraulic Codes," and adhere to the Programming Guidelines and Design Philosophies as outlined on the TRACE Development website. The contractor shall prepare a Software Requirements Document (SRD) (using an established NRC Framemaker template), Test Plan, and Software Design and Implementation Document (SDID) before implementing new models or features and submitting them to NRC for approval. Upon approval of the SRD and SDID, the contractor shall implement the changes. The results of the programming effort shall be documented in a Completion Report. The contractor has the freedom to combine these documents where appropriate and with NRC approval. What is important is that the relevant topics belonging to each document be addressed and formally communicated in some fashion. Similar, though less formal documentation will also be required for models implemented into a pilot code.

As needed, the NRC will issue the specific statement of work, including scope, deliverables, and delivery schedules, with each individual task order.

The contractor shall propose a task plan in accordance with the task order objective(s) regarding all key aspects of the issued task. NRC staff must approve the task plan prior to implementation. If the plan is acceptable to the NRC, a task order will be issued to cover this work.

5. Consulting and peer-review for physical model development and testing

The contractor shall provide technical consulting and peer-review services for all aspects of experimental, model development and testing work related to the TRACE code. As needed, the NRC will issue the specific statement of work, including scope, deliverables, and delivery schedules, with each individual task order.

The contractor shall propose a task plan in accordance with the task order objective(s) regarding all key aspects of the issued task. NRC staff must approve the task plan prior to implementation. If the plan is acceptable to the NRC, a task order will be issued to cover this work.

The contractor shall prepare all technical reports specified in individual task orders in a format suitable for publication as a NUREG/CR (see section X "PUBLICATIONS"). The contractor shall provide drafts of all reports to NRC staff for approval prior to final publication.

6. Research Quality

The Advisory Committee on Reactor Safeguards (ACRS) assesses the quality of NRC research programs each year. Within the context of its reviews of RES programs, the definition of quality research is based on several major characteristics:

- Results meet the objectives (75 percent of overall score)
 - Justification of major assumptions (12 percent)
 - Soundness of technical approach and results (52 percent)

- Uncertainties and sensitivities addressed (11 percent)
- Documentation of research results and methods is adequate (25 percent of overall score)
 - Clarity of presentation (16 percent)
 - Identification of major assumptions (9 percent)

The contractor is responsible for ensuring that these quality criteria are adequately addressed throughout the course of the research that is performed. The NRC COR and technical monitor will review all research products with these criteria in mind.

An example of a recent task order is included as Attachment A.

V. REPORTING REQUIREMENTS

Failure to submit any of the reports described below in a timely manner will result in invoice suspension for the month that the report is missing. Once a complete report is received, the vendor may re-submit the invoice for payment.

1. Monthly letter status report (MLSR)

A MLSR is to be submitted in electronic format via e-mail to the NRC COR by the 20th of the month following the month to be reported with copies provided to the following:

Resource Name: RESDSAMLSR.Resource@nrc.gov

The MLSR shall be broken down by task and shall identify the title of the project, the job code, the principal investigator, the period of performance, and the reporting period; summarize each month's technical progress; and contain information as directed in NRC Management Directive 11.1 available at <http://www.nrc.gov/reading-rm/doc-collections/management-directives/volumes/vol-11.html>. Any administrative or technical difficulties that may affect the schedule or costs of the project shall be included in the MLSR and immediately brought to the attention of the NRC COR.

2. Annual Progress Letter Reports

The contractor shall submit an annual progress letter report within 30 days of the close of the fiscal year (October 1-September 30). The annual progress report shall summarize all efforts on the tasks conducted during the corresponding period, including the status of each ongoing task.

3. Financial Status Reports

The contractor shall provide a monthly Financial Status Report (FSR) to the COR and the contracting officer. The FSR shall include the acquisition of, or changes in the status of, contractor-held property acquired with government funds valued at the time of purchase at \$50,000 or more. The report is due at the same time that the monthly status report is due and must identify the title of the project, the contract number, the appropriate financial tracking code (e.g., Job Code Number or JCN) specified by the NRC COR, project manager and/or principal investigator, the contract period of performance, and the period covered by the report. Each report must include the following for each discrete task:

- (a) Total estimated contract amount.
- (b) Total funds obligated to date.
- (c) Total costs incurred this reporting period.
- (d) Total costs incurred to date.
- (e) Detail of all direct and indirect costs incurred during the reporting period for the entire contract or each task, if it is a task ordering contract.
- (f) Balance of obligations remaining.

- (g) Balance of funds required to complete contract/task order.
- (h) Contractor Spending Plan (CSP) status: A revised CSP is required with the Financial Status Report whenever the contractor or the contracting officer has reason to believe that the total cost for performance of this contract will be either greater or substantially less than what had been previously estimated.
 - (1) Projected percentage of completion cumulative through the report period for the project/task order as reflected in the current CSP.
 - (2) Indicate significant changes in the original CSP projection in either dollars or percentage of completion. Identify the change, the reasons for the change, whether there is any projected overrun, and when additional funds would be required. If there have been no changes to the original NRC-approved CSP projections, a written statement to that effect is sufficient in lieu of submitting a detailed response to item "h".
- (i) Property status:
 - (1) List property acquired for the project during the month with an acquisition cost between \$500 and \$49,999. Give the item number for the specific piece of equipment.
 - (2) Provide a separate list of property acquired for the project during the month with an acquisition cost of \$50,000 or more. Provide the following information for each item of property: item description or nomenclature, manufacturer, model number, serial number, acquisition cost, and receipt date. If no property was acquired during the month, include a statement to that effect. The same information must be provided for any component or peripheral equipment which is part of a "system or system unit."
 - (3) For multi-year projects, in the September monthly financial status report provide a cumulative listing of property with an acquisition cost of \$50,000 or more showing the information specified in paragraph (i)(2) of this clause.
 - (4) In the final financial status report provide a closeout property report containing the same elements as described above for the monthly financial status reports, for all property purchased with NRC funds regardless of value unless title has been vested in the contractor. If no property was acquired under the contract, provide a statement to that effect. The report should note any property requiring special handling for security, health, safety, or other reasons as part of the report.
- (j) Travel status: List the starting and ending dates for each trip, the starting point and destination, and the traveler(s) for each trip.
- (k) If the data in this report indicates a need for additional funding beyond that already obligated, this information may only be used as support to the official request for funding required in accordance with the Limitation of Cost (LOC) Clause (FAR 52.232-20) or the Limitation of Funds (LOF) Clause FAR 52.232-22.

4. Topical Reports

The contractor shall submit topical reports at the conclusion of research tasks. The content of each report shall be broadly described within the statement of work of each individual task order. The details on format, technical level, and completeness will be jointly agreed upon by the NRC COR and the principal investigator. Topical reports shall be self-contained, and shall be suitable for publication as a NUREG/CR report. Topical reports shall include an executive summary that summarizes the research results with regard to the project objectives as defined in the statement of work for each issued task order. See also section X "PUBLICATIONS."

5. Presentations at professional meetings and publications in peer-reviewed journals

Presentations of accomplished research results at professional meetings and publication of this technical work in peer-reviewed professional journals are expected. A copy of all written and oral presentations, including technical papers and abstracts to be submitted for publication in technical journals, related to or funded by this project, will be transmitted to the NRC COR prior to presentation or submittal for publication. The contractor shall abide by the following reporting requirements:

VI. DELIVERABLES AND DELIVERY SCHEDULE

The NRC will specify deliverables and delivery schedules with the issuance of each task order.

VII. MEETINGS AND TRAVEL REQUIREMENTS

It is anticipated that contract requirements will be satisfied with 5 yearly trips of two-day duration for two persons. Meetings will be approved as needed for consultation with NRC staff or for presentation of the work to technical conferences or meetings. Travel requirements will be specified with the issuance of each task order.

The contractor shall present the technical progress of the project at NRC headquarters on an annual basis, and make additional trips to NRC related contractor meetings and professional technical symposia as requested by the NRC COR. Any additional domestic travel to be charged against project funds requires prior approval by the NRC COR. All foreign travel related to and/or funded by the project must be approved in writing by the NRC COR and his management chain through the EDO. All travel expenses shall be conducted in accordance with Federal Travel Regulations (FTR). The contractor shall submit with the invoice any travel receipts and any supporting documentation that would allow the Contracting officer to determine that the travel expenses took place in accordance with FTR. Failure to provide receipts may constitute reason for invoice disallowance.

VIII. PUBLICATIONS

RES encourages the publication of the scientific results from RES sponsored programs in refereed scientific and engineering journals as appropriate. Additional information regarding the publication of NRC sponsored research is contained in NRC Management Directives 3.7, "NUREG Series Publications".

If the presentation or paper is in addition to the required technical reports and the RES Project Manager determines that it will benefit the RES project, the Project Manager may authorize payment of travel and publishing costs, if any, from the project funds. If the Project Manager determines that the article or presentation would not benefit the RES project, the costs associated with the preparation, presentation, or publication will be borne by the contractor. For any publication or presentations falling into this category, the NRC reserves the right to require that such presentation or publication will not identify the NRC's sponsorship of the work.

1. New Standards for Contractors Who Prepare NUREG-Series Manuscripts

NRC began to capture most of its official records electronically on January 1, 2000. NRC will capture each final NUREG-series publication in its native application; therefore, the contractor should submit final manuscripts that have been approved by the NRC COR in both electronic and camera-ready copy.

All format guidance, as specified in NUREG-0650, Revision 2, will remain the same with one exception. The contractor will no longer be required to include the NUREG-series designator on the bottom of each page of the manuscript. NRC will assign this designator when it sends 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. NRC 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 its 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), 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 that will be scanned because 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), and (2) a Microsoft Word file format.

IX. QUALITY ASSURANCE

For all tasks in section IV. Entitled: "Specific Task Areas", the contractor shall observe quality assurance guidelines described below. The contractor shall also document every aspect of task performance with sufficient detail for complete reproducibility.

Section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001 (Public Law 106-554) directs the Office of Management and Budget (OMB) to issue government-wide guidelines (FR Vol. 67, No. 36, pp. 8452-8460) that "provide policy and procedural guidance to federal agencies for ensuring and maximizing the quality, objectivity, utility, and integrity of information (including statistical information) disseminated by federal agencies." NRC Information Quality Guidelines are provided in FR Vol. 67, No. 190, pp. 61695-61699.

The Contractor shall cite contractor quality assurance procedures used in the conduct of this work that provide for compliance with OMB and NRC guidelines. Any work (i.e., data, interpretations, analyses, computations, methods, etc.), developed under the contract shall be performed under an adequate quality assurance program. Quality assurance comprises all those planned and systematic actions necessary to provide adequate confidence that the research has been satisfactorily performed. Quality assurance includes sufficient documentation to assure the reproducibility of the results of the research. That is, the methods and techniques used to collect, reduce, and interpret data produced by research are sufficiently accurate, traceable, and articulate so that other researchers could duplicate the work done and independently evaluate the results.

An adequate QA program should address the following areas as appropriate:

1. experimental design and rationale--sample selection, number of samples, sampling frequency, controls;
2. statistical evaluation of experimental design--assessment of statistical power, of sampling scheme and measurement techniques, including expected accuracy and precision;
3. sample preparation--selection of sample type, treatment of samples, sample identification;

4. measurement techniques used--description of measurement process, description/identification of equipment used;
5. calibration methods--frequency, techniques, standards, traceability;
6. data recording--method of recording data, identification of person(s) recording/certifying data;
7. data reduction--methods and code(s) (including identification of modifications and updates);
8. data analysis--description of techniques used, methods of data verification (e.g., spot checking of measurements, calculations, etc.);
9. records management--identification, location, and retention time of data, analyses, associated records, duplicate data and/or records; and
10. statistical evaluation--interpretation of data, stating actual accuracy and precision of results achieved.

In addition, if standard test or calibration procedures are employed (e.g., NIST or ASTM standards) these should be cited in the program. Finally, if appropriate to the size and nature of the contract, the work and results should receive exposure in the scientific community through publication of results in refereed journals, or through peer reviews, or both.

X. NRC-FURNISHED MATERIAL

NRC-furnished materials will be specified, as necessary, with the issuance of individual task orders.

XI. SUBCONTRACTING/CONSULTANT INFORMATION

Subcontracts related or funded under this project require the prior written approval of the NRC Contracting Officer.

The contractor shall describe the technical support effort that is proposed to be performed by a subcontractor or consultant. Identify the level of effort, by task, of any proposed subcontractor or consultant and provide an explanation of the need for subcontracting that portion of the effort.

Note that "pass through" contracting is not allowed. For the purposes of this effort, a "pass through" contract is generally defined as subcontracting 50 percent or more of the technical effort. For any subcontract or consultant effort, describe the following:

- the necessity of subcontracting,
- the tasks and subtasks the subcontractor or consultant will perform,
- the level of effort proposed for the subcontract effort,
- the status and expected time frame for selection, and
- the method of selection of the subcontractor or consultant.

XII. RELATED RES PROJECTS

Future task orders may include work related to the coordination of research studies and related RES projects.

XIII. DISPOSAL OF PROPERTIES

One month before the end of the contract, the contractor provide the NRC a list of the equipment and instrumentation purchased and developed during the course of the contract. The NRC will determine the ultimate disposition of any items purchased and developed during the course of this contract.

ATTACHMENT A. SAMPLE STATEMENT OF WORK FOR TASK ORDER

TITLE: Void Fraction in Large Diameter Pipes
Period of Performance: Award date plus 18 months
Total Level of Effort: 14 staff months

BACKGROUND

The USNRC's system thermal-hydraulic analysis code TRACE (TRAC RELAP Advanced Computational Engine) is being developed to provide a best-estimate accident analysis capability for both operating pressurized and boiling water reactors as well as the next generation of evolutionary water reactor designs. In partnership with the code development, a comprehensive code assessment activity is being conducted. Results from this assessment have identified a code modeling limitation for the prediction of void fraction in large diameter pipes. A previous similar task (former Task 1) was completed in 2009 but the analysis has shown that additional data is needed at an even larger pipe diameter and higher mass fluxes. Correction of this modeling limitation remains a high priority due to its potential impact on calculations for advanced boiling-water reactor (BWR) designs (e.g., SBWR, ESBWR, ABWR).

In most advanced BWR designs, a tall chimney region exists above the reactor core to provide the gravity head necessary to drive the two-phase natural circulation flow through the core. For this chimney region, the TRACE code uses the same interfacial drag models as for 1-D vertical pipes. That is, for the bubbly/slug flow regime, the Kataoka-Ishii drift flux model for large diameter pipes is converted to an interfacial friction correlation. For the annular/mist flow regime, the Wallis annular flow interfacial friction model is used for the liquid film. When entrained droplets are predicted to exist, the drop volume fraction is estimated and the associated interfacial drag is added to that for the liquid film. For the transition region between these two regimes, TRACE uses a simple power-law weighting scheme to provide a continuous and smooth transition.

Two other sources of data have been identified to assess these models for hydraulic diameters of about the same size as the ESBWR chimney: pool data (Wilson & Carrier bubble rise tests) and the Ontario-Hydro transient upflow tests. In the assessment against the Wilson data, the TRACE code performed quite well up to void fractions of about 50-60% (probably because these tests are included in the database used to develop the Kataoka-Ishii drift flux model). There are few data points in the void fraction range 60-80%, where TRACE significantly under-predicts void fraction. TRACE comparisons to the Wilson and Ontario-Hydro data sets are shown in Figures 1 and 2, respectively.

In the TRACE assessment against Ontario-Hydro transient upflow tests, predictions compared well up to about 50% void fraction. For higher void fractions, however, TRACE progressively under-predicts void fraction. For a data value of 78%, the TRACE calculated value was only 67%. To put this into perspective, this means that TRACE over-predicted the liquid inventory in the chimney region by ~50% thereby providing a non-conservative initial condition for a LOCA analysis. So former Task 1 was initiated to provide data of flow in large diameter with void fractions primarily above 60% and up to 80%.

For the former Task 1, TRACE void fraction predictions were compared to measured void fractions at each of the five axial locations in the experiments. As shown in Figure 3, overall, there was good agreement with experimental void fractions at both low and high up to about 70% void fractions. However, at intermediate void fractions, say 35 to 50% voided, there is a trend of slight over-prediction. This trend is also consistent with that seen in comparisons with the Wilson Bubble Rise data. This trend indicates a pattern of concern since above about 75% void fraction TRACE predictions progressively diverge from and under predict the data, possibly indicating there is some other parameter physically dominating the behavior that is not currently represented by existing models.

The results also indicated that TRACE void fraction predictions for the 8-inch (0.203 m) diameter pipe were slightly worse than for the 6-inch (0.152 m) diameter pipe. This indicates a larger than expected effect of pipe diameter on void fraction prediction. This then leads to the conclusion that larger diameters need to be tested and preferably at higher mass fluxes. Unfortunately these changes may require upgrading and/or replacing certain equipment at the test facility

that limited the test parameters used for former Task 1. The previous test only included void fraction up to 80%, and the proposed extension will consider void fractions that approach 100%.

In summary, assessment of the TRACE code with former Task 1 data has revealed that more test data is needed to provide a basis for understanding geometry effects and appropriate modification of existing correlations and/or development of new models to correct the under-prediction of the void fraction in large diameter pipes in the transition region between the bubbly/slug and annular/mist regimes. Consequently, the work, initiated in the previous Thermal-Hydraulic Institute (THI) contract, should be extended to generate the additional data needed to better comprehend this flow behavior in regard to diameter size, mass flux, and higher void fractions in large diameter pipes.

OBJECTIVE

Collect two-phase flow data needed to address a modeling limitation of the TRACE code for the prediction of void fraction in large diameter vertical pipes. Further, this task includes a model development component to produce a model for ready inclusion into TRACE. The ability of TRACE to accurately predict two-phase flow behavior is necessary for any foreseeable audit calculations and in particular for the chimney region of advanced BWR designs. Specific objectives are:

1. To augment the existing void fraction database with new air-water void fraction and void profile data that extends into the transition region between the bubbly/slug and annular/mist regimes;
2. To either select or develop a model for interfacial shear that significantly improves the ability of TRACE to predict void fraction in large diameter pipes;
3. To develop a database of interfacial area concentration, bubble velocity, and bubble size for both pool and upflow conditions for large pipe diameters and for a wide range of flow conditions;
4. To benchmark the existing interfacial area transport equation (IATE) using the above data;
5. To improve the IATE model by developing sink and source term models for interfacial area concentration, and bubble drag models for upwards two-phase flow in large diameter pipes.

Figure 1

Wilson Bubble Rise: - Steam flow in a stagnant water column, - 18-inch diam. chan., 25-ft tall
- 600-2000 psi, - 0.2-1.3 m/s superficial steam velocity

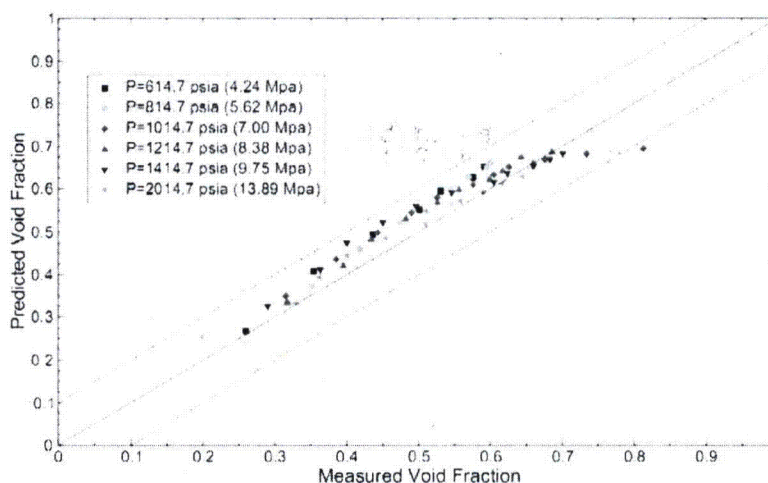


Figure 2

Ontario Hydro: - Co-current two-phase upflow, -400-930 psi
- 20-inch diam. pipe, 22-ft tall, - 0-2 m/s vapor velocity, 0-2.2 m/s liquid velocity

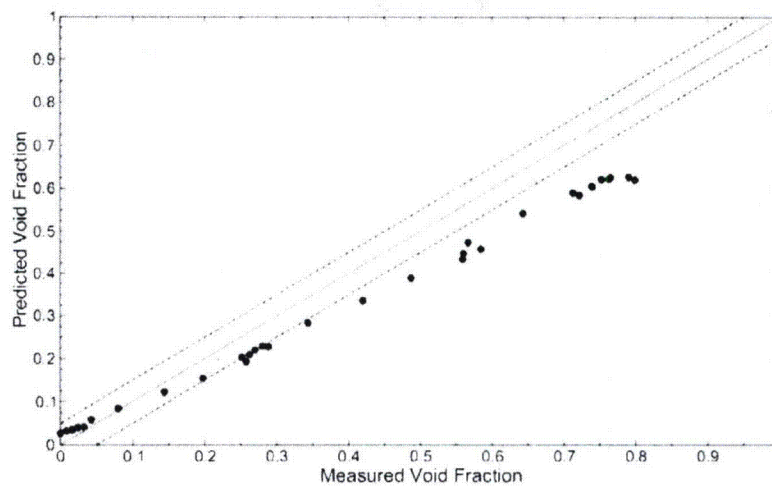
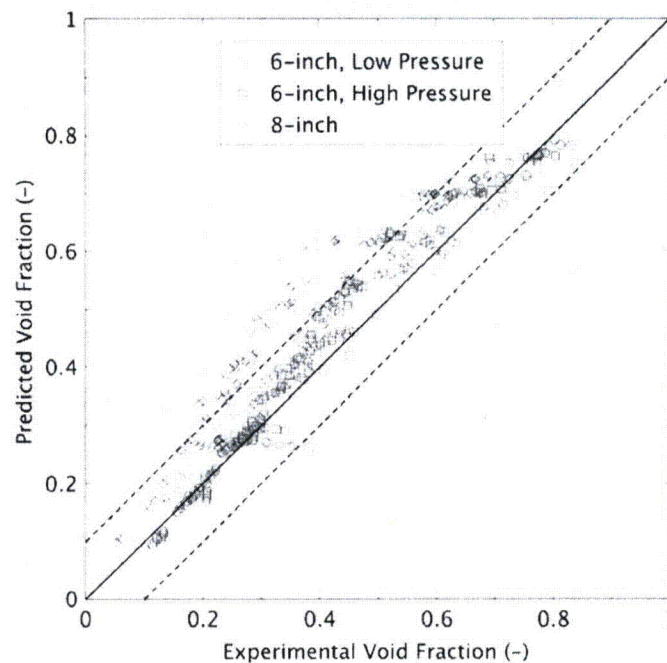


Figure 3

Task 1 Experimental Result: - Co-current two-phase upflow, - 8-inch diameter pipe, 20-ft tall
 - 6-inch diam. pipe, 14-ft tall, - 26-40 psi
 - 0.1-6 m/s vapor velocity, - 0.05-1.0 m/s liquid velocity



SCOPE OF WORK

Task 1: Generate Void Fraction Data

The contractor shall run air-water experiments to generate void fraction, flow regime, void profile, and pressure drop data for 15.24 cm (6 in.), 20.32 cm (8 in.), and 30.48 cm (12 in.) diameter test sections over a wide range of flow conditions. The test matrix shall include at least two pressure levels, mass fluxes ranging from pool conditions up to 2000 kg/m²-s and void fractions near 100%. The test matrix shall be proposed by the contractor in a letter report and

concurrent upon by the NRC COR and should highlight test parameters that are an economical extension of the existing data already collected.

Add the new data to the database compiled in the previous THI contract.

Deliverables	Level of Effort	Completion Data
Data in electronic format	4 staff-months	8 months after award

Task 2: Interfacial Drag Model Development

Using the void fraction database generated in the previous THI contract and the new air-water data generated in Task 1 of this Task Order, the contractor shall either select or develop an improved model for interfacial drag in vertical pipes for inclusion in the TRACE code. The proposed model must cover the entire void fraction range from bubbly flow to annular flow and be suitable for inclusion in a two-fluid model. Furthermore, the accuracy of the proposed model should be demonstrated to be equal to or superior to the existing TRACE model over all flow regimes and provide a substantial improvement in modeling performance for the transition regime.

Prepare a letter report detailing the proposed interfacial drag model for vertical pipes.

Deliverables	Level of Effort	Completion Data
Letter report	2 staff-months	10 months after award

Task 3: Generate Interfacial Area Transport Data

The contractor shall run air-water experiments to generate Interfacial area concentration, bubble velocity, and bubble size data for 15.24 cm (6 in.), 20.32 cm (8 in.), and 30.48 cm (12 in.) pipe diameter test sections over a wide range of flow conditions. The test matrix shall include at least two pressure levels, mass fluxes ranging from pool conditions up to 2000 kg/m²-s and void fractions near 100%. The test matrix shall be proposed by the contractor in a letter report and concurrent upon by the NRC COR.

Add the new data to the database generated in the previous THI contract.

Deliverables	Level of Effort	Completion Data
Data in electronic format	4 staff-months	16 months after award

Task 4: Interfacial Area Transport Model Development

Using the Interfacial area data generated in Task 3 of this Task Order, the contractor shall benchmark the existing interfacial area transport equation models. Where necessary, mechanistic models for interfacial area concentration source and sink terms, and bubble drag models for two-phase flow in large diameter pipes shall be developed by the contractor.

Prepare a letter report describing the new data and detailing the proposed interfacial area and bubble drag models.

Deliverables	Level of Effort	Completion Data
Letter report	3 staff-months	18 months after award

Task 5: ACRS Thermal-Hydraulics Subcommittee Meeting Support

The Principal Investigator shall attend an ACRS Thermal-Hydraulics Subcommittee meeting on or about September 8th, 2010 to present and discuss current and past experimental research programs conducted at the Thermal Hydraulics Institute for the NRC. Additional information, when available, will be provided.

Deliverables	Level of Effort	Completion Data
ACRS Presentation	1 staff-months	On or about Sept. 8 th , 2010

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 the contractor to ensure that these quality criteria are adequately addressed throughout the course of the research that is performed. The NRC COR and technical monitor will review all research products with these criteria in mind.

LEVEL OF EFFORT

The total level of effort for Tasks 1-5 is estimated at 14 staff-months, with approximately 2.5 at the Faculty (tenure/tenure track) level and 11.5 at the Research Assistant level.

PERIOD OF PERFORMANCE

The period of performance of this task order is 18 months after the date of award.

REPORTING REQUIREMENTS

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:

Resource Name: RESDSAMLSR.Resource@nrc.gov

The MLSR will identify the title of the project, the job code, 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 11.1. 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.

PUBLICATIONS NOTE

RES encourages the publication of the scientific results from RES sponsored programs in refereed scientific and engineering journals as appropriate. Additional information regarding the publication of NRC sponsored research is contained in NRC Management Directives 3.7, "NUREG Series Publications".

If the presentation or paper is in addition to the required technical reports and the RES Project Manager determines that it will benefit the RES project, the Project Manager may authorize payment of travel and publishing costs, if any, from the project funds. If the Project Manager determines that the article or presentation would not benefit the RES project, the costs associated with the preparation, presentation, or publication will be borne by the contractor. For any publication or presentations falling into this category, the NRC reserves the right to require that such presentation or publication will not identify the NRC's sponsorship of the work.

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.

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.

DELIVERABLES/SCHEDULES AND/OR MILESTONES

1. Void Fraction and flow regime data for both the 15.25 cm (6 in.) and 20.32 cm (8 in.) tests in an electronic format agreed to by the NRC COR to be delivered 10 months after the award date.
2. Letter report detailing the proposed interfacial drag model for large diameter vertical pipes to be delivered 12 months after the award date.

3. Interfacial area transport data for both the 15.25 cm (6 in.) and 20.32 cm (8 in.) tests in an electronic format agreed to by the NRC COR to be delivered 24 months after the award date.
4. Letter report describing the Interfacial area transport data and detailing the proposed interfacial area and bubble drag models to be delivered 28 months after the award date.

MEETINGS AND TRAVEL

For domestic travel, the contractor is expected to attend an annual meeting at the NRC in Rockville, MD, for research review. The trips will be of approximately two days duration.

In addition, the Principal Investigator shall attend one ACRS meeting to present and discuss thermal-hydraulics programs with the ACRS thermal-hydraulics subcommittee, as described in Task 5. This meeting is expected to occur on or about September 8th, 2010. Additional details will be provided.

All trips have to obtain approval from the NRC COR in advance.

NRC-FURNISHED MATERIAL

Identify specific reports, journals, documents, equipment, or other items that NRC will provide to the servicing agency. Identify the date this material will be provided, if known. If there is not material to be furnished, state "none."

SECTION D - PACKAGING AND MARKING**D.1 PACKAGING AND MARKING (AUG 2011)**

(a) The Contractor shall package material for shipment to the NRC in such a manner that will ensure acceptance by common carrier and safe delivery at destination. Containers and closures shall comply with the Surface Transportation Board, Uniform Freight Classification Rules, or regulations of other carriers as applicable to the mode of transportation.

(b) On the front of the package, the Contractor shall clearly identify the contract number under which the product is being provided.

D.2 BRANDING (AUG 2012)

The Contractor is required to include the statement below in any publications, presentations, articles, products, or materials funded under this contract, to the extent practical, in order to provide NRC with recognition for its involvement in and contribution to the project. If the work performed is funded entirely with NRC funds, then the contractor must acknowledge that information in its documentation/presentation.

Work Supported by the U.S. Nuclear Regulatory Commission (NRC), Office of Nuclear Regulatory Research, under Contract/order number NRC-HQ-13-C-04-0022.

SECTION E - INSPECTION AND ACCEPTANCE**E.1 NOTICE LISTING CONTRACT CLAUSES INCORPORATED BY REFERENCE**

The following contract clauses pertinent to this section are hereby incorporated by reference (by Citation Number, Title, and Date) in accordance with the clause at FAR "52.252-2 CLAUSES INCORPORATED BY REFERENCE" in Section I of this contract. See FAR 52.252-2 for an internet address (if specified) for electronic access to the full text of a clause.

NUMBER	TITLE	DATE
52.246-5	FEDERAL ACQUISITION REGULATION (48 CFR Chapter 1) INSPECTION OF SERVICES--COST-REIMBURSEMENT	APR 1984

E.2 INSPECTION AND ACCEPTANCE

Inspection and acceptance shall be specified at the task order level.

SECTION F - DELIVERIES OR PERFORMANCE**F.1 NOTICE LISTING CONTRACT CLAUSES INCORPORATED BY REFERENCE**

The following contract clauses pertinent to this section are hereby incorporated by reference (by Citation Number, Title, and Date) in accordance with the clause at FAR "52.252-2 CLAUSES INCORPORATED BY REFERENCE" in Section I of this contract. See FAR 52.252-2 for an internet address (if specified) for electronic access to the full text of a clause.

NUMBER	TITLE	DATE
52.242-15	FEDERAL ACQUISITION REGULATION (48 CFR Chapter 1) STOP-WORK ORDER ALTERNATE I (APR 1984)	AUG 1989
52.247-34	F.O.B. DESTINATION	NOV 1991

F.2 PLACE OF DELIVERY--REPORTS (AUG 2011)

The items to be furnished hereunder shall be delivered, with all charges paid by the Contractor, to:

- a. the contracting officer's representative (COR)

Electronic copies to:

- a. RESDSAMLSR.Resource@nrc.gov
- b. Adelis M Rodriguez, Contracting Officer (CO) at Adelis.rodriquez@nrc.gov

F.3 PERIOD OF PERFORMANCE (AUG 2011) ALTERNATE I (AUG 2011)

The ordering period for this contract shall commence on the effective date of the contract and will expire 60 months after. Any orders issued during this period shall be completed within the time specified in the order, unless otherwise specified herein. (See FAR 52.216-18 - Ordering).

SECTION G - CONTRACT ADMINISTRATION DATA**G.1 2052.215-71 CONTRACTING OFFICER REPRESENTATIVE AUTHORITY (NOVEMBER 2006)**

(a) The contracting officer's authorized representative (hereinafter referred to as the contracting officer representative (COR)) for this contract is:

Name: Carl Thurston

Address: Mail Stop: CSB/ C3 A7M
Washington DC 20555

carl.thurston@nrc.gov

Telephone Number: 301-251-7517

(b) Performance of the work under this contract is subject to the technical direction of the NRC COR. The term "technical direction" is defined to include the following:

(1) Technical direction to the contractor which shifts work emphasis between areas of work or tasks, authorizes travel which was unanticipated in the Schedule (i.e., travel not contemplated in the Statement of Work (SOW) or changes to specific travel identified in the SOW), fills in details, or otherwise serves to accomplish the contractual SOW.

(2) Provide advice and guidance to the contractor in the preparation of drawings, specifications, or technical portions of the work description.

(3) Review and, where required by the contract, approval of technical reports, drawings, specifications, and technical information to be delivered by the contractor to the Government under the contract.

(c) Technical direction must be within the general statement of work stated in the contract. The COR does not have the authority to and may not issue any technical direction which:

(1) Constitutes an assignment of work outside the general scope of the contract.

(2) Constitutes a change as defined in the "Changes" clause of this contract.

(3) In any way causes an increase or decrease in the total estimated contract cost, the fixed fee, if any, or the time required for contract performance.

(4) Changes any of the expressed terms, conditions, or specifications of the contract.

(5) Terminates the contract, settles any claim or dispute arising under the contract, or issues any unilateral directive whatever.

(d) All technical directions must be issued in writing by the COR or must be confirmed by the COR in writing within ten (10) working days after verbal issuance. A copy of the written direction must be furnished to the contracting officer. A copy of NRC Form 445, Request for Approval of Official Foreign Travel, which has received final approval from the NRC must be furnished to the contracting officer.

(e) The contractor shall proceed promptly with the performance of technical directions duly issued by the COR in the manner prescribed by this clause and within the COR's authority under the provisions of this clause.

(f) If, in the opinion of the contractor, any instruction or direction issued by the COR is within one of the categories as defined in paragraph (c) of this section, the contractor may not proceed but shall notify the contracting officer in writing within five (5) working days after the receipt of any instruction or direction and shall request the contracting officer to modify the contract accordingly. Upon receiving the notification from the contractor, the contracting officer shall issue an appropriate contract modification or advise the contractor in writing that, in the contracting officer's opinion, the technical direction is within the scope of this article and does not constitute a change under the "Changes" clause.

(g) Any unauthorized commitment or direction issued by the COR may result in an unnecessary delay in the contractor's performance and may even result in the contractor expending funds for unallowable costs under the contract.

(h) A failure of the parties to agree upon the nature of the instruction or direction or upon the contract action to be taken with respect thereto is subject to 52.233-1 -Disputes.

(i) In addition to providing technical direction as defined in paragraph (b) of the section, the COR shall:

(1) Monitor the contractor's technical progress, including surveillance and assessment of performance, and recommend to the contracting officer changes in requirements.

(2) Assist the contractor in the resolution of technical problems encountered during performance.

(3) Review all costs requested for reimbursement by the contractor and submit to the contracting officer recommendations for approval, disapproval, or suspension of payment for supplies and services required under this contract.

(4) Assist the contractor in obtaining the badges for the contractor personnel.

(5) Immediately notify the Security Branch, Division of Facilities and Security (SB/DFS) (via e-mail) when a contractor employee no longer requires access authorization and return of any NRC issued badge to SB/DFS within three days after their termination.

(6) Ensure that all contractor employees that require access to classified Restricted Data or National Security Information or matter, access to sensitive unclassified information (Safeguards, Official Use Only, and Proprietary information) access to sensitive IT systems or data, unescorted access to NRC controlled buildings/space, or unescorted access to protected and vital areas of nuclear power plants receive approval of SB/DFS prior to access in accordance with Management Directive and Handbook 12.3.

(7) For contracts for the design, development, maintenance or operation of Privacy Act Systems of Records, obtain from the contractor as part of closeout procedures, written certification that the contractor has returned to NRC, transferred to the successor contractor, or destroyed at the end of the contract in accordance with instructions provided by the NRC Systems Manager for Privacy Act Systems of Records, all records (electronic or paper) which were created, compiled, obtained or maintained under the contract.

G.2 2052.215-77 TRAVEL APPROVALS AND REIMBURSEMENT (OCT 1999)

(a) All foreign travel must be approved in advance by the NRC on NRC Form 445, Request for Approval of Official Foreign Travel, and must be in compliance with FAR 52.247-63 Preference for U.S. Flag Air Carriers. The contractor shall submit NRC Form 445 to the NRC no later than 30 days before beginning travel.

(b) The contractor must receive written approval from the NRC COR before taking travel that was unanticipated in the Schedule (i.e., travel not contemplated in the Statement of Work, or changes to specific travel identified in the Statement of Work).

(c) The contractor will be reimbursed only for those travel costs incurred that are directly related to this contract and are allowable subject to the limitations prescribed in FAR 31.205-46.

(d) It is the responsibility of the contractor to notify the contracting officer in accordance with the Limitations of Cost clause of this contract when, at any time, the contractor learns that travel expenses will cause the contractor to exceed the estimated costs specified in the Schedule.

(e) Reasonable travel costs for research and related activities performed at State and nonprofit institutions, in accordance with Section 12 of Pub. L. 100-679, shall be charged in accordance with the contractor's institutional policy to the degree that the limitations of Office of Management and Budget (OMB) guidance are not exceeded. Applicable guidance documents include OMB Circular A-87, Cost Principles for State and Local Governments; OMB Circular A-122, Cost Principles for Nonprofit Organizations; and OMB Circular A-21, Cost Principles for Educational Institutions.

G.3 2052.216-71 INDIRECT COST RATES-ALTERNATE 2 (OCT 1999)

(a) For this contract, the ceiling amount reimbursable for indirect costs is as follows:

INDIRECT COST POOL	RATE	BASE	PERIOD
Facilities and Administration - Purdue	54%	Modified total direct Costs	award - until revised through contract modification

(b) In the event that indirect rates developed by the cognizant audit activity on the basis of actual allowable costs result in a lower amount for indirect costs, the lower amount will be paid. The Government may not be obligated to pay any additional amounts for indirect costs above the ceiling rates set forth above for the applicable period.

G.4 2052.216-72 TASK ORDER PROCEDURES (OCT 1999)

(a) Task order request for proposal. When a requirement within the scope of work for this contract is identified, the contracting officer shall transmit to the contractor a Task Order Request for Proposal (TORFP) which may include the following, as appropriate:

- (1) Scope of work/meetings/travel and deliverables;
- (2) Reporting requirements;
- (3) Period of performance - place of performance;
- (4) Applicable special provisions;
- (5) Technical skills required; and
- (6) Estimated level of effort.

(b) Task order technical proposal. By the date specified in the TORFP, the contractor shall deliver to the contracting officer a written or verbal (as specified in the TORFP technical proposal submittal instructions) technical proposal that provides the technical information required by the TORFP.

(c) Cost proposal. The contractor's cost proposal for each task order must be fully supported by cost and pricing data adequate to establish the reasonableness of the proposed amounts. When the contractor's estimated cost for the proposed task order exceeds \$100,000 and the period of performance exceeds six months, the contractor may be required to submit a Contractor Spending Plan (CSP) as part of its cost proposal. The TORP indicates if a CSP is required.

(d) Task order award. The contractor shall perform all work described in definitized task orders issued by the contracting officer. Definitized task orders include the following:

- (1) Statement of work/meetings/travel and deliverables;
- (2) Reporting requirements;
- (3) Period of performance;
- (4) Key personnel;
- (5) Applicable special provisions; and
- (6) Total task order amount including any fixed fee.

G.5 2052.216-73 ACCELERATED TASK ORDER PROCEDURES (JAN 1993)

(a) The NRC may require the contractor to begin work before receiving a definitized task order from the contracting officer. Accordingly, when the contracting officer verbally authorizes the work, the contractor shall proceed with performance of the task order subject to the monetary limitation established for the task order by the contracting officer.

(b) When this accelerated procedure is employed by the NRC, the contractor agrees to begin promptly negotiating with the contracting officer the terms of the definitive task order and agrees to submit a cost proposal with supporting cost or pricing data. If agreement on a definitized task order is not reached by the target date mutually agreed upon by the contractor and contracting officer, the contracting officer may determine a reasonable price and/or fee in accordance with Subpart 15.8 and Part 31 of the FAR, subject to contractor appeal as provided in 52.233-1, Disputes. In any event, the contractor shall proceed with completion of the task order, subject only to the monetary limitation established by the contracting officer and the terms and conditions of the basic contract.

G.6 ORDERING PROCEDURES (AUG 2011)

(a) The CO is the only individual who can legally obligate funds and commit the NRC.

(b) All task orders and delivery orders shall be prepared in accordance with FAR 16.505.

(c) In accordance with FAR 16.506(b), the following ordering limitations apply:

Minimum guarantee. The minimum guarantee for this contract is 1,000 staff hours

Maximum guarantee. The maximum guarantee for this contract is \$2,187,825.

- (1) Any order for a single item in excess of \$2,187,825.
- (2) Any order for a combination of items in excess of \$2,187,825 or

The Contractor shall honor any order exceeding the maximum order limitations in paragraph (b), unless that order (or orders) is returned to the ordering office within 5 days after issuance, with written notice stating the Contractor's intent not to ship the item (or items) called for and the reasons.

G.7 ELECTRONIC PAYMENT (AUG 2011)

The Debt Collection Improvement Act of 1996 requires that all payments except IRS tax refunds be made by Electronic Funds Transfer. Payment shall be made in accordance with FAR 52.232-33, entitled "Payment by Electronic Funds- Central Contractor Registration".

To receive payment, the contractor shall prepare invoices in accordance with NRC's Billing Instructions. Claims shall be submitted on the payee's letterhead, invoice, or on the Government's Standard Form 1034, "Public Voucher for Purchases and Services Other than Personal," and Standard Form 1035, "Public Voucher for Purchases Other than Personal - Continuation Sheet." The preferred method of submitting invoices is electronically to the Department of the Interior at NRCPayments_NBCDenver@nbc.gov. If the contractor submits a hard copy of the invoice, it shall be submitted to the following address:

Department of the Interior
National Business Center
Attn: Fiscal Services Branch - D2770
7301 West Mansfield Avenue
Denver, CO 80235-2230

SECTION H - SPECIAL CONTRACT REQUIREMENTS**H.1 2052.209-72 CONTRACTOR ORGANIZATIONAL CONFLICTS OF INTEREST (JAN 1993)**

(a) Purpose. The primary purpose of this clause is to aid in ensuring that the contractor:

(1) Is not placed in a conflicting role because of current or planned interests (financial, contractual, organizational, or otherwise) which relate to the work under this contract; and

(2) Does not obtain an unfair competitive advantage over other parties by virtue of its performance of this contract.

(b) Scope. The restrictions described apply to performance or participation by the contractor, as defined in 48 CFR 2009.570-2 in the activities covered by this clause.

(c) Work for others.

(1) Notwithstanding any other provision of this contract, during the term of this contract, the contractor agrees to forego entering into consulting or other contractual arrangements with any firm or organization the result of which may give rise to a conflict of interest with respect to the work being performed under this contract. The contractor shall ensure that all employees under this contract abide by the provision of this clause. If the contractor has reason to believe, with respect to itself or any employee, that any proposed consultant or other contractual arrangement with any firm or organization may involve a potential conflict of interest, the contractor shall obtain the written approval of the contracting officer before the execution of such contractual arrangement.

(2) The contractor may not represent, assist, or otherwise support an NRC licensee or applicant undergoing an NRC audit, inspection, or review where the activities that are the subject of the audit, inspection, or review are the same as or substantially similar to the services within the scope of this contract (or task order as appropriate) except where the NRC licensee or applicant requires the contractor's support to explain or defend the contractor's prior work for the utility or other entity which NRC questions.

(3) When the contractor performs work for the NRC under this contract at any NRC licensee or applicant site, the contractor shall neither solicit nor perform work in the same or similar technical area for that licensee or applicant organization for a period commencing with the award of the task order or beginning of work on the site (if not a task order contract) and ending one year after completion of all work under the associated task order, or last time at the site (if not a task order contract).

(4) When the contractor performs work for the NRC under this contract at any NRC licensee or applicant site,

(i) The contractor may not solicit work at that site for that licensee or applicant during the period of performance of the task order or the contract, as appropriate.

(ii) The contractor may not perform work at that site for that licensee or applicant during the period of performance of the task order or the contract, as appropriate, and for one year thereafter.

(iii) Notwithstanding the foregoing, the contracting officer may authorize the contractor to solicit or perform this type of work (except work in the same or similar technical area) if the contracting officer determines that the situation will not pose a potential for technical bias or unfair competitive advantage.

(d) Disclosure after award.

(1) The contractor warrants that to the best of its knowledge and belief, and except as otherwise set forth in this contract, that it does not have any organizational conflicts of interest as defined in 48 CFR 2009.570-2.

(2) The contractor agrees that if, after award, it discovers organizational conflicts of interest with respect to this contract, it shall make an immediate and full disclosure in writing to the contracting officer. This statement must include a description of the action which the contractor has taken or proposes to take to avoid or mitigate such conflicts. The NRC may, however, terminate the contract if termination is in the best interest of the Government.

(3) It is recognized that the scope of work of a task-order-type contract necessarily encompasses a broad spectrum of activities. Consequently, if this is a task-order-type contract, the contractor agrees that it will disclose all proposed new work involving NRC licensees or applicants which comes within the scope of work of the underlying contract. Further, if this contract involves work at a licensee or applicant site, the contractor agrees to exercise diligence to discover and disclose any new work at that licensee or applicant site. This disclosure must be made before the submission of a bid or proposal to the utility or other regulated entity and must be received by the NRC at least 15 days before the proposed award date in any event, unless a written justification demonstrating urgency and due diligence to discover and disclose is provided by the contractor and approved by the contracting officer. The disclosure must include the statement of work, the dollar value of the proposed contract, and any other documents that are needed to fully describe the proposed work for the regulated utility or other regulated entity. NRC may deny approval of the disclosed work only when the NRC has issued a task order which includes the technical area and, if site-specific, the site, or has plans to issue a task order which includes the technical area and, if site-specific, the site, or when the work violates paragraphs (c)(2), (c)(3) or (c)(4) of this section.

(e) Access to and use of information.

(1) If in the performance of this contract, the contractor obtains access to information, such as NRC plans, policies, reports, studies, financial plans, internal data protected by the Privacy Act of 1974 (5 U.S.C. Section 552a (1988)), or the Freedom of Information Act (5 U.S.C. Section 552 (1986)), the contractor agrees not to:

(i) Use this information for any private purpose until the information has been released to the public;

(ii) Compete for work for the Commission based on the information for a period of six months after either the completion of this contract or the release of the information to the public, whichever is first;

(iii) Submit an unsolicited proposal to the Government based on the information until one year after the release of the information to the public; or

(iv) Release the information without prior written approval by the contracting officer unless the information has previously been released to the public by the NRC.

(2) In addition, the contractor agrees that, to the extent it receives or is given access to proprietary data, data protected by the Privacy Act of 1974 (5 U.S.C. Section 552a (1988)), or the Freedom of Information Act (5 U.S.C. Section 552 (1986)), or other confidential or privileged technical, business, or financial information under this contract, the contractor shall treat the information in accordance with restrictions placed on use of the information.

(3) Subject to patent and security provisions of this contract, the contractor shall have the right to use technical data it produces under this contract for private purposes provided that all requirements of this contract have been met.

(f) Subcontracts. Except as provided in 48 CFR 2009.570-2, the contractor shall include this clause, including this paragraph, in subcontracts of any tier. The terms contract, contractor, and contracting officer, must be appropriately modified to preserve the Government's rights.

(g) Remedies. For breach of any of the above restrictions, or for intentional nondisclosure or misrepresentation of any relevant interest required to be disclosed concerning this contract or for such erroneous representations that

necessarily imply bad faith, the Government may terminate the contract for default, disqualify the contractor from subsequent contractual efforts, and pursue other remedies permitted by law or this contract.

(h) Waiver. A request for waiver under this clause must be directed in writing to the contracting officer in accordance with the procedures outlined in 48 CFR 2009.570-9.

(i) Follow-on effort. The contractor shall be ineligible to participate in NRC contracts, subcontracts, or proposals therefor (solicited or unsolicited), which stem directly from the contractor's performance of work under this contract. Furthermore, unless so directed in writing by the contracting officer, the contractor may not perform any technical consulting or management support services work or evaluation activities under this contract on any of its products or services or the products or services of another firm if the contractor has been substantially involved in the development or marketing of the products or services.

(1) If the contractor, under this contract, prepares a complete or essentially complete statement of work or specifications, the contractor is not eligible to perform or participate in the initial contractual effort which is based on the statement of work or specifications. The contractor may not incorporate its products or services in the statement of work or specifications unless so directed in writing by the contracting officer, in which case the restrictions in this paragraph do not apply.

(2) Nothing in this paragraph precludes the contractor from offering or selling its standard commercial items to the Government.

H.2 2052.215-70 KEY PERSONNEL (JAN 1993)

(a) The following individuals are considered to be essential to the successful performance of the work hereunder:

M. Ishii	Principal Investigator - Purdue
T. Hibiki	Co-Principal Investigator - Purdue
F. B. Cheung	Investigator - Pennsylvania State University
S. Kim	Investigator - Pennsylvania State University
X. Sun	Investigator - Ohio State
A. Manera	Investigator - University of Michigan
Y. Liu	Investigator - Virginia Polytechnic Institute and State University

The contractor agrees that personnel may not be removed from the contract work or replaced without compliance with paragraphs (b) and (c) of this section.

(b) If one or more of the key personnel, for whatever reason, becomes, or is expected to become, unavailable for work under this contract for a continuous period exceeding 30 work days, or is expected to devote substantially less effort to the work than indicated in the proposal or initially anticipated, the contractor shall immediately notify the contracting officer and shall, subject to the concurrence of the contracting officer, promptly replace the personnel with personnel of at least substantially equal ability and qualifications.

(c) Each request for approval of substitutions must be in writing and contain a detailed explanation of the circumstances necessitating the proposed substitutions. The request must also contain a complete resume for the proposed substitute and other information requested or needed by the contracting officer to evaluate the proposed substitution. The contracting officer and the COR shall evaluate the contractor's request and the contracting officer shall promptly notify the contractor of his or her decision in writing.

(d) If the contracting officer determines that suitable and timely replacement of key personnel who have been reassigned, terminated, or have otherwise become unavailable for the contract work is not reasonably forthcoming, or that the resultant reduction of productive effort would be so substantial as to impair the successful completion of the contract or the service order, the contract may be terminated by the contracting officer for default or for the convenience of the Government, as appropriate. If the contracting officer finds the contractor at fault for the condition, the contract price or fixed fee may be equitably adjusted downward to compensate the Government for any resultant delay, loss, or damage.

H.3 2052.242-70 RESOLVING NRC CONTRACTOR DIFFERING PROFESSIONAL OPINIONS (AUG 2007)

(a) The Nuclear Regulatory Commission's (NRC) policy is to support the contractor's expression of professional health and safety related concerns associated with the contractor's work for NRC that may differ from a prevailing NRC staff view, disagree with an NRC decision or policy position, or take issue with proposed or established agency practices. An occasion may arise when an NRC contractor, contractor's personnel, or subcontractor personnel believes that a conscientious expression of a competent judgment is required to document such concerns on matters directly associated with its performance of the contract. The NRC's policy is to support these instances as Differing Professional Opinions (DPOs).

(b) The procedure that will be used provides for the expression and resolution of differing professional opinions (DPOs) of health and safety-related concerns associated with the mission of the agency by NRC contractors, contractor personnel or subcontractor personnel on matters directly associated with its performance of the contract. This procedure is found in Clause 2052.242 71 of this document. The contractor shall provide a copy of the NRC DPO procedure to all of its employees performing under this contract and to all subcontractors who shall, in turn, provide a copy of the procedure to its employees. The prime contractor or subcontractor shall submit all DPOs received but need not endorse them.

H.4 2052.242-71 PROCEDURES FOR RESOLVING NRC CONTRACTOR DIFFERING PROFESSIONAL OPINIONS (OCT 1999)

(a) The following procedure provides for the expression and resolution of differing professional opinions (DPOs) of health and safety-related concerns of NRC contractors and contractor personnel on matters connected to the subject of the contract. Subcontractor DPOs must be submitted through the prime contractor. The prime contractor or subcontractor shall submit all DPOs received but need not endorse them.

(b) The NRC may authorize up to ten reimbursable hours for the contractor to document, in writing, and discuss, with the DPO panel, a DPO by the contractor, the contractor's personnel, or subcontractor personnel. The contractor shall not be entitled to any compensation for effort on a DPO which exceeds the specified ten hour limit.

(c) The contractor shall notify the contracting officer before incurring costs to document a DPO. The contractor shall not begin any work on the DPO before receiving a modification to the contract from the NRC contracting officer.

The contractor shall first determine whether there are sufficient funds obligated under the contract which are available to cover the costs of writing a DPO. If there are insufficient obligated funds under the contract, the contractor shall request additional funding from the NRC contracting officer to cover the costs of preparing the DPO. If there are sufficient obligated funds under the contract, the contractor shall notify the contracting officer so that a modification can be issued that specifies the amount of funding required for the DPO.

(d) Contract funds shall not be authorized to document a differing perspective in the following examples where the use of this NRC contractor DPO process is inappropriate:

(1) Issues involving allegations of wrongdoing that should be appropriately addressed directly to the NRC Office of the Inspector General (OIG);

(2) Issues submitted anonymously. However, safety significant issues that are submitted anonymously should be addressed under NRC's Allegation Program which can be found at: http://www.nrc.gov/about_nrc/regulatory/allegations_resp.html

(3) Issues that are deemed to be frivolous or otherwise not in accordance with the guidance included in NRC Management Directive (MD) 10.159, "The NRC Differing Professional Opinions Program," which can be found at: http://www.nrc.gov/reading_rm/doc_collections/management_directives/volumes/vol_10.html

(4) Issues that have already been considered, addressed, or rejected by the NRC under these procedures, absent significant new information;

(5) Issues that are considered premature because they are still under staff review by the NRC.

(e) This procedure does not provide anonymity, nor does it provide for confidential submittal (as addressed in MD 10.159). Individuals desiring anonymity or confidentiality should contact the NRC OIG or submit the information under NRC's Allegation Program, as appropriate.

(f) Prior to submitting a DPO, the contractor or the contractor's employees are encouraged to engage in informal discussions with appropriate NRC personnel (which may include NRC staff directly involved with the issues that are the subject of concerns and the NRC COR.) The contractor hereby agrees that the contractor authorizes its employees to engage in informal discussions with the appropriate NRC personnel for purposes of this clause. If the informal discussions do not resolve the contractor or the contractor's employees' concerns, the contractor shall notify the contracting officer so that a modification to the contract can be issued that authorizes the expenditure of funds for the DPO.

The contractor may initiate the DPO process by submitting a written statement directly to the NRC Differing Professional Opinions Program Manager (DPOPM), Office of Enforcement, with a copy to the Contracting Officer, Division of Contracts, Office of Administration. Each DPO submitted will be evaluated on its own merits. (Refer to (c) above before incurring any costs to initiate the DPO process.)

(g) The DPO, while being brief, must contain the following as it relates to the subject matter of the contract:

(1) A summary of the prevailing NRC view, existing NRC decision or stated position, or the proposed or established NRC practice.

(2) A description of the submitter's views and how they differ from any of the above items.

(3) The rationale for the submitter's views, including an assessment of the consequences should the submitter's position not be adopted by NRC.

(4) References to, or copies of, relevant documents.

(h) The DPOPM will screen the DPO and notify the submitter and the contractor if the DPO is accepted. Returned DPOs will identify the reason for return.

(i) The DPOPM will forward the DPO to the Office Director or Regional Administrator responsible for the contract for disposition.

(j) The Office Director or Regional Administrator will establish an ad hoc panel of NRC employees to review the DPO.

(k) The panel will interview the submitter to ensure that the panel understands the issues and to define the scope of the review. The panel will gather information, review documents, and conduct interviews to support a thorough review. The panel will provide a written report of its findings to the Office Director or Regional Administrator and to the Contracting Officer, which includes a recommended course of action.

(l) The Office Director or Regional Administrator will consider the DPO panel's report, make a decision on the DPO and provide a written decision to the contractor and the Contracting Officer. The DPO is considered final and closed when the DPO Decision is issued.

(m) A summary of the issue and its disposition will be included in the NRC Weekly Information Report.

(n) DPOs will be dispositioned in accordance with the time frames identified in MD 10.159.

(o) The DPOPM will track follow up actions and notify the contractor of any schedule revisions.

(p) The availability of DPO records will reflect the submitter's wishes (e.g., whether the records should or should not be made public and whether the submitter's identity is redacted) and be consistent with NRC practices for making records available to the public.

(q) For purposes of the contract, the DPO shall be considered a deliverable under the contract.

H.5 ANNUAL AND FINAL CONTRACTOR PERFORMANCE EVALUATIONS (AUG 2011)

Annual and final evaluations of contractor performance under this contract will be prepared in accordance with FAR Subpart 42.15, "Contractor Performance Information," normally at or near the time the contractor is notified of the NRC's intent to exercise the contract option. If the multi-year contract does not have option years, then an annual evaluation will be prepared at the end of each contract year (state time for annual evaluation). Final evaluations of contractor performance will be prepared at the expiration of the contract during the contract closeout process.

The Contracting Officer will transmit the NRC Contracting Officer's Representative's (COR) annual and final contractor performance evaluations to the contractor's Project Manager, unless otherwise instructed by the contractor. The contractor will be permitted thirty days to review the document and submit comments, rebutting statements, or additional information.

Where a contractor concurs with, or takes no exception to an annual performance evaluation, the Contracting Officer will consider such evaluation final and releasable for source selection purposes. Disagreements between the parties regarding a performance evaluation will be referred to an individual one level above the Contracting Officer, whose decision will be final.

The Contracting Officer will send a copy of the completed evaluation report, marked "Source Selection Information", to the contractor's Project Manager for their records as soon as practicable after it has been finalized. The completed evaluation report also will be used as a tool to improve communications between the NRC and the contractor and to improve contract performance.

The completed annual performance evaluation will be used to support future award decisions in accordance with FAR 42.1502 and 42.1503. During the period the information is being used to provide source selection information, the completed annual performance evaluation will be released to only two parties - the Federal government personnel performing the source selection evaluation and the contractor under evaluation if the contractor does not have a copy of the report already.

H.6 COMPLIANCE WITH U.S. IMMIGRATION LAWS AND REGULATIONS (AUG 2011)

NRC contractors are responsible to ensure that their alien personnel are not in violation of United States immigration laws and regulations, including employment authorization documents and visa requirements. Each alien employee of the Contractor must be lawfully admitted for permanent residence as evidenced by Permanent Resident Form I-551 (Green Card), or must present other evidence from the U.S. Department of Homeland Security/U.S. Citizenship and Immigration Services that employment will not affect his/her immigration status. The U.S. Citizenship and Immigration Services provides information to contractors to help them understand the employment eligibility verification process for non-US citizens. This information can be found on their website, <http://www.uscis.gov/portal/site/uscis>.

The NRC reserves the right to deny or withdraw Contractor use or access to NRC facilities or its equipment/services, and/or take any number of contract administrative actions (e.g., disallow costs, terminate for cause) should the Contractor violate the Contractor's responsibility under this clause.

H.7 MODIFICATION TO 2052.235-70 PUBLICATION OF RESEARCH RESULTS (OCT 1999)

(a) The principal investigator(s)/contractor shall comply with the provisions of NRC Management Directive 3.8 (Vol. 3, Part 1) and NRC Handbook 3.8 (Parts I-IV) regarding publication in refereed scientific and engineering journals or dissemination to the public of any information, oral or written, concerning the work performed under this contract. This unclassified fundamental research project requires the development of research methodologies. The scope of work of this project does not involve making conclusions or recommendations regarding NRC policy.

(b) The principal investigator(s)/contractor may publish the results of this work in refereed scientific and engineering journals or in open literature and present papers at public or association meetings at interim stages of work, in addition to submitting to NRC the final reports and other deliverables required under this contract.

(c) The principal investigator(s) shall coordinate all such publications with, and transmit a copy of the proposed article or paper to, the NRC Contracting Officer or Project Officer, prior to publication. The NRC agrees to review and provide comments within thirty (30) days after receipt of a proposed publication. However, in those cases where the information to be published addresses and/or discusses NRC policy, the NRC reserves the right to have the contractor add the following disclaimer that states "Any opinions, findings, and conclusions or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the views of the NRC".

H.8 WHISTLEBLOWER PROTECTION FOR NRC CONTRACTOR AND SUBCONTRACTOR EMPLOYEES (AUG 2011)

(a) The U.S. Nuclear Regulatory Commission (NRC) contractor and its subcontractor are subject to the Whistleblower Employee Protection public law provisions as codified at 42 U.S.C. 5851. NRC contractor(s) and subcontractor(s) shall comply with the requirements of this Whistleblower Employee Protection law, and the implementing regulations of the NRC and the Department of Labor (DOL). See, for example, DOL Procedures on Handling Complaints at 29 C.F.R. Part 24 concerning the employer obligations, prohibited acts, DOL procedures and the requirement for prominent posting of notice of Employee Rights at Appendix A to Part 24 entitled: "Your Rights Under the Energy Reorganization Act".

(b) Under this Whistleblower Employee Protection law, as implemented by regulations, NRC contractor and subcontractor employees are protected from discharge, reprisal, threats, intimidation, coercion, blacklisting or other employment discrimination practices with respect to compensation, terms, conditions or privileges of their employment because the contractor or subcontractor employee(s) has provided notice to the employer, refused to engage in unlawful practices, assisted in proceedings or testified on activities alleged violations of the Atomic Energy Act of 1954 (as amended) and the Energy Reorganization Act of 1974 (as amended).

(c) The contractor shall insert this or the substance of this clause in any subcontracts involving work performed under this contract.

H.9 GREEN PURCHASING (JUN 2011)

(a) In furtherance of the sustainable acquisition goals of Executive Order 13514, "Federal Leadership in Environmental, Energy, and Economic Performance" products and services provided under this contract/order shall be energy- efficient (Energy Star or Federal Energy Management Program (FEMP) designated), water-efficient, biobased, environmentally preferable (e.g., Electronic Product Environmental Assessment Tool (EPEAT) certified), non-ozone depleting, contain recycled content, or are non-toxic or less toxic alternatives, where such products and services meet agency performance requirements. <http://www.fedcenter.gov/programs/eo13514/>

(b) The contractor shall flow down this clause into all subcontracts and other agreements that relate to performance of this contract/order.

H.10 USE OF AUTOMATED CLEARING HOUSE (ACH) ELECTRONIC PAYMENT/REMITTANCE ADDRESS (AUG 2011)

The Debt Collection Improvement Act of 1996 requires that all Federal payments except IRS tax refunds be made by Electronic Funds Transfer. It is the policy of the Nuclear Regulatory Commission to pay government vendors by the Automated Clearing House (ACH) electronic funds transfer payment system. Item 15C of the Standard Form 33 may be disregarded.

H.11 AWARD NOTIFICATION AND COMMITMENT OF PUBLIC FUNDS (AUG 2011)

(a) All offerors will receive preaward and postaward notices in accordance with FAR 15.503.

(b) It is also brought to your attention that the contracting officer is the only individual who can legally obligate funds or commit the NRC to the expenditure of public funds in connection with this procurement. This means that unless provided in a contract document or specifically authorized by the contracting officer, NRC technical personnel may not issue contract modifications, give formal contractual commitments, or otherwise bind, commit, or obligate the NRC contractually. Informal unauthorized commitments, which do not obligate the NRC and do not entitle the contractor to payment, may include:

- (1) Encouraging a potential contractor to incur costs prior to receiving a contract;
- (2) Requesting or requiring a contractor to make changes under a contract without formal contract modifications;
- (3) Encouraging a contractor to incur costs under a cost-reimbursable contract in excess of those costs contractually allowable; and
- (4) Committing the Government to a course of action with regard to a potential contract, contract change, claim, or dispute.

PART II - CONTRACT CLAUSES**SECTION I - CONTRACT CLAUSES****I.1 NOTICE LISTING CONTRACT CLAUSES INCORPORATED BY REFERENCE**

The following contract clauses pertinent to this section are hereby incorporated by reference (by Citation Number, Title, and Date) in accordance with the clause at FAR "52.252-2 CLAUSES INCORPORATED BY REFERENCE" in Section I of this contract. See FAR 52.252-2 for an internet address (if specified) for electronic access to the full text of a clause.

NUMBER	TITLE	DATE
	FEDERAL ACQUISITION REGULATION (48 CFR Chapter 1)	
52.202-1	DEFINITIONS	JAN 2012
52.203-3	GRATUITIES	APR 1984
52.203-5	COVENANT AGAINST CONTINGENT FEES	APR 1984
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I.2 52.209-9 UPDATES OF PUBLICLY AVAILABLE INFORMATION REGARDING RESPONSIBILITY MATTERS (FEB 2012)

(a) The Contractor shall update the information in the Federal Awardee Performance and Integrity Information System (FAPIS) on a semi-annual basis, throughout the life of the contract, by posting the required information in the Central Contractor Registration database via <https://www.acquisition.gov>.

(b) As required by section 3010 of the Supplemental Appropriations Act, 2010 (Pub. L. 111-212), all information posted in FAPIS on or after April 15, 2011, except past performance reviews, will be publicly available. FAPIS consists of two segments--

(1) The non-public segment, into which Government officials and the Contractor post information, which can only be viewed by--

- (i) Government personnel and authorized users performing business on behalf of the Government; or
- (ii) The Contractor, when viewing data on itself; and

(2) The publicly-available segment, to which all data in the non-public segment of FAPIS is automatically transferred after a waiting period of 14 calendar days, except for--

- (i) Past performance reviews required by subpart 42.15;
- (ii) Information that was entered prior to April 15, 2011; or

(iii) Information that is withdrawn during the 14-calendar-day waiting period by the Government official who posted it in accordance with paragraph (c)(1) of this clause.

(c) The Contractor will receive notification when the Government posts new information to the Contractor's record.

(1) If the Contractor asserts in writing within 7 calendar days, to the Government official who posted the information, that some of the information posted to the nonpublic segment of FAPIS is covered by a disclosure exemption under the Freedom of Information Act, the Government official who posted the information must within 7 calendar days remove the posting from FAPIS and resolve the issue in accordance with agency Freedom of Information procedures, prior to reposting the releasable information. The contractor must cite 52.209-9 and request removal within 7 calendar days of the posting to FAPIS.

(2) The Contractor will also have an opportunity to post comments regarding information that has been posted by the Government. The comments will be retained as long as the associated information is retained, i.e., for a total period of 6 years. Contractor comments will remain a part of the record unless the Contractor revises them.

(3) As required by section 3010 of Pub. L. 111-212, all information posted in FAPIS on or after April 15, 2011, except past performance reviews, will be publicly available.

(d) Public requests for system information posted prior to April 15, 2011, will be handled under Freedom of Information Act procedures, including, where appropriate, procedures promulgated under E.O. 12600.

I.3 52.216-7 ALLOWABLE COST AND PAYMENT (JUN 2011) ALTERNATE II (AUG 2012)

(a) Invoicing.

(1) The Government will make payments to the Contractor when requested as work progresses, but not more often than once every two weeks, in amounts determined to be allowable by the Contracting Officer in accordance with FAR subpart 31.3 in effect on the date of this contract and the terms of this contract. The Contractor may submit to an authorized representative of the Contracting Officer, in such form and reasonable detail as the representative may require, an invoice or voucher supported by a statement of the claimed allowable cost for performing this contract.

(2) Contract financing payments are not subject to the interest penalty provisions of the Prompt Payment Act. Interim payments made prior to the final payment under the contract are contract financing payments, except interim payments if this contract contains Alternate I to the clause at 52.232-25.

(3) The designated payment office will make interim payments for contract financing on the 30th day after the designated billing office receives a proper payment request.

In the event that the Government requires an audit or other review of a specific payment request to ensure compliance with the terms and conditions of the contract, the designated payment office is not compelled to make payment by the specified due date.

(b) Reimbursing costs.

(1) For the purpose of reimbursing allowable costs (except as provided in paragraph (b)(2) of this clause, with respect to pension, deferred profit sharing, and employee stock ownership plan contributions), the term "costs" includes only--

(i) Those recorded costs that, at the time of the request for reimbursement, the Contractor has paid by cash, check, or other form of actual payment for items or services purchased directly for the contract;

(ii) When the Contractor is not delinquent in paying costs of contract performance in the ordinary course of business, costs incurred, but not necessarily paid, for--

(A) Supplies and services purchased directly for the contract and associated financing payments to subcontractors, provided payments determined due will be made--

(1) In accordance with the terms and conditions of a subcontract or invoice; and

(2) Ordinarily within 30 days of the submission of the Contractor's payment request to the Government;

(B) Materials issued from the Contractor's inventory and placed in the production process for use on the contract;

(C) Direct labor;

(D) Direct travel;

(E) Other direct in-house costs; and

(F) Properly allocable and allowable indirect costs, as shown in the records maintained by the Contractor for purposes of obtaining reimbursement under Government contracts; and

(iii) The amount of financing payments that have been paid by cash, check, or other forms of payment to subcontractors.

(2) Accrued costs of Contractor contributions under employee pension plans shall be excluded until actually paid unless-

(i) The Contractor's practice is to make contributions to the retirement fund quarterly or more frequently; and

(ii) The contribution does not remain unpaid 30 days after the end of the applicable quarter or shorter payment period (any contribution remaining unpaid shall be excluded from the Contractor's indirect costs for payment purposes).

(3) Notwithstanding the audit and adjustment of invoices or vouchers under paragraph (g) of this clause, allowable indirect costs under this contract shall be obtained by applying indirect cost rates established in accordance with paragraph (d) of this clause.

(4) Any statements in specifications or other documents incorporated in this contract by reference designating performance of services or furnishing of materials at the Contractor's expense or at no cost to the Government shall be disregarded for purposes of cost-reimbursement under this clause.

(c) Small business concerns. A small business concern may receive more frequent payments than every 2 weeks.

(d) Final indirect cost rates.

(1) Final annual indirect cost rates and the appropriate bases shall be established in accordance with Subpart 42.7 of the Federal Acquisition Regulation (FAR) in effect for the period covered by the indirect cost rate proposal.

(2)(i) The Contractor shall submit an adequate final indirect cost rate proposal to the Contracting Officer (or cognizant Federal agency official) and auditor within the 6-month period following the expiration of each of its fiscal years. Reasonable extensions, for exceptional circumstances only, may be requested in writing by the Contractor and granted in writing by the Contracting Officer. The Contractor shall support its proposal with adequate supporting data.

(ii) The proposed rates shall be based on the Contractor's actual cost experience for that period. The appropriate Government representative and the Contractor shall establish the final indirect cost rates as promptly as practical after receipt of the Contractor's proposal.

(iii) An adequate indirect cost rate proposal shall include the following data unless otherwise specified by the cognizant Federal agency official:

(A) Summary of all claimed indirect expense rates, including pool, base, and calculated indirect rate.

(B) General and Administrative expenses (final indirect cost pool). Schedule of claimed expenses by element of cost as identified in accounting records (Chart of Accounts).

(C) Overhead expenses (final indirect cost pool). Schedule of claimed expenses by element of cost as identified in accounting records (Chart of Accounts) for each final indirect cost pool.

(D) Occupancy expenses (intermediate indirect cost pool). Schedule of claimed expenses by element of cost as identified in accounting records (Chart of Accounts) and expense reallocation to final indirect cost pools.

(E) Claimed allocation bases, by element of cost, used to distribute indirect costs.

(F) Facilities capital cost of money factors computation.

(G) Reconciliation of books of account (i.e., General Ledger) and claimed direct costs by major cost element.

(H) Schedule of direct costs by contract and subcontract and indirect expense applied at claimed rates, as well as a subsidiary schedule of Government participation percentages in each of the allocation base amounts.

(I) Schedule of cumulative direct and indirect costs claimed and billed by contract and subcontract.

(J) Subcontract information. Listing of subcontracts awarded to companies for which the contractor is the prime or upper-tier contractor (include prime and subcontract numbers; subcontract value and award type; amount claimed during the fiscal year; and the subcontractor name, address, and point of contact information).

(K) Summary of each time-and-materials and labor-hour contract information, including labor categories, labor rates, hours, and amounts; direct materials; other direct costs; and, indirect expense applied at claimed rates.

(L) Reconciliation of total payroll per IRS form 941 to total labor costs distribution.

(M) Listing of decisions/agreements/approvals and description of accounting/organizational changes.

(N) Certificate of final indirect costs (see 52.242-4, Certification of Final Indirect Costs).

(O) Contract closing information for contracts physically completed in this fiscal year (include contract number, period of performance, contract ceiling amounts, contract fee computations, level of effort, and indicate if the contract is ready to close).

(iv) The following supplemental information is not required to determine if a proposal is adequate, but may be required during the audit process:

(A) Comparative analysis of indirect expense pools detailed by account to prior fiscal year and budgetary data.

(B) General Organizational information and Executive compensation for the five most highly compensated executives. See 31.205-6(p). Additional salary reference information is available at http://www.whitehouse.gov/omb/procurement_index_exec_comp/.

(C) Identification of prime contracts under which the contractor performs as a subcontractor.

(D) Description of accounting system (excludes contractors required to submit a CAS Disclosure Statement or contractors where the description of the accounting system has not changed from the previous year's submission).

(E) Procedures for identifying and excluding unallowable costs from the costs claimed and billed (excludes contractors where the procedures have not changed from the previous year's submission).

(F) Certified financial statements and other financial data (e.g., trial balance, compilation, review, etc.).

(G) Management letter from outside CPAs concerning any internal control weaknesses.

(H) Actions that have been and/or will be implemented to correct the weaknesses described in the management letter from subparagraph (G) of this section.

(I) List of all internal audit reports issued since the last disclosure of internal audit reports to the Government.

(J) Annual internal audit plan of scheduled audits to be performed in the fiscal year when the final indirect cost rate submission is made.

(K) Federal and State income tax returns.

(L) Securities and Exchange Commission 10-K annual report.

(M) Minutes from board of directors meetings.

(N) Listing of delay claims and termination claims submitted which contain costs relating to the subject fiscal year.

(O) Contract briefings, which generally include a synopsis of all pertinent contract provisions, such as: Contract type, contract amount, product or service(s) to be provided, contract performance period, rate ceilings, advance approval requirements, pre-contract cost allowability limitations, and billing limitations.

(v) The Contractor shall update the billings on all contracts to reflect the final settled rates and update the schedule of cumulative direct and indirect costs claimed and billed, as required in paragraph (d)(2)(iii)(I) of this section, within 60 days after settlement of final indirect cost rates.

(3) The Contractor and the appropriate Government representative shall execute a written understanding setting forth the final indirect cost rates. The understanding shall specify (i) the agreed-upon final annual indirect cost rates, (ii) the bases to which the rates apply, (iii) the periods for which the rates apply, (iv) any specific indirect cost items treated as direct costs in the settlement, and (v) the affected contract and/or subcontract, identifying any with advance agreements or special terms and the applicable rates. The understanding shall not change any monetary ceiling, contract obligation, or specific cost allowance or disallowance provided for in this contract. The understanding is incorporated into this contract upon execution.

(4) Failure by the parties to agree on a final annual indirect cost rate shall be a dispute within the meaning of the Disputes clause.

(5) Within 120 days (or longer period if approved in writing by the Contracting Officer) after settlement of the final annual indirect cost rates for all years of a physically complete contract, the Contractor shall submit a completion invoice or voucher to reflect the settled amounts and rates. The completion invoice or voucher shall include settled subcontract amounts and rates. The prime contractor is responsible for settling subcontractor amounts and rates included in the completion invoice or voucher and providing status of subcontractor audits to the contracting officer upon request.

(6)(i) If the Contractor fails to submit a completion invoice or voucher within the time specified in paragraph (d)(5) of this clause, the Contracting Officer may--

(A) Determine the amounts due to the Contractor under the contract; and

(B) Record this determination in a unilateral modification to the contract.

(ii) This determination constitutes the final decision of the Contracting Officer in accordance with the Disputes clause.

(e) Billing rates. Until final annual indirect cost rates are established for any period, the Government shall reimburse the Contractor at billing rates established by the Contracting Officer or by an authorized representative (the cognizant auditor), subject to adjustment when the final rates are established. These billing rates--

(1) Shall be the anticipated final rates; and

(2) May be prospectively or retroactively revised by mutual agreement, at either party's request, to prevent substantial overpayment or underpayment.

(f) Quick-closeout procedures. Quick-closeout procedures are applicable when the conditions in FAR 42.708(a) are satisfied.

(g) Audit. At any time or times before final payment, the Contracting Officer may have the Contractor's invoices or vouchers and statements of cost audited. Any payment may be (1) reduced by amounts found by the Contracting Officer not to constitute allowable costs or (2) adjusted for prior overpayments or underpayments.

(h) Final payment. (1) Upon approval of a completion invoice or voucher submitted by the Contractor in accordance with paragraph (d)(5) of this clause, and upon the Contractor's compliance with all terms of this contract, the Government shall promptly pay any balance of allowable costs and that part of the fee (if any) not previously paid.

(2) The Contractor shall pay to the Government any refunds, rebates, credits, or other amounts (including interest, if any) accruing to or received by the Contractor or any assignee under this contract, to the extent that those amounts are properly allocable to costs for which the Contractor has been reimbursed by the Government. Reasonable expenses incurred by the Contractor for securing refunds, rebates, credits, or other amounts shall be allowable costs if approved by the Contracting Officer. Before final payment under this contract, the Contractor and each assignee whose assignment is in effect at the time of final payment shall execute and deliver--

(i) An assignment to the Government, in form and substance satisfactory to the Contracting Officer, of refunds, rebates, credits, or other amounts (including interest, if any) properly allocable to costs for which the Contractor has been reimbursed by the Government under this contract; and

(ii) A release discharging the Government, its officers, agents, and employees from all liabilities, obligations, and claims arising out of or under this contract, except--

(A) Specified claims stated in exact amounts, or in estimated amounts when the exact amounts are not known;

(B) Claims (including reasonable incidental expenses) based upon liabilities of the Contractor to third parties arising out of the performance of this contract; provided, that the claims are not known to the Contractor on the date of the execution of the release, and that the Contractor gives notice of the claims in writing to the Contracting Officer within 6 years following the release date or notice of final payment date, whichever is earlier; and

(C) Claims for reimbursement of costs, including reasonable incidental expenses, incurred by the Contractor under the patent clauses of this contract, excluding, however, any expenses arising from the Contractor's indemnification of the Government against patent liability.

1.4 52.216-18 ORDERING (OCT 1995)

(a) Any supplies and services to be furnished under this contract shall be ordered by issuance of delivery orders or task orders by the individuals or activities designated in the Schedule. Such orders may be issued from the effective date of the contract through the end of the effective period.

(b) All delivery orders or task orders are subject to the terms and conditions of this contract. In the event of conflict between a delivery order or task order and this contract, the contract shall control.

(c) If mailed, a delivery order or task order is considered "issued" when the Government deposits the order in the mail. Orders may be issued orally, by facsimile, or by electronic commerce methods only if authorized in the Schedule.

1.5 52.216-19 ORDER LIMITATIONS (OCT 1995)

(a) Minimum guarantee. The minimum guarantee for this contract is 1,000 staff hours

(b) Maximum order. The Contractor is not obligated to honor--

(1) Any order for a single item in excess of \$2,187,825.

(2) Any order for a combination of items in excess of \$2,187,825.; or

(c) If this is a requirements contract (i.e., includes the Requirements clause at subsection 52.216-21 of the Federal Acquisition Regulation (FAR)), the Government is not required to order a part of any one requirement from the Contractor if that requirement exceeds the maximum-order limitations in paragraph (b) of this section.

(d) Notwithstanding paragraphs (b) and (c) of this section, the Contractor shall honor any order exceeding the maximum order limitations in paragraph (b), unless that order (or orders) is returned to the ordering office within 5 days after issuance, with written notice stating the Contractor's intent not to ship the item (or items) called for and the reasons. Upon receiving this notice, the Government may acquire the supplies or services from another source.

I.6 52.216-22 INDEFINITE QUANTITY (OCT 1995)

(a) This is an indefinite-quantity contract for the supplies or services specified, and effective for the period stated, in the Schedule. The quantities of supplies and services specified in the Schedule are estimates only and are not purchased by this contract.

(b) Delivery or performance shall be made only as authorized by orders issued in accordance with the Ordering clause. The Contractor shall furnish to the Government, when and if ordered, the supplies or services specified in the Schedule up to and including the quantity designated in the Schedule as the "maximum." The Government shall order at least the quantity of supplies or services designated in the Schedule as the "minimum."

(c) Except for any limitations on quantities in the Order Limitations clause or in the Schedule, there is no limit on the number of orders that may be issued. The Government may issue orders requiring delivery to multiple destinations or performance at multiple locations.

(d) Any order issued during the effective period of this contract and not completed within that period shall be completed by the Contractor within the time specified in the order. The contract shall govern the Contractor's and Government's rights and obligations with respect to that order to the same extent as if the order were completed during the contract's effective period; provided, that the Contractor shall not be required to make any deliveries under this contract after the contract expiration date.

I.7 52.219-28 POST-AWARD SMALL BUSINESS PROGRAM REREPRESENTATION (APR 2012)

(a) Definitions. As used in this clause-

Long-term contract means a contract of more than five years in duration, including options. However, the term does not include contracts that exceed five years in duration because the period of performance has been extended for a cumulative period not to exceed six months under the clause at 52.217-8, Option to Extend Services, or other appropriate authority.

Small business concern means a concern, including its affiliates, that is independently owned and operated, not dominant in the field of operation in which it is bidding on Government contracts, and qualified as a small business under the criteria in 13 CFR part 121 and the size standard in paragraph (c) of this clause. Such a concern is "not dominant in its field of operation" when it does not exercise a controlling or major influence on a national basis in a kind of business activity in which a number of business concerns are primarily engaged. In determining whether dominance exists, consideration shall be given to all appropriate factors, including volume of business, number of employees, financial resources, competitive status or position, ownership or control of materials, processes, patents, license agreements, facilities, sales territory, and nature of business activity.

(b) If the Contractor represented that it was a small business concern prior to award of this contract, the Contractor shall represent its size status according to paragraph (e) of this clause or, if applicable, paragraph (g) of this clause, upon the occurrence of any of the following:

(1) Within 30 days after execution of a novation agreement or within 30 days after modification of the contract to include this clause, if the novation agreement was executed prior to inclusion of this clause in the contract.

(2) Within 30 days after a merger or acquisition that does not require a novation or within 30 days after modification of the contract to include this clause, if the merger or acquisition occurred prior to inclusion of this clause in the contract.

(3) For long-term contracts-

(i) Within 60 to 120 days prior to the end of the fifth year of the contract; and

(ii) Within 60 to 120 days prior to the date specified in the contract for exercising any option thereafter.

(c) The Contractor shall represent its size status in accordance with the size standard in effect at the time of this representation that corresponds to the North American Industry Classification System (NAICS) code assigned to this contract. The small business size standard corresponding to this NAICS code can be found at <http://www.sba.gov/content/table-small-business-size-standards>.

(d) The small business size standard for a Contractor providing a product which it does not manufacture itself, for a contract other than a construction or service contract, is 500 employees.

(e) Except as provided in paragraph (g) of this clause, the Contractor shall make the representation required by paragraph (b) of this clause by validating or updating all its representations in the Online Representations and Certifications Application and its data in the Central Contractor Registration, as necessary, to ensure that they reflect the Contractor's current status. The Contractor shall notify the contracting office in writing within the timeframes specified in paragraph (b) of this clause that the data have been validated or updated, and provide the date of the validation or update.

(f) If the Contractor represented that it was other than a small business concern prior to award of this contract, the Contractor may, but is not required to, take the actions required by paragraphs (e) or (g) of this clause.

(g) If the Contractor does not have representations and certifications in ORCA, or does not have a representation in ORCA for the NAICS code applicable to this contract, the Contractor is required to complete the following representation and submit it to the contracting office, along with the contract number and the date on which the representation was completed:

The Contractor represents that it ☐ is, ☒ is not a small business concern under NAICS Code 541330 assigned to contract number NRC-HQ-13-C-04-0022.

I.8 52.222-40 NOTIFICATION OF EMPLOYEE RIGHTS UNDER THE NATIONAL LABOR RELATIONS ACT (DEC 2010)

(a) During the term of this contract, the Contractor shall post an employee notice, of such size and in such form, and containing such content as prescribed by the Secretary of Labor, in conspicuous places in and about its plants and offices where employees covered by the National Labor Relations Act engage in activities relating to the performance of the contract, including all places where notices to employees are customarily posted both physically and electronically, in the languages employees speak, in accordance with 29 CFR 471.2(d) and (f).

(1) Physical posting of the employee notice shall be in conspicuous places in and about the Contractor's plants and offices so that the notice is prominent and readily seen by employees who are covered by the National Labor Relations Act and engage in activities related to the performance of the contract.

(2) If the Contractor customarily posts notices to employees electronically, then the Contractor shall also post the required notice electronically by displaying prominently, on any Web site that is maintained by the Contractor and is customarily used for notices to employees about terms and conditions of employment, a link to the Department of Labor's Web site that contains the full text of the poster. The link to the Department's Web site, as referenced in (b)(3) of this section, must read, "Important Notice about Employee Rights to Organize and Bargain Collectively with Their Employers."

(b) This required employee notice, printed by the Department of Labor, may be-

(1) Obtained from the Division of Interpretations and Standards, Office of Labor-Management Standards, U.S. Department of Labor, 200 Constitution Avenue, NW., Room N-5609, Washington, DC 20210, (202) 693-0123, or from any field office of the Office of Labor-Management Standards or Office of Federal Contract Compliance Programs;

(2) Provided by the Federal contracting agency if requested;

(3) Downloaded from the Office of Labor-Management Standards Web site at <http://www.dol.gov/olms/regs/compliance/EO13496.htm>; or

(4) Reproduced and used as exact duplicate copies of the Department of Labor's official poster.

(c) The required text of the employee notice referred to in this clause is located at Appendix A, Subpart A, 29 CFR Part 471.

(d) The Contractor shall comply with all provisions of the employee notice and related rules, regulations, and orders of the Secretary of Labor.

(e) In the event that the Contractor does not comply with the requirements set forth in paragraphs (a) through (d) of this clause, this contract may be terminated or suspended in whole or in part, and the Contractor may be suspended or debarred in accordance with 29 CFR 471.14 and subpart 9.4. Such other sanctions or remedies may be imposed as are provided by 29 CFR part 471, which implements Executive Order 13496 or as otherwise provided by law.

(f) Subcontracts.

(1) The Contractor shall include the substance of this clause, including this paragraph (f), in every subcontract that exceeds \$10,000 and will be performed wholly or partially in the United States, unless exempted by the rules, regulations, or orders of the Secretary of Labor issued pursuant to section 3 of Executive Order 13496 of January 30, 2009, so that such provisions will be binding upon each subcontractor.

(2) The Contractor shall not procure supplies or services in a way designed to avoid the applicability of Executive Order 13496 or this clause.

(3) The Contractor shall take such action with respect to any such subcontract as may be directed by the Secretary of Labor as a means of enforcing such provisions, including the imposition of sanctions for noncompliance.

(4) However, if the Contractor becomes involved in litigation with a subcontractor, or is threatened with such involvement, as a result of such direction, the Contractor may request the United States, through the Secretary of Labor, to enter into such litigation to protect the interests of the United States.

I.9 52.232-99 PROVIDING ACCELERATED PAYMENT TO SMALL BUSINESS SUBCONTRACTORS (DEVIATION) (AUG 2012)

This clause implements the temporary policy provided by OMB Policy Memorandum M-12-16, Providing Prompt Payment to Small Business Subcontractors, dated July 11, 2012.

(a) Upon receipt of accelerated payments from the Government, the contractor is required to make accelerated payments to small business subcontractors to the maximum extent practicable after receipt of a proper invoice and all proper documentation from the small business subcontractor.

(b) Include the substance of this clause, including this paragraph (b), in all subcontracts with small business concerns.

(c) The acceleration of payments under this clause does not provide any new rights under the Prompt Payment Act.

I.10 52.252-2 CLAUSES INCORPORATED BY REFERENCE (FEB 1998)

This contract incorporates one or more clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. Also, the full text of a clause may be accessed electronically at this/these address(es):

<https://www.acquisition.gov/far/>

PART III - LIST OF DOCUMENTS, EXHIBITS AND OTHER ATTACHMENTS**SECTION J - LIST OF ATTACHMENTS**

ATTACHMENT NUMBER.	TITLE	NO. OF PAGES
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Subpart 2009.5 Organizational Conflicts of Interest

§2009.500 Scope of subpart.

In accordance with 42 U.S.C. 2210a., NRC acquisitions are processed in accordance with §2009.570, which takes precedence over FAR 9.5 with respect to organizational conflicts of interest. Where non-conflicting guidance appears in FAR 9.5, that guidance must be followed.

§2009.570 NRC organizational conflicts of interest.

§2009.570-1 Scope of policy.

(a) It is the policy of NRC to avoid, eliminate, or neutralize contractor organizational conflicts of interest. The NRC achieves this objective by requiring all prospective contractors to submit information describing relationships, if any, with organizations or persons (including those regulated by the NRC) which may give rise to actual or potential conflicts of interest in the event of contract award.

(b) Contractor conflict of interest determinations cannot be made automatically or routinely. The application of sound judgment on virtually a case-by-case basis is necessary if the policy is to be applied to satisfy the overall public interest. It is not possible to prescribe in advance a specific method or set of criteria which would serve to identify and resolve all of the contractor conflict of interest situations that might arise. However, examples are provided in these regulations to guide application of this policy guidance. The ultimate test is as follows: Might the contractor, if awarded the contract, be placed in a position where its judgment may be biased, or where it may have an unfair competitive advantage?

(c) The conflict of interest rule contained in this subpart applies to contractors and offerors only. Individuals or firms who have other relationships with the NRC (e.g., parties to a licensing proceeding) are not covered by this regulation. This rule does not apply to the acquisition of consulting services through the personnel appointment process, NRC agreements with other Government agencies, international organizations, or state, local, or foreign Governments. Separate procedures for avoiding conflicts of interest will be employed in these agreements, as appropriate.

§2009.570-2 Definitions.

Affiliates means business concerns which are affiliates of each other when either directly or indirectly one concern or individual controls or has the power to control another, or when a third party controls or has the power to control both.

Contract means any contractual agreement or other arrangement with the NRC except as provided in §2009.570-1(c).

Contractor means any person, firm, unincorporated association, joint venture, co-sponsor, partnership, corporation, affiliates thereof, or their successors in interest, including their chief executives, directors, key personnel (identified in the contract), proposed consultants or subcontractors, which are a party to a contract with the NRC.

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Evaluation activities means any effort involving the appraisal of a technology, process, product, or policy.

Offeror or prospective contractor means any person, firm, unincorporated association, joint venture, co-sponsor, partnership, corporation, or their affiliates or successors in interest, including their chief executives, directors, key personnel, proposed consultants, or subcontractors, submitting a bid or proposal, solicited or unsolicited, to the NRC to obtain a contract.

Organizational conflicts of interest means that a relationship exists whereby a contractor or prospective contractor has present or planned interests related to the work to be performed under an NRC contract which:

(1) May diminish its capacity to give impartial, technically sound, objective assistance and advice, or may otherwise result in a biased work product; or

(2) May result in its being given an unfair competitive advantage.

Potential conflict of interest means that a factual situation exists that suggests that an actual conflict of interest may arise from award of a proposed contract. The term potential conflict of interest is used to signify those situations that

(1) Merit investigation before contract award to ascertain whether award would give rise to an actual conflict; or

(2) Must be reported to the contracting officer for investigation if they arise during contract performance.

Research means any scientific or technical work involving theoretical analysis, exploration, or experimentation.

Subcontractor means any subcontractor of any tier who performs work under a contract with the NRC except subcontracts for supplies and subcontracts in amounts not exceeding \$10,000.

Technical consulting and management support services means internal assistance to a component of the NRC in the formulation or administration of its programs, projects, or policies which normally require that the contractor be given access to proprietary information or to information that has not been made available to the public. These services typically include assistance in the preparation of program plans, preliminary designs, specifications, or statements of work.

§2009.570-3 Criteria for recognizing contractor organizational conflicts of interest.

(a) General.

(1) Two questions will be asked in determining whether actual or potential organizational conflicts of interest exist:

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(i) Are there conflicting roles which might bias an offeror's or contractor's judgment in relation to its work for the NRC?

(ii) May the offeror or contractor be given an unfair competitive advantage based on the performance of the contract?

(2) NRC's ultimate determination that organizational conflicts of interest exist will be made in light of common sense and good business judgment based upon the relevant facts. While it is difficult to identify and to prescribe in advance a specific method for avoiding all of the various situations or relationships that might involve potential organizational conflicts of interest, NRC personnel will pay particular attention to proposed contractual requirements that call for the rendering of advice, consultation or evaluation activities, or similar activities that directly lay the groundwork for the NRC's decisions on regulatory activities, future procurements, and research programs. Any work performed at an applicant or licensee site will also be closely scrutinized by the NRC staff.

(b) Situations or relationships. The following situations or relationships may give rise to organizational conflicts of interest:

(1) The offeror or contractor shall disclose information that may give rise to organizational conflicts of interest under the following circumstances. The information may include the scope of work or specification for the requirement being performed, the period of performance, and the name and telephone number for a point of contact at the organization knowledgeable about the commercial contract.

(i) Where the offeror or contractor provides advice and recommendations to the NRC in the same technical area where it is also providing consulting assistance to any organization regulated by the NRC.

(ii) Where the offeror or contractor provides advice to the NRC on the same or similar matter on which it is also providing assistance to any organization regulated by the NRC.

(iii) Where the offeror or contractor evaluates its own products or services, or has been substantially involved in the development or marketing of the products or services of another entity.

(iv) Where the award of a contract would result in placing the offeror or contractor in a conflicting role in which its judgment may be biased in relation to its work for the NRC, or would result in an unfair competitive advantage for the offeror or contractor.

(v) Where the offeror or contractor solicits or performs work at an applicant or licensee site while performing work in the same technical area for the NRC at the same site.

(2) The contracting officer may request specific information from an offeror or contractor or may require special contract clauses such as provided in §2009.570-5(b) in the following circumstances:

(i) Where the offeror or contractor prepares specifications that are to be used in competitive procurements of products or services covered by the specifications.

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(ii) Where the offeror or contractor prepares plans for specific approaches or methodologies that are to be incorporated into competitive procurements using the approaches or methodologies.

(iii) Where the offeror or contractor is granted access to information not available to the public concerning NRC plans, policies, or programs that could form the basis for a later procurement action.

(iv) Where the offeror or contractor is granted access to proprietary information of its competitors.

(v) Where the award of a contract might result in placing the offeror or contractor in a conflicting role in which its judgment may be biased in relation to its work for the NRC or might result in an unfair competitive advantage for the offeror or contractor.

(c) Policy application guidance. The following examples are illustrative only and are not intended to identify and resolve all contractor organizational conflict of interest situations.

(1)(i) Example. The ABC Corp., in response to a Request For Proposal (RFP), proposes to undertake certain analyses of a reactor component as called for in the RFP. The ABC Corp. is one of several companies considered to be technically well qualified. In response to the inquiry in the RFP, the ABC Corp. advises that it is currently performing similar analyses for the reactor manufacturer.

(ii) Guidance. An NRC contract for that particular work normally would not be awarded to the ABC Corp. because the company would be placed in a position in which its judgment could be biased in relationship to its work for the NRC. Because there are other well-qualified companies available, there would be no reason for considering a waiver of the policy.

(2)(i) Example. The ABC Corp., in response to an RFP, proposes to perform certain analyses of a reactor component that is unique to one type of advanced reactor. As is the case with other technically qualified companies responding to the RFP, the ABC Corp. is performing various projects for several different utility clients. None of the ABC Corp. projects have any relationship to the work called for in the RFP. Based on the NRC evaluation, the ABC Corp. is considered to be the best qualified company to perform the work outlined in the RFP.

(ii) Guidance. An NRC contract normally could be awarded to the ABC Corp. because no conflict of interest exists which could motivate bias with respect to the work. An appropriate clause would be included in the contract to preclude the ABC Corp. from subsequently contracting for work with the private sector that could create a conflict during the performance of the NRC contract. For example, ABC Corp. would be precluded from the performance of similar work for the company developing the advanced reactor mentioned in the example.

(3)(i) Example. The ABC Corp., in response to a competitive RFP, submits a proposal to assist the NRC in revising NRC's guidance documents on the respiratory protection requirements of 10 CFR Part 20. ABC Corp. is the only firm determined to be technically acceptable. ABC Corp. has performed substantial work for regulated utilities in the past and is expected to continue similar efforts in the future. The work has and will cover the writing, implementation, and administration of compliance respiratory protection programs for nuclear power plants.

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(ii) Guidance. This situation would place the firm in a role where its judgment could be biased in relationship to its work for the NRC. Because the nature of the required work is vitally important in terms of the NRC's responsibilities and no reasonable alternative exists, a waiver of the policy, in accordance with §2009.570-9 may be warranted. Any waiver must be fully documented in accordance with the waiver provisions of this policy with particular attention to the establishment of protective mechanisms to guard against bias.

(4)(i) Example. The ABC Corp. submits a proposal for a new system to evaluate a specific reactor component's performance for the purpose of developing standards that are important to the NRC program. The ABC Corp. has advised the NRC that it intends to sell the new system to industry once its practicability has been demonstrated. Other companies in this business are using older systems for evaluation of the specific reactor component.

(ii) Guidance. A contract could be awarded to the ABC Corp. if the contract stipulates that no information produced under the contract will be used in the contractor's private activities unless this information has been reported to the NRC. Data on how the reactor component performs, which is reported to the NRC by contractors, will normally be disseminated by the NRC to others to preclude an unfair competitive advantage. When the NRC furnishes information about the reactor component to the contractor for the performance of contracted work, the information may not be used in the contractor's private activities unless the information is generally available to others. Further, the contract will stipulate that the contractor will inform the NRC contracting officer of all situations in which the information, developed about the performance of the reactor component under the contract, is proposed to be used.

(5)(i) Example. The ABC Corp., in response to a RFP, proposes to assemble a map showing certain seismological features of the Appalachian fold belt. In accordance with the representation in the RFP and §2009.570-3(b)(1)(i), ABC Corp. informs the NRC that it is presently doing seismological studies for several utilities in the eastern United States, but none of the sites are within the geographic area contemplated by the NRC study.

(ii) Guidance. The contracting officer would normally conclude that award of a contract would not place ABC Corp. in a conflicting role where its judgment might be biased. Section 2052.209-72(c) Work for Others, would preclude ABC Corp. from accepting work which could create a conflict of interest during the term of the NRC contract.

(6)(i) Example. AD Division of ABC Corp., in response to a RFP, submits a proposal to assist the NRC in the safety and environmental review of applications for licenses for the construction, operation, and decommissioning of fuel cycle facilities. ABC Corp. is divided into two separate and distinct divisions, AD and BC. The BC Division performs the same or similar services for industry. The BC Division is currently providing the same or similar services required under the NRC's contract for an applicant or licensee.

(ii) Guidance. An NRC contract for that particular work would not be awarded to the ABC Corp. The AD Division could be placed in a position to pass judgment on work performed by the BC Division, which could bias its work for NRC. Further, the Conflict of Interest provisions apply to ABC Corp. and not to separate or distinct divisions within the company. If no reasonable alternative exists, a waiver of the policy could be sought in accordance with §2009.570-9.

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(7)(i) Example. The ABC Corp. completes an analysis for NRC of steam generator tube leaks at one of a utility's six sites. Three months later, ABC Corp. is asked by this utility to perform the same analysis at another of its sites.

(ii) Guidance. Section 2052.290-72(c)(3) would prohibit the contractor from beginning this work for the utility until one year after completion of the NRC work at the first site.

(8)(i) Example. ABC Corp. is assisting NRC in a major on-site analysis of a utility's redesign of the common areas between its twin reactors. The contract is for two years with an estimated value of \$5 million. Near the completion of the NRC work, ABC Corp. requests authority to solicit for a \$100K contract with the same utility to transport spent fuel to a disposal site. ABC Corp. is performing no other work for the utility.

(ii) Guidance. The Contracting Officer would allow the contractor to proceed with the solicitation because it is not in the same technical area as the NRC work; and the potential for technical bias by the contractor because of financial ties to the utility is slight due to the relative value of the two contracts.

(9)(i) Example. The ABC Corp. is constructing a turbine building and installing new turbines at a reactor site. The contract with the utility is for five years and has a total value of \$100 million. ABC Corp. has responded to an NRC Request For Proposal requiring the contractor to participate in a major team inspection unrelated to the turbine work at the same site. The estimated value of the contract is \$75K.

(ii) Guidance. An NRC contract would not normally be awarded to ABC Corp. because these factors create the potential for financial loyalty to the utility that may bias the technical judgment of the contractor.

(d) Other considerations.

(1) The fact that the NRC can identify and later avoid, eliminate, or neutralize any potential organizational conflicts arising from the performance of a contract is not relevant to a determination of the existence of conflicts prior to the award of a contract.

(2) It is not relevant that the contractor has the professional reputation of being able to resist temptations which arise from organizational conflicts of interest, or that a follow-on procurement is not involved, or that a contract is awarded on a competitive or a sole source basis.

§2009.570-4 Representation.

(a) The following procedures are designed to assist the NRC contracting officer in determining whether situations or relationships exist which may constitute organizational conflicts of interest with respect to a particular offeror or contractor. The procedures apply to small purchases meeting the criteria stated in the following paragraph (b) of this section.

(b) The organizational conflicts of interest representation provision at §2052.209-71 must be included in solicitations and contracts resulting from unsolicited proposals. The contracting officer must also include this provision for task orders and contract modifications for new work for:

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(1) Evaluation services or activities;

(2) Technical consulting and management support services;

(3) Research; and

(4) Other contractual situations where special organizational conflicts of interest provisions are noted in the solicitation and would be included in the resulting contract. This representation requirement also applies to all modifications for additional effort under the contract except those issued under the "Changes" clause. Where, however, a statement of the type required by the organizational conflicts of interest representation provisions has previously been submitted with regard to the contract being modified, only an updating of the statement is required.

(c) The offeror may, because of actual or potential organizational conflicts of interest, propose to exclude specific kinds of work contained in a RFP unless the RFP specifically prohibits the exclusion. Any such proposed exclusion by an offeror will be considered by the NRC in the evaluation of proposals. If the NRC considers the proposed excluded work to be an essential or integral part of the required work and its exclusion would be to the detriment of the competitive posture of the other offerors, the NRC shall reject the proposal as unacceptable.

(d) The offeror's failure to execute the representation required by paragraph (b) of this section with respect to an invitation for bids is considered to be a minor informality. The offeror will be permitted to correct the omission.

§2009.570-5 Contract clauses.

(a) General contract clause. All contracts and simplified acquisitions of the types set forth in §2009.570-4(b) must include the clause entitled, "Contractor Organizational Conflicts of Interest," set forth in §2052.209-72.

(b) Other special contract clauses. If it is determined from the nature of the proposed contract that an organizational conflict of interest exists, the contracting officer may determine that the conflict can be avoided, or, after obtaining a waiver in accordance with §2009.570-9, neutralized through the use of an appropriate special contract clause. If appropriate, the offeror may negotiate the terms and conditions of these clauses, including the extent and time period of any restriction. These clauses include but are not limited to:

(1) Hardware exclusion clauses which prohibit the acceptance of production contracts following a related non-production contract previously performed by the contractor;

(2) Software exclusion clauses;

(3) Clauses which require the contractor (and certain of its key personnel) to avoid certain organizational conflicts of interest; and

(4) Clauses which provide for protection of confidential data and guard against its unauthorized use.

§2009.570-6 Evaluation, findings, and contract award.

The contracting officer shall evaluate all relevant facts submitted by an offeror and other relevant information. After evaluating this information against the criteria of §2009.570-3, the contracting officer shall make a finding of whether organizational conflicts of interest exist with respect to a particular offeror. If it has been determined that real or potential conflicts of interest exist, the contracting officer shall:

- (a) Disqualify the offeror from award;
- (b) Avoid or eliminate such conflicts by appropriate measures; or
- (c) Award the contract under the waiver provision of §2009.570-9.

§2009.570-7 Conflicts identified after award.

If potential organizational conflicts of interest are identified after award with respect to a particular contractor and the contracting officer determines that conflicts do exist and that it would not be in the best interest of the Government to terminate the contract, as provided in the clauses required by §2009.570-5, the contracting officer shall take every reasonable action to avoid, eliminate, or, after obtaining a waiver in accordance with §2009.570-9, neutralize the effects of the identified conflict.

§2009.570-8 Subcontracts.

The contracting officer shall require offerors and contractors to submit a representation statement from all subcontractors (other than a supply subcontractor) and consultants performing services in excess of \$10,000 in accordance with §2009.570-4(b). The contracting officer shall require the contractor to include contract clauses in accordance with §2009.570-5 in consultant agreements or subcontracts involving performance of work under a prime contract.

§2009.570-9 Waiver.

(a) The contracting officer determines the need to seek a waiver for specific contract awards with the advice and concurrence of the program office director and legal counsel. Upon the recommendation of the Senior Procurement Executive, and after consultation with legal counsel, the Executive Director for Operations may waive the policy in specific cases if he determines that it is in the best interest of the United States to do so.

(b) Waiver action is strictly limited to those situations in which:

- (1) The work to be performed under contract is vital to the NRC program;
- (2) The work cannot be satisfactorily performed except by a contractor whose interests give rise to a question of conflict of interest.
- (3) Contractual and/or technical review and surveillance methods can be employed by the NRC to neutralize the conflict.

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(c) The justification and approval documents for any waivers must be placed in the NRC Public Document Room.

§2009.570-10 Remedies.

In addition to other remedies permitted by law or contract for a breach of the restrictions in this subpart or for any intentional misrepresentation or intentional nondisclosure of any relevant interest required to be provided for this section, the NRC may debar the contractor from subsequent NRC contracts.

BILLING INSTRUCTIONS FOR COST REIMBURSEMENT TYPE CONTRACTS (JULY 2011)

General: During performance and through final payment of this contract, the contractor is responsible for the accuracy and completeness of data within the Central Contractor Registration (CCR) database and for any liability resulting from the Government's reliance on inaccurate or incomplete CCR data.

The contractor shall prepare invoices/vouchers for reimbursement of costs in the manner and format described herein. FAILURE TO SUBMIT INVOICES/VOUCHERS IN ACCORDANCE WITH THESE INSTRUCTIONS MAY RESULT IN REJECTION OF THE INVOICE/VOUCHER AS IMPROPER.

Standard Forms: Reimbursement requests shall be submitted on the payee's letterhead, invoice/voucher, or on the Government's Standard Form 1034, "Public Voucher for Purchases and Services Other than Personal," and Standard Form 1035, "Public Voucher for Purchases Other than Personal--Continuation Sheet."

Electronic Invoice/Voucher Submissions: The preferred method of submitting invoices/vouchers is electronically to the U.S. Department of the Interior's National Business Center, via email to: NRCPayments_NBCDenver@NBC.gov.

Hard-Copy Invoice/Voucher Submissions: If you submit a hard-copy of the invoice/voucher, a signed original and supporting documentation shall be submitted to the following address:

Department of the Interior
National Business Center
Attn: Fiscal Services Branch - D2770
7301 West Mansfield Avenue
Denver, CO 80235-2230

Purchase of Capital Property: *(\$50,000 or more with life of one year or longer)*

Contractors must report to the Contracting Officer, electronically, any capital property acquired with contract funds having an initial cost of \$50,000 or more, in accordance with procedures set forth in NRC Management Directive (MD) 13.1, IV, C – "Reporting Requirements" (revised 2/16/2011).

Agency Payment Office: Payment will continue to be made by the office designated in the contract in Block 12 of the Standard Form 26, or Block 25 of the Standard Form 33, whichever is applicable.

Frequency: The contractor shall submit requests for reimbursement once each month, unless otherwise authorized by the Contracting Officer.

Format: Invoices/Vouchers shall be submitted in the format depicted on the attached sample form entitled "Invoice/Voucher for Purchases and Services Other Than Personal". Alternate formats are permissible only if they address all requirements of the Billing Instructions. The instructions for preparation and itemization of the invoice/voucher are included with the sample form.

Task Order Contracts: The contractor must submit a separate invoice/voucher for each individual task order with detailed cost information. This includes all applicable cost elements and other items discussed in paragraphs (a) through (s) of the attached instructions. In addition, the invoice/voucher must specify the contract number, and the NRC-assigned task/delivery order number.

Billing of Costs after Expiration of Contract: If costs are incurred during the contract period and invoiced after the contract has expired, you must cite the period during which these costs were incurred. To be considered a proper expiration invoice/voucher, the contractor shall clearly mark it "EXPIRATION INVOICE" or "EXPIRATION VOUCHER".

Final invoices/vouchers shall be marked "FINAL INVOICE" or "FINAL VOUCHER".

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BILLING INSTRUCTIONS FOR COST REIMBURSEMENT TYPE CONTRACTS (JULY 2011)

Currency: Invoices/Vouchers must be expressed in U.S. Dollars.

Supersession: These instructions supersede previous Billing Instructions for Cost Reimbursement Type Contracts (June 2008).

**INVOICE/VOUCHER FOR PURCHASES AND SERVICES OTHER THAN PERSONAL
(SAMPLE FORMAT - COVER SHEET)**

1. Official Agency Billing Office

Department of the Interior
National Business Center
Attn: Fiscal Services Branch - D2770
7301 West Mansfield Avenue
Denver, CO 80235-2230

2. Invoice/Voucher Information

- a. Payee's DUNS Number or DUNS+4. The Payee shall include the Payee's Data Universal Number (DUNS) or DUNS+4 number that identifies the Payee's name and address. The DUNS+4 number is the DUNS number plus a 4-character suffix that may be assigned at the discretion of the Payee to identify alternative Electronic Funds Transfer (EFT) accounts for the same parent concern.
- b. Payee's Name and Address. Show the name of the Payee as it appears in the contract and its correct address. If the Payee assigns the proceeds of this contract as provided for in the assignment of claims terms of this contract, the Payee shall require as a condition of any such assignment, that the assignee shall register separately in the Central Contractor Registration (CCR) database at <http://www.ccr.gov> and shall be paid by EFT in accordance with the terms of this contract. See Federal Acquisition Regulation 52.232-33(g) Payment by Electronic Funds Transfer - Central Contractor Registration (October 2003).
- c. Contract Number. Insert the NRC contract number (including Enterprise-wide Contract (EWC)), GSA Federal Supply Schedule (FSS), Governmentwide Agency Contract (GWAC) number, or Multiple Agency Contract (MAC) number, as applicable.
- d. Task Order Number. Insert the task/delivery order number (If Applicable). **Do not include more than one task order per invoice or the invoice may be rejected as improper.**
- e. Invoice/Voucher. The appropriate sequential number of the invoice/voucher, beginning with 001 should be designated. Contractors may also include an individual internal accounting number, if desired, in addition to the 3-digit sequential number.
- f. Date of Invoice/Voucher. Insert the date the invoice/voucher is prepared.
- g. Billing Period. Insert the beginning and ending dates (day, month, year) of the period during which costs were incurred and for which reimbursement is requested.
- h. Description of Deliverables. Provide a brief description of supplies or services, quantity, unit cost, and total cost.

BILLING INSTRUCTIONS FOR COST REIMBURSEMENT TYPE CONTRACTS (JULY 2011)

- i. Work Completed. Provide a general summary description of the services performed or products submitted for the invoice period and specify the section or Contract Line Item Number (CLIN) or SubCLIN in the contract pertaining to the required deliverable(s).
- j. Shipping. Insert weight and zone of shipment, if shipped by parcel post.
- k. Charges for freight or express shipments. Attach prepaid bill if shipped by freight or express.
- l. Instructions. Include instructions to consignee to notify the Contracting Officer of receipt of shipment.
- m. For Indefinite Delivery contracts, the final invoice/voucher shall be marked "FINAL INVOICE" or "FINAL VOUCHER".
- n. Direct Costs. Insert the amount billed for the following cost elements, adjustments, suspensions, and total amounts, for both the current billing period and for the cumulative period (from contract inception to end date of this billing period).

- (1) Direct Labor. This consists of salaries and wages paid (or accrued) for direct performance of the contract itemized as follows:

<u>Labor</u> <u>Category</u>	<u>Hours</u> <u>Billed</u>	<u>Rate</u>	<u>Cumulative</u> <u>Total</u>	<u>Hours Billed</u>
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- (2) Fringe Benefits. This represents fringe benefits applicable to direct labor and billed as a direct cost. Where a rate is used indicate the rate. Fringe benefits included in direct labor or in other indirect cost pools should not be identified here.
- (3) Contractor-acquired property (\$50,000 or more). List each item costing \$50,000 or more and having a life expectancy of more than one year. List only those items of equipment for which reimbursement is requested. For each such item, list the following (as applicable): (a) an item description, (b) manufacturer, (c) model number, (d) serial number, (e) acquisition cost, (f) date of purchase, and (g) a copy of the purchasing document.
- (4) Contractor-acquired property (under \$50,000), Materials, and Supplies. These are equipment other than that described in (3) above, plus consumable materials and supplies. List by category. List items valued at \$1,000 or more separately. Provide the item number for each piece of equipment valued at \$1,000 or more.
- (5) Premium Pay. This enumeration in excess of the basic hourly rate. (Requires written approval of the Contracting Officer.)
- (6) Consultant Fee. The supporting information must include the name, hourly or daily rate of the consultant, and reference the NRC approval (if not specifically approved in the original contract).
- (7) Travel. Total costs associated with each trip must be shown in the following format:

<u>Start Date</u>	<u>Destination</u>	<u>Costs</u>
<u>From</u> <u>To</u>	<u>From</u> <u>To</u>	<u>\$</u>

BILLING INSTRUCTIONS FOR COST REIMBURSEMENT TYPE CONTRACTS (JULY 2011)

(Must include separate detailed costs for airfare, per diem, and other transportation expenses. All costs must be adequately supported by copies of receipts or other documentation.)

(8) Subcontracts. Include separate detailed breakdown of all costs paid to approved subcontractors during the billing period.

(9) Other Costs. List all other direct costs by cost element and dollar amount separately.

o. Indirect Costs (Overhead and General and Administrative Expense). Cite the formula (rate and base) in effect in accordance with the terms of the contract, during the time the costs were incurred and for which reimbursement is requested.

p. Fixed-Fee. If the contract provides for a fixed-fee, it must be reimbursed as indicated in the contract. Cite the formula or method of computation. Include this information as it applies to individual task orders as well.

(1) The NRC will withhold payment of 15% of the negotiated contract fixed-fee amount, not to exceed \$100,000.

(2) If the fee withholding amount has reached \$100,000, the contractor may resume billing the NRC for the balance of its fee under subsequent invoices for work completed.

(3) Any fee amounts withheld by the NRC will be paid to the contractor during contract closeout in increments, following the submission/settlement of indirect rate proposals in accordance with FAR 52.216-8 (JUN 2011).

q. Total Amount Billed. Insert columns for total amounts for the current and cumulative periods.

r. Adjustments. Insert columns for any adjustments, including outstanding suspensions for deficient or defective products or nonconforming services, for the current and cumulative periods.

s. Grand Totals.

BILLING INSTRUCTIONS FOR COST REIMBURSEMENT TYPE CONTRACTS (JULY 2011)

3. Sample Invoice/Voucher InformationSample Invoice/Voucher Information (Supporting Documentation must be attached)

This invoice/voucher represents reimbursable costs for the billing period from _____ through _____.

		<u>Amount Billed</u>	
		<u>Current Period</u>	<u>Cumulative</u>
(a)	<u>Direct Costs</u>		
(1)	Direct labor	\$ _____	\$ _____
(2)	Fringe benefits (% of direct labor)	\$ _____	\$ _____
(3)	Government property (\$50,000 or more)	\$ _____	\$ _____
(4)	Government property, Materials, and Supplies (under \$50,000 per item)	\$ _____	\$ _____
(5)	Premium pay (NRC approved overtime)	\$ _____	\$ _____
(6)	Consultants Fee	\$ _____	\$ _____
(7)	Travel	\$ _____	\$ _____
(8)	Subcontracts	\$ _____	\$ _____
(9)	Other costs	\$ _____	\$ _____
Total Direct Costs:		\$ _____	\$ _____
(b)	<u>Indirect Costs</u> <i>(provide the rate information applicable to your firm)</i>		
(10)	Overhead _____ % of _____ (Indicate Base)	\$ _____	\$ _____
(11)	General and Administrative (G&A) _____ % of _____ (Indicate Base)	\$ _____	\$ _____
Total Indirect Costs:		\$ _____	\$ _____
(c)	<u>Fixed-Fee:</u>		
(12)	Fixed-Fee Calculations:		
i.	Total negotiated contract fixed-fee percent _____ and amount \$ _____		
ii.	85% allowable fee amount \$ _____		
iii.	Cumulative fee billed on prior invoices \$ _____		
iv.	Fee due this invoice <i>(not to exceed 85% of fee earned based upon negotiated contract fee percentage)</i> \$ _____		
 <i>Note: The fee balance withheld by NRC may <u>not</u> exceed \$100,000.</i>			
Total Fixed-Fee:		\$ _____	\$ _____
(d)	Total Amount Billed	\$ _____	\$ _____
(e)	Adjustments (+/-)	\$ _____	\$ _____

BILLING INSTRUCTIONS FOR COST REIMBURSEMENT TYPE CONTRACTS (JULY 2011)

(f) **Grand Total** \$ _____ \$ _____

(The invoice/voucher format provided above must include information similar to that included below in the following to ensure accuracy and completeness.)

SAMPLE SUPPORTING INFORMATION

The budget information provided below is for format purposes only and is illustrative.

Cost Elements:1) Direct Labor - \$2,400

<u>Labor Category</u>	<u>Hours Billed</u>	<u>Rate</u>	<u>Total</u>	<u>Cumulative Hours Billed</u>
Senior Engineer I	100	\$14.00	\$1,400	975
Engineer	50	\$10.00	\$ 500	465
Computer Analyst	100	\$ 5.00	\$ 500	320
			\$2,400	1,760 hrs.

2) Fringe Benefits - \$480Fringe @ 20% of Direct Salaries

<u>Labor Category</u>	<u>Salaries</u>	<u>Fringe Amount</u>
Senior Engineer I	\$1,400	\$280
Engineer	\$ 500	\$100
Computer Analyst	\$ 500	\$100
	\$2,400	\$480

3) Government-furnished and contractor-acquired property (\$50,000 or more) - \$60,000

Prototype Spectrometer - item number 1000-01 = \$60,000

4) Government-furnished and contractor-acquired property (under \$50,000), Materials, and Supplies - \$2,000

10 Radon tubes @ \$110.00	=	\$1,100
6 Pairs Electrostatic gloves @ \$150.00	=	\$ 900
		\$2,000

5) Premium Pay - \$150

Walter Murphy - 10 hours @ \$10.00 Per Hour (Reg. Pay) = \$100 x 1.5 OT rate = \$150

(EX: Premium pay for this individual was approved and authorized under this contract by the NRC Contracting Officer by letter dated 6/1/2011.)

BILLING INSTRUCTIONS FOR COST REIMBURSEMENT TYPE CONTRACTS (JULY 2011)

6) Consultants' Fee - \$100

Dr. Carney - 1 hour fully-burdened @ \$100 = \$100

7) Travel - \$2,640

(i) Airfare: (2 Roundtrip trips for 1 person @ \$300 per r/t ticket)

<u>Start Date</u>	<u>End Date</u>	<u>Days</u>	<u>From</u>	<u>To</u>	<u>Cost</u>
4/1/2011	4/7/2011	7	Philadelphia, PA	Wash, D.C.	\$300
7/1/2011	7/8/2011	8	Philadelphia, PA	Wash, D.C.	\$300

(ii) Per Diem: \$136/day x 15 days = \$2,040

8) Subcontracting - \$30,000

Company A	= \$10,000
Company B	= <u>\$20,000</u>
	\$30,000

(EX: Subcontracts for Companies A & B were consented to by the Contracting Officer by letter dated 6/15/2011.)

9) Other Costs - \$5,100

Honorarium for speaker at American Nuclear Society conference = \$5,000
Nuclear Planet Journal subscription fee = \$100

10) Overhead Expense - \$41,148

Overhead @ 40% of Total Direct Costs

11) General and Administrative (G&A) Expense - \$22,784

G&A @ 20% of Total Costs, excluding subcontracts and consultants

12) Fixed-Fee - \$8,218

Fixed-Fee applied to Total Costs @ 5%

Fixed-Fee Calculations:

- i. Total contract fixed-fee \$100,000
- ii. 85% allowable fee \$85,000
- iii. Cumulative fee billed on prior invoices \$85,000
- iv. Fee due this invoice (*not to exceed 85% of fee earned based upon negotiated contract fee percentage*) \$6,985
 (85% of \$8,218 = \$6,985)

Total Amount Billed	\$175,020
Adjustments (+/-)	<u>0</u>
Grand Total	\$175,020

NRC SMALL BUSINESS SUBCONTRACTING PLAN

PART A1 GENERAL INFORMATION

NRC CONTRACTS OFFICE		NRC PROGRAM OFFICE	DATE OF PLAN
			01/30/2013
CONTRACTOR NAME Purdue University	DUN & BRADSTREET NUMBER 07-205-1394	SOLICITATION/CONTRACT NUMBER NRC-HQ-12-R-04-0129	
CONTRACTOR ADDRESS 1063 Hovde Hall West Lafayette, IN 47907-1063	PRODUCT/SERVICE (Description) RFP: NRC-HQ-12-R-04-0129 Thermal Hydraulic Experimental & Model Development		

PART A2 NEW/INITIAL CONTRACT

PERIOD OF CONTRACT PERFORMANCE (mm/dd/yyyy)	COST	PERFORMANCE PERIOD
02/15/2013 - 02/14/2018		
BASE YEAR	\$ 196,521	12
OPTION 1	\$ 233,850	12
OPTION 2	\$ 629,095	12
OPTION 3	\$ 624,620	12
OPTION 4	\$ 504,691	12
TOTAL CONTRACT COST	\$ 2,188,777	60

PART A3 CONTRACT MODIFICATION Including task/delivery orders against existing contracts (if applicable)

PERIOD OF CONTRACT PERFORMANCE (mm/dd/yyyy)		PERFORMANCE PERIOD
ORIGINAL BASE	\$	
MODIFICATION	\$	
MODIFIED TOTAL	\$	
TASK/DELIVERY ORDER	\$	
CONTRACT COST	\$	

The following outline meets the minimum requirements of section 8(d) of the Small Business Act, as amended, and implemented by Federal Acquisition Regulations (FAR) Subpart 19.7. While this outline has been designed to be consistent with statutory and regulatory requirements, other formats of a subcontracting plan may be acceptable. **It is not intended to replace any existing corporate/commercial plan that is more extensive or has been approved by another Federal Agency.**

Failure to include the essential information of FAR Subpart 19.7 may be cause for either a delay in acceptance or the rejection of a bid or offer when a subcontracting plan is required. "SUBCONTRACT," as used in this clause, means any agreement (other than one involving an employer employee relationship) entered into by a Federal Government prime contractor or subcontractor requesting supplies or services required for performance of the contract or subcontract.

If assistance is needed to locate small business sources, sources may be obtained through the Central Contractor Registration (<http://www.ccr.gov/>) website.

PART B PLAN REQUIREMENTS

1. Type of Plan (check one)

- ☒ **Individual Plan:** All elements developed specifically for this contract or task order and are applicable for the performance period of this contract, including any option periods for the contract or by task order.
- ☐ **Master Plan:** Goals are separately developed for each contract like an individual plan; all other elements are standard. Once incorporated into a contract with specific goals, it is valid for the performance period of the contract. The master plan must be approved once every three years.
- ☐ **Commercial Products/Service Plan:** Goals are negotiated with the lead agency on a company-wide basis rather than for individual contracts. This plan covers the offeror's fiscal year and applies to the entire production of commercial items or delivery of services sold by either the entire company or a portion thereof. The Summary Subcontracting Report (SSR) shall include a breakout of subcontracting, prorated for the NRC and other Federal agencies.

NRC SMALL BUSINESS SUBCONTRACTING PLAN

PART B. PLAN REQUIREMENTS (continued)

2. Subcontracting Goal Data

Indicate below the dollar and percentage goals for Small Business (SB), owned by the: Disadvantaged (SDB), Women Owned (WOSB), Historically Underutilized Business Zone (HUBZone), Veterans (VOSB) Service, Disabled Veteran (SDVOSB) and for "Other than small business" (Other) as subcontractors. Indicate the base year and each option year, as specified in FAR 19.704 or project annual subcontracting dollars and goals under commercial plans.

(Note: B plus H = A or the total subcontracting dollar amount and percent

- A. Total estimated dollar value of ALL planned subcontracting, i.e., with ALL sizes and types of concerns under this contract is

\$ 46,500 (Base Year).

FY Yr_2	1st Option	FY Yr_4	3rd Option
\$ 46,500		\$ 299,900	
FY Yr_3	2nd Option	FY Yr_5	4th Option
\$ 299,000		\$ 168,666	

- B. Total estimated dollar value and percent of planned subcontracting with SB (including SDB, WOSB, HUBZone, VOSB and SDVOSB: (% OF "a"))

\$ 5,880

and 12.65 % (Base Year).

FY Yr_2	1st Option	FY Yr_4	3rd Option
\$ 5,880		\$ 3,320	
FY Yr_3	2nd Option	FY Yr_5	4th Option
\$ 3,320		\$ 4,166	

- C. Total estimated dollar value and percent of planned subcontracting with SDB: (% of "a")

\$ 2,300

and 4.95 % (Base Year).

FY Yr_2	1st Option	FY Yr_4	3rd Option
\$ 2,300		\$ 1,150	
FY Yr_3	2nd Option	FY Yr_5	4th Option
\$ 1,150		\$ 1,508	

- D. Total estimated dollar value and percent of planned subcontracting with WOSB: (% of "a")

\$ 670

and 1.44 % (Base Year).

FY Yr_2	1st Option	FY Yr_4	3rd Option
\$ 670		\$ 530	
FY Yr_3	2nd Option	FY Yr_5	4th Option
\$ 530		\$ 600	

- E. Total estimated dollar value and percent of planned subcontracting with HUBZone SB: (% of "a")

\$ 0

and 0 % (Base Year).

FY Yr_2	1st Option	FY Yr_4	3rd Option
\$ 0		\$ 0	
FY Yr_3	2nd Option	FY Yr_5	4th Option
\$ 0		\$ 0	

- F. Total estimated dollar value and percent of planned subcontracting with VOSB: (% of "a")

\$ 0

and 0 % (Base Year).

FY Yr_2	1st Option	FY Yr_4	3rd Option
\$ 0		\$ 0	
FY Yr_3	2nd Option	FY Yr_5	4th Option
\$ 0		\$ 0	

- G. Total estimated dollar value and percent of planned subcontracting with SDVOSB: (% of "a")

\$ 0

and 0 % (Base Year).

FY Yr_2	1st Option	FY Yr_4	3rd Option
\$ 0		\$ 0	
FY Yr_3	2nd Option	FY Yr_5	4th Option
\$ 0		\$ 0	

- H. Total estimated dollar value and percent of planned subcontracting with "OTHER" THAN SB: (% of "a")

\$ 40,620

and 87.35 % (Base Year).

FY Yr_2	1st Option	FY Yr_4	3rd Option
\$ 40,620		\$ 295,680	
FY Yr_3	2nd Option	FY Yr_5	4th Option
\$ 295,680		\$ 164,500	

NRC SMALL BUSINESS SUBCONTRACTING PLAN**PART B. PLAN REQUIREMENTS (continued)****Notes:**

1. SDB, WOSB, HUBZone, VOSB, and SDVOSB goals are subsets of SB and should be counted and reported in multiple categories.
2. If any contract has more than four options, please attach additional information presenting dollar amounts and percentages.

Provide a description of ALL the products and/or services to be subcontracted under this contract, and indicate the size and type of business supplying them (check all that apply): (Attach additional sheets if necessary)

3. Subcontract Opportunities

Products and/or Services	Other	SB	SDB	WOSB	HUBZone	VOSB	SDVOSB
1. Equipment	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Supplies	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Equipment	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Supplies	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Equipment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Supplies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Subcontracts (Universities)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Travel (Domestic)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Communications	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Consultant	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4. Methodology

Provide a description of the method used to develop the subcontracting goals for SB, SDB, WOSB, HUBZone, VOSB, and SDVOSB concerns. Address efforts made to ensure that maximum practicable subcontracting opportunities have been made available for those concerns and explain the method used to identify potential sources for solicitation purposes. Explain the method and state the quantitative basis (in dollars) used to establish the percentage goals. Also, explain how the areas to be subcontracted to SB, WOSB, HUBZone, VOSB and SDVOSB concerns were determined, how the capabilities of these concerns were considered for contract opportunities and how such data comports with the cost proposal. Identify any source lists or other resources used in the determination process. (Attach additional sheets, if necessary.)

Estimates are initially based upon Contractor's knowledge of Small Business Concerns, Veteran-Owned Small Business Concerns, Service-Disabled Veteran-Owned Small Business Concerns, HUBZone Small Business Concerns, Small Disadvantaged Business Concerns, and Women-Owned Small Business Concerns dealing in the items identified. Contractor's Purchasing then reviews overall budget to determine what specific items are available through various small business concerns within Contractor's vendor database(s). Depending on the commodity requested, Contractor confirms with those firms they are able to provide the commodities in question prior to finalizing estimates.

5. Indirect Costs

- Indirect costs have ☒ have not ☐ been included in the dollar and percentage subcontracting dollars/goals (check one).
- If indirect costs have been included, explain the method used to determine the proportionate share of such costs to be allocated as subcontracts to SB, SDB, WOSB, HUBZone, VOSB and SDVOSB concerns:

NRC SMALL BUSINESS SUBCONTRACTING PLAN

PART B. PLAN REQUIREMENTS (continued)

6. Program Administrator:

NAME/TITLE:	Michael R. Ludwig, Director: Sponsored Programs
ADDRESS (Line 1):	1063 Hovde Hall
CITY/STATE/ZIPCODE:	West Lafayette, IN 47907-1063
TELEPHONE:	(765) 494-1055
E-MAIL:	mrludwig@purdue.edu

Duties: Does the individual named above have general overall responsibility for the company's subcontracting program, i.e., developing, preparing, and executing subcontracting plans and monitoring performance relative to the requirements of those subcontracting plans and perform the following duties? (If NO is checked, please provide the contact information of who performs those duties, or indicate why the duties are not performed in your company on a separate sheet of paper and submit with the proposed subcontracting plan.)

		Yes	No
a.	Developing and promoting company wide policy initiatives that demonstrate the company's support for awarding contracts and subcontracts to SB, SDB, WOSB, HUBZone, VOSB and SDVOSB concerns; and for assuring that these concerns are included on the source lists for solicitations for products and services they are capable of providing.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b.	Developing and maintaining bidder source lists of SB, SDB, WOSB, HUBZone, VOSB and SDVOSB concerns from all possible sources	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c.	Ensuring periodic rotation of potential subcontractors on bidder's lists.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d.	Assuring that SB, SDB, WOSB, HUBZONE, VOSB and SDVOSB businesses are included on the bidders' list for every subcontract solicitation for products and services that they are capable of providing.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e.	Ensuring that requests for proposals (RFPs) are designed to permit the maximum practicable participation of SB, SDB, WOSB, HUBZone, VOSB and SDVOSB concerns.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f.	Reviewing subcontract solicitation provisions to remove statements, clauses, etc., which might tend to restrict or prohibit SB, SDB, WOSB, HUBZone, VOSB and SDVOSB small participation.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g.	Accessing various sources for the identification of SB, SDB, WOSB, HUBZone, VOSB and SDVOSB concerns to include the Central Contractor Registration (http://www.ccr.gov/), local small business and minority associations, local Chambers of Commerce and Federal agencies' Small Business programs.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
h.	Establishing and maintaining contract and subcontract award records	<input checked="" type="checkbox"/>	<input type="checkbox"/>
i.	Participating in business opportunity workshops, seminars, trade fairs, procurement conferences, etc.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
j.	Ensuring that SB, SDB, WOSB, HUBZone, VOSB and SDVOSB concerns are made aware of subcontracting opportunities and assisting concerns in preparing responsive bids to conducting or arranging for the conduct of training for purchasing personnel regarding the intent and the company	<input checked="" type="checkbox"/>	<input type="checkbox"/>
k.	Impact of Section 8(d) of the Small Business Act, as amended	<input checked="" type="checkbox"/>	<input type="checkbox"/>
l.	Monitoring the company's subcontracting program performance and making any adjustments necessary to achieve the subcontract plan goals.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
m.	Preparing and submitting timely, required subcontract reports.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
n.	Conducting or arranging training for purchasing personnel regarding the intent and impact of 8(d) of the Small Business Act on purchasing procedures.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
o.	Coordinating the company's activities during the conduct of compliance reviews by Federal agencies	<input checked="" type="checkbox"/>	<input type="checkbox"/>
p.	Other duties:		

NRC SMALL BUSINESS SUBCONTRACTING PLAN

PART B. PLAN REQUIREMENTS (continued)

7. Equitable Opportunity

Describe efforts the offeror will undertake to ensure that SB, SDB, WOSB, HUBZone, VOSB and SDVOSB concerns will have an equitable opportunity to compete for subcontracts. These efforts shall include, but are not limited to, the following activities:

a. Outreach efforts to obtain sources:

1. Contact minority and small business trade associations; 2) contact business development organizations and local Chambers of Commerce; 3) attend SB, SDB, WOSB, HUBZone, VOSB and SDVOSB procurement conferences and trade fairs; 4) review sources from the Central Contractor Registration (<http://www.ccr.gov/>); 5) review sources from the Small Business Administration (SBA); 6) consider using other market sources; and 7) utilize newspaper, magazine ads, and the internet to encourage new sources.

b. Internal efforts to guide and encourage purchasing personnel:

1. Conduct workshops, seminars and training programs.
2. Establish, maintain, and utilize SB, SDB, WOSB, HUBZone, VOSB and SDVOSB source lists, guides, and other data for soliciting subcontractors
3. Monitor activities to evaluate compliance with the subcontracting plan requirements and reporting.

Additional Efforts:

c(1). Review its solicitations to remove statements, clauses, etc. which may tend to prohibit SB, SDB, WOSB, HUBZone, VOSB and SDVOSM participation.

c(2). Assure inclusion of firms considered to be SB, SDB, WOSB, HUBZone, VOSB and SDVOSM vendors in all solicitations when appropriate.

c(3). Generate, maintain, and update vendor databases, source lists, guides, and other data sources which identify SB, SDB, WOSB, HUBZone, VOSB and SDVOSM vendors in soliciting subcontracts.

c(4). Purdue University's Office of Supplier Diversity Development (SDD), established in 2005, cultivates opportunities for qualified minority- and women-owned businesses to partner with Purdue. SDD provides centralized services for Indiana minority and women business owners, including: a) consultation on becoming a Purdue vendor; b) liaison between external business owners and Purdue Departments seeking goods & services; c) connections to University entities that can assist business owners with business development ventures; d) ongoing communications with minority and women business owners; and e) outreach to advocacy organizations.

8. Flow Down Clause

The contractor agrees to include the provisions under FAR 52.219-9, "Utilization of Small Business Concerns," in all acquisitions exceeding the simplified acquisition threshold that offers further subcontracting opportunities. All subcontractors, except small business concerns, that receive subcontracts in excess of \$650,000 (\$1,500,000 for construction) must adopt and comply with a plan similar to the plan required by FAR 52.219-9, "Small Business Subcontracting Plan."

Note: In accordance with FAR 52.212-5(e) and 52.244-6(c) the contractor is not required to include the flow-down clause FAR 52.219-9 if it is subcontracting commercial items.

NRC SMALL BUSINESS SUBCONTRACTING PLAN

PART B. PLAN REQUIREMENTS (continued)

9. a. Reporting and Cooperation

The contractor gives assurance of (1) cooperation in any studies or surveys that may be required; (2) submission of periodic reports which show compliance with the subcontracting plan; (3) submission of its Individual Subcontracting Report (ISR) and Summary Subcontract Report (SSR); and (4) ensuring that subcontractors agree to submit ISRs and SSRs. **The ISR and SSR shall be submitted via the Electronic Subcontracting Reporting System (eSRS) website: <http://www.esrs.gov>**

Reporting Period	Report Due	Due Date
Oct 1 - Mar 31	ISR	4/30
Apr 1 - Sept 30	ISR	10/30
Oct 1 - Sept 30	SSR	10/30

See FAR 19.7 for instruction concerning the submission of a Commercial Plan: SSR is due on 10/30 each year for the previous fiscal year ending 9/30.

1. Submit ISR (bi-annually) for the cognizant awarding Contracting Officer's review and acceptance via the eSRS website <http://esrs.gov>.
2. Currently, SSR (annually) must be submitted for the NRC eSRS agency coordinator review and acceptance via the eSRS website <http://esrs.gov>.

9. b. Record Keeping

FAR 19.704(a) (11) requires a list of the types of records your company will maintain to demonstrate the procedures adopted to comply with the requirements and goals in the subcontracting plan. The following is a recitation of the types of records the contractor will maintain to demonstrate the procedures adopted to comply with the requirements and goals in the subcontracting plan. These records will include, but not be limited to, the following:

- a. SB, SDB, WOSB, HUBZone, VOSB and SDVOSB source lists, guides and other data identifying such vendors.
- b. Organizations contacted in an attempt to locate SB, SDB, WOSB, HUBZone, VOSB and SDVOSB sources.
- c. On a contract by contract basis, records on all subcontract solicitations over \$150,000, which indicate for each solicitation (1) whether SB, SDB, WOSB, HUBZone, VOSB and/or SDVOSB concerns were solicited, if not, why not and the reasons solicited concerns did not receive subcontract.
- d. Records to support other outreach efforts, e.g., contacts with small business trade associations, attendance at small business procurement conferences and trade fairs, etc.
- e. Records to support internal guidance and encouragement provided to buyers through (1) workshops, seminars, training programs, incentive awards; and (2) monitoring performance to evaluate compliance with the program and requirements.
- f. On a contract by contract basis, records to support subcontract award data including the name, address, and business type, size and ownership status of each subcontractor. (This item is not required on a contract by contract basis for division company or wide commercial plans.)
- g. Other records to support your compliance with the subcontracting plan (please describe):

- h. Records to support internal activities to guide and encourage buyers to include workshops, seminars, training programs, etc. Monitoring activities to evaluate compliance.
- i. On a contract-by-contract basis, records to support award data submitted to the sponsoring agency.

10. Timely Payments to Subcontractors

FAR 19.702 requires procedures be established to ensure the timely payment of amounts due pursuant to the terms of your subcontracts with SB, SDB, WOSB, HUBZone, VOSB and SDVOSB.

Your organization has established and implements such procedures:

☒ Yes ☐ No

NRC SMALL BUSINESS SUBCONTRACTING PLAN

PART B: CONTRACT MODIFICATION (continued)

11. Description of Good Faith Effort

Maximum practicable utilization of SB, SDB, WOSB, HUBZone, VOSB, SOVOSB concerns in contract performance is required, FAR 19.702. When a contractor fails to make a good faith effort to comply with a subcontracting plan, these objectives are not achieved, and 15 U.S.C. 637(d) (4) (F) directs that liquidated damages shall be paid by the contractor. In order to demonstrate your compliance with a good faith effort to achieve the SB, SDB, WOSB, HubZone, VOSB and SDVOSB small business subcontracting goals, outline the steps your company plans to take. These steps will be negotiated with the CO/CS prior to approval of the plan and award of any contract. (please describe):

Reference Attached.

PART C: SIGNATURES

Signatures Required:

This subcontracting plan is being submitted by:

NAME & TITLE

Kenneth W. Suter, Contract Analyst

SIGNATURE

Kenneth W. Suter

DATE

01/30/2013

This plan was reviewed, accepted and concurred with by the Contracting Officer, reviewed and concurred with by the agency Small Business Specialist, and reviewed the SBA Procurement Center Representative, if assigned.

CONTRACTING OFFICER NAME & TITLE		<i>Adelis M. Rodriguez</i>	
SIGNATURE	<i>Adelis M. Rodriguez</i>	DATE	<i>2/21/13</i>
SMALL BUSINESS SPECIALIST NAME & TITLE		<i>Anthony Briggs</i>	
SIGNATURE	<i>Anthony Briggs</i>	DATE	<i>2/20/13</i>
SBA PCR NAME & TITLE			
SIGNATURE		DATE	

☒ Acceptable
☐ Non-Acceptable☒ Concur
☐ Non-Concur☐ Concur
☐ Non-Concur